

TECHNICAL AND SAFETY DATA SHEET

Stand. Body / Standard	UNI EN 1676:2020
Alloy Group	AlSi9Cu
Numerical designation	AB 46000
Chemical designation	AlSi19Cu3(Fe)

The present sheet has an information purpose and refers to typical processes.

Aluphoenix Srl will not bear any responsibility for any decision in specific processes assumed basing on it.



CHEMICAL COMPOSITION

Elements	Si	Fe	Cu	Mn	Mg	Zn	Ni	Cr	Pb	Sn	Ti	Be	Ca
Max	11.0	1.1	4.0	0.55	0.55	1.2	0.55	0.15	0.29	0.15	0.20		
Min	8.0	0.6	2.0		0.15								
Elements	Na	P	Sb	Sr	Co	V	Zr			Other each	Other tot.		
Max										0.05	0.25		
Min													

MECHANIC FEATURES ON SEPARATELY CASTED SAMPLES

Process	Treatment State	R Tensile Strenght (Mpa)	S Yeld Strenght (Mpa)	A Elongation (%)	HB Hardness in Brinell (HBW) Ball of 10 mm and 500 Kg
Die casting (Row)	F	240	140	1	90-115

PHYSICAL FEATURES (Indicative values according to the EN AB standard)

Specific weight	2.77 Kg/dm ³	Thermal conduct. from 20 to 200°C	-
Interval of solidification and casting	510 – 615 °C	Thermal conduct. from 20 to 300°C	-
Electrical conductivity	14 – 18 Ms/m	Proper sand-casting interval	-
Thermal conductivity at 20°C	110– 120 W(m K)	Proper shell-casting interval	-
Thermal conduct. from 20 to 100°C	-	Proper die-casting interval	630 – 710 °C

TECHNOLOGICAL FEATURES – QUALITATIVE INFORMATION

Castability	Good	Corrosion resistance	Bad
Weldability	Good	Hot Ultimate tensile strenght	-
Polishing	Sufficient	Hot mechanical strenght	Good
Machining workability	Good	Pressure tightness	Sufficient
Workability after heat treatment	-	Indication for decorative anodiz.	Bad

COMPARISON WITH EQUAL / SIMILAR INTERNATIONAL STANDARDS

	Italy	Germany	France	UK	USA	ISO	Japan
	UNI	DIN 1725/5-86	NFA57-105	BS 1490-88	ASTM B179-82	3522-84	JIS H2211-92
Equal to		226D					
Similar to	5075	226A	AS9U3	LM 24	333.1 – 332.0		

HEAT TREATMENTS – Legend

Temper in hot water 510-530 °C after preheating of min 12 hours for sand casted pieces. Of 8 hours min for shell casted ones	
T4 = Artificial ageing at 150-160°C for about 8 hours	T6 3 = Artificial ageing at 165-175°C for 16 hours
T 6 2 = Artificial ageing at 150-160°C for 8 hours	Anneal at 350-390°C for 4-8 hours

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PRESCRIZIONI DI SICUREZZA

COMPOSITION / INFORMATION ON INGREDIENTS

The Product of Aluphoenix do not overstep concentrations of substances considered by the UE Directive 2002/95/CE. According to the REACH Directive, the AlSi9Cu3(Fe) includes the following substances:

CAS: 7429-90-5 EC/List n°: 231-072-3	Aluminium  Pyr. Sol. 1, H250; Water-react. 2. H261	80.01-87.17%
CAS: 7440-21-3 EC/List n°: 231-130-8	Silicon  Flam. Sol. 2, H228	8.0-11.0%
CAS: 7440-50-8 EC/List n°: 231-159-6	Copper  Flam. Sol. 2, H228; Aq. Acute 1, H400, Acute Tox. 3, H301, Eye Irrit. 2, H319	2.0-4.0%
CAS: 7439-89-6 EC/List n°: 231-096-4	Iron  Flam. Sol. 1, H228; Self-heat. 1. H251	0.6-1.1%
CAS: 7439-95-4 EC/List n°: 231-104-6	Magnesium  Pyr. Sol. 1, H250; Water-react. 1. H260	0.15-0.55%

Labelling according to the UE Reg 1272/2008

HEALTH RISKS

1. No Harmful gas release when solid
2. No fire or explosion risk when solid. Protect from moisture

PRECAUTIONS

1. Risk of cuts by handling the ingots: Use the proper PPE to protect hands and feet
2. Scalding risk by insert the ingots into a hot melting bath: Use the proper PPE to protect face and body
3. Explosions risk by inserting moist ingots into a hot melting bath. Eventual preheat the ingots and in any case use the proper PPE to protect face and body

EXTINGUISHING MEDIA

Use extinguishing medias of class D (CO₂, sand, extinguishing powder).

Do not use water, foam or other halogen media.

PERSONAL PROTECTIVE EQUIPMENT (PPE)

By handling melting aluminium, wear firefighters clothings, protective shoes and proper face shields.

By handling solid but hot aluminium, use proper hot resistant gloves and protective shoes. In any case avoid contact with eyes and skin.

STABILITY AND REACTIVITY

No decomposition if used according to specifications.
Avoid humidity. Reacts with alkali (lyes). React with acids.

PERSISTENCE AND DEGRADABILITY

Persistence: Not relevant for metals
Biological degradability: Not degradable
Bioaccumulation capacity: Not bioaccumulable
Long term ecotoxicity: Not classified for ecotoxicity

TOXICOLOGICAL INFORMATION

Ingestion: Ingestion < 0.1%, practically insoluble into the pulmonary fluids. The most part of the aluminium absorbed would be quickly eliminated through the urine. The
Acute effect: No acute effects
Irritating / corrosive effect on skin: No effects
Irritating / corrosive effect on eyes: No effects. Aluminium particles can irritate eyes due abrasion effect
Carcinogenic: None
Mutagenicity: None
Reproductive toxicity: None
Valuation of CMR properties: Not classified for CMR
Components not listed into IARC / NTP / ACGIH (ingredients carcinogenic)

FIRST AID MEASURES

1. **In case of skin contact with hot solid metal:** Wash the burned area of the body with abundant cold water and apply an anti burn ointment. Cover the area of the body with a sterile gauze. In case of serious burning, bring the person to the nearest hospital
2. **In case of skin contact with hot liquid metal:** Remove the part of the clothings with molten aluminium on them, or those in contact with the burned area of the body. Wash the burned area of the body with abundant cold water and bring the person to the nearest hospital
3. **In case of contact with the eyes:** Wash the eyes with abundant cold and clean water or/and idrate the eye with the proper eye solution. In any case quickly bring the person to the nearest hospital

HAZARDS IDENTIFICATIONS

The piles of Aluphoenix show onto two sides at least, a proper labelling against explosions hazards by inserting ingots into the melting bath, when not completely dried up.



Safety Data Sheet
according to Regulation (EC) No. 1907/2006 (REACH)
according to Regulation (EU) 2020/878



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SECTION 1: Identification of the substance/mixture and of the company/undertaking

1.1. Product identifier

Trade name/designation Trennex W 3351/16

1.2. Relevant identified uses of the substance or mixture and uses advised against

Relevant identified uses

Release agent and lubricant for pressure die casting
For use in industrial installations only.

Uses advised against

Consumer use

1.3. Details of the supplier of the safety data sheet

supplier:

Geiger + Co. Schmierstoff-Chemie GmbH
Postfach 1847
D - 74008 Heilbronn

Telephone: +49 7131 15630
Telefax: +49 7131 156339

Department responsible for information:

hazardous substance management: Dr. Link
E-mail (competent person)

s.link@trennex.de

1.4. Emergency telephone number

Emergency telephone: +49 7131 15630
(Office hours Mo to Fr from 8 a.m. to 4.00 p.m. CET)

SECTION 2: Hazards identification

2.1. Classification of the substance or mixture

Classification according to Regulation (EC) No 1272/2008 [CLP]

The mixture is classified as hazardous according to regulation (EC) No 1272/2008 [CLP].

Skin Sens. 1 / H317

May cause an allergic skin reaction.

Aquatic Chronic 3 / H412

Harmful to aquatic life with long lasting effects.

2.2. Label elements

The product is classified and labelled according to EC directives or corresponding national laws.

Labelling according to Regulation (EC) No. 1272/2008 [CLP]

Hazard pictograms



Warning

Hazard statements

H317

May cause an allergic skin reaction.

H412

Harmful to aquatic life with long lasting effects.

Precautionary statements

P280

Wear protective gloves and eye/face protection.

Hazard components for labelling

Mixture of 2-methyl-2H-isothiazol-3-one and 5-chloro-2-methyl- 2H-isothiazol-3-one

Supplemental hazard information

not applicable

2.3. Other hazards

No information available.

SECTION 3: Composition/information on ingredients

3.2. Mixtures

Description emulsion of polysiloxanes, synthetic hydrocarbons, emulsifiers and water

Classification according to Regulation (EC) No 1272/2008 [CLP]

EC No.

REACH No.

CAS No.

Designation

weight-%

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Index No.	classification: // Remark	
500-241-6 69011-36-5	isotridecanoethoxylate Acute Tox. 4 H302 / Eye Dam. 1 H318 Specific concentration limit (SCL): Eye Irrit. 2 H319 >= 5 / Eye Dam. 1 H318 >= 10	1 - 2
55965-84-9 613-167-00-5	01-2120764691-48 Mixture of 2-methyl-2H-isothiazol-3-one and 5-chloro-2-methyl-2H-isothiazol-3-one Acute Tox. 2 H330 / Acute Tox. 3 H301 / Skin Corr. 1C H314 / Eye Dam. 1 H318 / Skin Sens. 1A H317 / Aquatic Acute 1 H400 (M = 100) / Aquatic Chronic 1 H410 (M = 100) / EUH071 Specific concentration limit (SCL): Skin Corr. 1C H314 >= 0,6 / Skin Irrit. 2 H315 >= 0,06 / Eye Dam. 1 H318 >= 0,6 / Eye Irrit. 2 H319 >= 0,06 / Skin Sens. 1A H317 >= 0,0015 Acute toxicity estimate (ATE): ATE (oral): 472 mg/kg bw / ATE (dermal): 1000 mg/kg bw / ATE (inhalation, vapour): 1,23 mg/L	0,01 - 0,0499

Additional information

Full text of classification: see section 16

SECTION 4: First aid measures

4.1. Description of first aid measures

General information

In all cases of doubt, or when symptoms persist, seek medical advice.

In case of inhalation

Remove casualty to fresh air and keep warm and at rest.

Following skin contact

Take off immediately all contaminated clothing. After contact with skin, wash immediately with plenty of water and soap. Do not use solvents or thinners.

After eye contact

Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing. Seek medical advice immediately.

Following ingestion

If swallowed, rinse mouth with water (only if the person is conscious).

4.2. Most important symptoms and effects, both acute and delayed

In all cases of doubt, or when symptoms persist, seek medical advice.

4.3. Indication of any immediate medical attention and special treatment needed

First Aid, decontamination, treatment of symptoms.

SECTION 5: Firefighting measures

5.1. Extinguishing media

Suitable extinguishing media

alcohol resistant foam, carbon dioxide, Powder, spray mist, (water)

Unsuitable extinguishing media

5.2. Special hazards arising from the substance or mixture

No special measures are necessary.

5.3. Advice for firefighters

No special fire protection measures are necessary.

SECTION 6: Accidental release measures

6.1. Personal precautions, protective equipment and emergency procedures

See protective measures under point 7 and 8.

6.2. Environmental precautions

Do not allow to enter into surface water or drains. If the product contaminates lakes, rivers or sewages, inform competent authorities in accordance with local regulations.

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6.3. Methods and material for containment and cleaning up

Isolate leaked material using non-flammable absorption agent (e.g. sand, earth, vermiculit, diatomaceous earth) and collect it for disposal in appropriate containers in accordance with the local regulations (see section 13). Clean using cleansing agents. Do not use solvents.

6.4. Reference to other sections

Observe protective provisions (see section 7 and 8). Wear eye glasses with side protection according to EN 166.

SECTION 7: Handling and storage

7.1. Precautions for safe handling

Advices on safe handling

Personal protection equipment: refer to section 8. When using do not eat, drink or smoke. Do not empty containers with pressure - no pressure vessel! Follow the legal protection and safety regulations.

Further information

No special measures are required.

7.2. Conditions for safe storage, including any incompatibilities

Requirements for storage rooms and vessels

Keep container tightly closed. Do not empty containers with pressure - no pressure vessel! Store carefully closed containers upright to prevent any leaks.

Hints on joint storage

No special measures are required.

Further information on storage conditions

Take care of instructions on label. Store in a well-ventilated and dry room at temperatures between 5 °C and 40 °C. Protect from heat and direct sunlight.

Protect against: Frost

7.3. Specific end use(s)

Observe technical data sheet. Observe instructions for use.

SECTION 8: Exposure controls/personal protection

8.1. Control parameters

Occupational exposure limit values

not applicable

8.2. Exposure controls

Provide good ventilation. This can be achieved with local or room suction.

Personal protection equipment

Respiratory protection

No special measures are required.

Hand protection

For prolonged or repeated handling the following glove material must be used: NBR (Nitrile rubber)

Thickness of the glove material > 0,4 mm ; Breakthrough time: > 480 min.

Observe the instructions and details for use, storage, maintenance and replacement provided by the protective glove manufacturer. Recommended glove articles EN ISO 374

Barrier creams can help protecting exposed skin areas. In no case should they be used after contact.

Eye/face protection

Wear closely fitting protective glasses in case of splashes.

Body protection

No special measures are required.

Protective measures

After contact clean skin thoroughly with water and soap or use appropriate cleanser.

Environmental exposure controls

Do not allow to enter into surface water or drains. See section 7. No additional measures necessary.

SECTION 9: Physical and chemical properties

9.1. Information on basic physical and chemical properties

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according to Regulation (EU) 2020/878



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Physical state:	Liquid
Colour:	white
Odour:	typical
Odour threshold:	not applicable
Melting point/freezing point:	not determined
Initial boiling point and boiling range:	100 °C
Flammability:	not applicable
Lower and upper explosion limit:	
Lower explosion limit:	not applicable
Upper explosion limit:	not applicable
Flash point:	not applicable
Auto-ignition temperature:	not applicable
Decomposition temperature:	not applicable
pH at 20 °C:	7 - 9 / 100,0 weight-%
Cinematic viscosity (40°C):	< 20 mm²/s
Solubility(ies):	
Water solubility at 20 °C:	completely miscible
Partition coefficient: n-octanol/water:	not determined
Vapour pressure at 20 °C:	not applicable
Density and/or relative density:	
Density at 20 °C:	ca.1.00 g/cm³
Relative vapour density:	not applicable
particle characteristics:	not applicable

9.2. **Other information**

SECTION 10: Stability and reactivity

10.1. **Reactivity**

No known hazardous reactions.

10.2. **Chemical stability**

Stable when applying the recommended regulations for storage and handling. Further information on correct storage: refer to section 7.

10.3. **Possibility of hazardous reactions**

No known hazardous reactions.

10.4. **Conditions to avoid**

Stable when applying the recommended regulations for storage and handling. Further information on correct storage: refer to section 7.

10.5. **Incompatible materials**

No known hazardous reactions.

10.6. **Hazardous decomposition products**

Hazardous decomposition byproducts may form with exposure to high temperatures, e.g.: smoke, nitrogen oxides, carbon monoxide, carbon dioxide

SECTION 11: Toxicological information

11.1. **Information on hazard classes as defined in Regulation (EC) No 1272/2008**

Acute toxicity

Mixture of 2-methyl-2H-isothiazol-3-one and 5-chloro-2-methyl- 2H-isothiazol-3-one
oral, LD50, Rat: 472 mg/kg
dermal, LD50, Rat: > 1.000 mg/kg
inhalative (dust and mist), LC50, Rat: 1,23 mg/L (4 h)

Skin corrosion/irritation; Serious eye damage/eye irritation

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Based on available data, the classification criteria are not met.

Respiratory or skin sensitisation

May cause an allergic skin reaction.

Mixture of 2-methyl-2H-isothiazol-3-one and 5-chloro-2-methyl- 2H-isothiazol-3-one
Skin

CMR effects (carcinogenicity, mutagenicity and toxicity for reproduction)

Based on available data, the classification criteria are not met.

STOT-single exposure; STOT-repeated exposure

Based on available data, the classification criteria are not met.

Aspiration hazard

Based on available data, the classification criteria are not met.

Practical experience/human evidence

Processing vapours can irritate the respiratory tracts, skin and eyes.Has degreasing effect on the skin.

Overall assessment on CMR properties

The ingredients in this mixture do not meet the criteria for classification as CMR category 1A or 1B according to CLP.

Remark

There is no information available on the preparation itself . The preparation has been assessed following the conventional method of the Dangerous Preparations Directive 1999/45/EC and classified according to the toxicological dangers.See chapters 2 and 15 for details.

11.2. Information on other hazards

Endocrine disrupting properties

No information available.

SECTION 12: Ecological information

Classification according to Regulation (EC) No 1272/2008 [CLP]

Do not allow to enter into surface water or drains.

12.1. Toxicity

Mixture of 2-methyl-2H-isothiazol-3-one and 5-chloro-2-methyl- 2H-isothiazol-3-one

Fish toxicity, LC50, Oncorhynchus mykiss (Rainbow trout): 0,22 mg/L (96 h)

Long-term Ecotoxicity

Harmful to aquatic life with long lasting effects.

12.2. Persistence and degradability

Toxicological data are not available.

12.3. Bioaccumulative potential

Toxicological data are not available.

Bioconcentration factor (BCF)

Toxicological data are not available.

12.4. Mobility in soil

Toxicological data are not available.

12.5. Results of PBT and vPvB assessment

The substances in the mixture do not meet the PBT/vPvB criteria according to REACH, annex XIII.

12.6 Endocrine disrupting properties

No information available.

12.7 Other adverse effects

No information available.

SECTION 13: Disposal considerations

13.1. Waste treatment methods

**Appropriate disposal / Product
Recommendation**

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Do not allow to enter undiluted resp. in large quantities into surface water or into drains. This material and its container must be disposed of in a safe way. Waste disposal according to directive 2008/98/EC, covering waste and dangerous waste.

List of proposed waste codes/waste designations in accordance with EWC

130105* non-chlorinated emulsions

*Hazardous waste according to Directive 2008/98/EC (waste framework directive).

Appropriate disposal / Package

Recommendation

Non-contaminated packages may be recycled. Vessels not properly emptied are special waste.

SECTION 14: Transport information

No dangerous good in sense of this transport regulation.

14.1. UN number or ID number

not applicable

14.2. UN proper shipping name

14.3. Transport hazard class(es)

not applicable

14.4. Packing group

not applicable

14.5. Environmental hazards

Land transport (ADR/RID)

not applicable

Marine pollutant

not applicable

14.6. Special precautions for user

Transport always in closed, upright and safe containers. Make sure that persons transporting the product know what to do in case of an accident or leakage.

Advices on safe handling: see parts 6 - 8

Further information

Land transport (ADR/RID)

Tunnel restriction code

-

Sea transport (IMDG)

EmS-No.

not applicable

14.7. Maritime transport in bulk according to IMO instruments

No transport as bulk according IBC - Code.

SECTION 15: Regulatory information

15.1. Safety, health and environmental regulations/legislation specific for the substance or mixture

EU legislation

Chemical safety assessments for substances in this mixture were not carried out.

Directive 2010/75/EU on industrial emissions [Industrial Emissions Directive]

VOC-value (in g/L): 0

Restrictions of occupation

Observe employment restrictions under the Maternity Protection Directive 92/85/EEC or stricter national regulations, if applicable.

Observe restrictions to employment for juveniles according to the 'juvenile work protection guideline' (94/33/EC) or stricter national regulations, if applicable.

15.2. Chemical Safety Assessment

For the following substances of this mixture a chemical safety assessment has been carried out:

EC No. CAS No.	Designation	REACH No.
55965-84-9	Mixture of 2-methyl-2H-isothiazol-3-one and 5-chloro-2-methyl-2H-isothiazol-3-one	01-2120764691-48

SECTION 16: Other information

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Full text of classification in section 3:

Acute Tox. 4 / H302	Acute toxicity (oral)	Harmful if swallowed.
Eye Dam. 1 / H318	Serious eye damage/eye irritation	Causes serious eye damage.
Acute Tox. 2 / H330	Acute toxicity (inhalative)	Fatal if inhaled.
Acute Tox. 2 / H310	Acute toxicity (dermal)	Fatal in contact with skin.
Acute Tox. 3 / H301	Acute toxicity (oral)	Toxic if swallowed.
Skin Corr. 1C / H314	Skin corrosion/irritation	Causes severe skin burns and eye damage.
Skin Sens. 1A / H317	Respiratory or skin sensitisation	May cause an allergic skin reaction.
Aquatic Acute 1 / H400	Hazardous to the aquatic environment	Very toxic to aquatic organisms.
Aquatic Chronic 1 / H410	Hazardous to the aquatic environment	Very toxic to aquatic life with long lasting effects.

Classification procedure

Classification for mixtures and used evaluation method according to regulation (EC) No 1272/2008 [CLP]

Skin Sens. 1	Respiratory or skin sensitisation	Calculation method.
Aquatic Chronic 3	Hazardous to the aquatic environment	Calculation method.

Abbreviations and acronyms

ADR	European Agreement concerning the International Carriage of Dangerous Goods by Road
OEL	Occupational Exposure Limit Value
BLV	Biological Limit Value
CAS	Chemical Abstracts Service
CLP	Classification, Labelling and Packaging
CMR	Carcinogenic, Mutagenic and Reprotoxic
DIN	German Institute for Standardization / German industrial standard
DNEL	Derived No-Effect Level
EAKV	European Waste Catalogue Directive
EC	Effective Concentration
EC	European Community
EN	European Standard
IATA-DGR	International Air Transport Association – Dangerous Goods Regulations
IBC Code	International Code for the Construction and Equipment of Ships carrying Dangerous Chemicals in Bulk
ICAO-TI	International Civil Aviation Organization Technical Instructions for the Safe Transport of Dangerous Goods by Air
IMDG Code	International Maritime Code for Dangerous Goods
ISO	International Organization for Standardization
LC	Lethal Concentration
LD	Lethal Dose
MARPOL	Maritime Pollution: The International Convention for the Prevention of Pollution from Ships
OECD	Organisation for Economic Cooperation and Development
PBT	persistent, bioaccumulative, toxic
PNEC	Predicted No Effect Concentration
REACH	Registration, Evaluation, Authorisation and Restriction of Chemicals
RID	Regulations concerning the International Carriage of Dangerous Goods by Rail
UN	United Nations
VOC	Volatile Organic Compounds
vPvB	very persistent and very bioaccumulative

Further information

Classification according to Regulation (EC) No 1272/2008 [CLP]

The information supplied on this safety data sheet complies with our current level of knowledge as well as with national and EU regulations. Without written approval, the product must not be used for purposes different from those mentioned in section 1. It is always the user's duty to take any necessary measures for meeting the requirements laid down by local rules and regulations. The details in this safety data sheet describe the safety requirements of our product and are not to be regarded as guaranteed attributes of the product.

SAFETY DATA SHEET

Nitrogen

Airgas
an Air Liquide company

Section 1. Identification

GHS product identifier	: Nitrogen
Chemical name	: nitrogen
Other means of identification	: nitrogen (dot); nitrogen gas; Nitrogen NF, Nitrogen FG
Product type	: Gas.
Product use	: Synthetic/Analytical chemistry.
Synonym	: nitrogen (dot); nitrogen gas; Nitrogen NF, Nitrogen FG
SDS #	: 001040
Supplier's details	: Airgas USA, LLC and its affiliates 259 North Radnor-Chester Road Suite 100 Radnor, PA 19087-5283 1-610-687-5253
24-hour telephone	: 1-866-734-3438

Section 2. Hazards identification

OSHA/HCS status	: This material is considered hazardous by the OSHA Hazard Communication Standard (29 CFR 1910.1200).
Classification of the substance or mixture	: GASES UNDER PRESSURE - Compressed gas SIMPLE ASPHYXIANTS

GHS label elements

Hazard pictograms

:



Signal word

: Warning

Hazard statements

: Contains gas under pressure; may explode if heated.
May displace oxygen and cause rapid suffocation.
May displace oxygen and cause rapid suffocation.

Precautionary statements

General

: Read and follow all Safety Data Sheets (SDS'S) before use. Read label before use. Keep out of reach of children. If medical advice is needed, have product container or label at hand. Close valve after each use and when empty. Use equipment rated for cylinder pressure. Do not open valve until connected to equipment prepared for use. Use a back flow preventative device in the piping. Use only equipment of compatible materials of construction.

Prevention

: Not applicable.

Response

: Not applicable.

Storage

: Protect from sunlight. Store in a well-ventilated place.

Disposal

: Not applicable.

Supplemental label elements

: Keep container tightly closed. Use only with adequate ventilation. Do not enter storage areas and confined spaces unless adequately ventilated.

Hazards not otherwise classified

: In addition to any other important health or physical hazards, this product may displace oxygen and cause rapid suffocation.

Section 3. Composition/information on ingredients

Substance/mixture	: Substance
Chemical name	: nitrogen
Other means of identification	: nitrogen (dot); nitrogen gas; Nitrogen NF, Nitrogen FG
Product code	: 001040

CAS number/other identifiers

CAS number : 7727-37-9

Ingredient name	%	CAS number
Nitrogen	100	7727-37-9

Any concentration shown as a range is to protect confidentiality or is due to batch variation.

There are no additional ingredients present which, within the current knowledge of the supplier and in the concentrations applicable, are classified as hazardous to health or the environment and hence require reporting in this section.

Occupational exposure limits, if available, are listed in Section 8.

Section 4. First aid measures

Description of necessary first aid measures

Eye contact	: Immediately flush eyes with plenty of water, occasionally lifting the upper and lower eyelids. Check for and remove any contact lenses. Continue to rinse for at least 10 minutes. Get medical attention if irritation occurs.
Inhalation	: Remove victim to fresh air and keep at rest in a position comfortable for breathing. If it is suspected that fumes are still present, the rescuer should wear an appropriate mask or self-contained breathing apparatus. If not breathing, if breathing is irregular or if respiratory arrest occurs, provide artificial respiration or oxygen by trained personnel. It may be dangerous to the person providing aid to give mouth-to-mouth resuscitation. Get medical attention if adverse health effects persist or are severe. If unconscious, place in recovery position and get medical attention immediately. Maintain an open airway. Loosen tight clothing such as a collar, tie, belt or waistband. In case of inhalation of decomposition products in a fire, symptoms may be delayed. The exposed person may need to be kept under medical surveillance for 48 hours.
Skin contact	: Flush contaminated skin with plenty of water. Remove contaminated clothing and shoes. Get medical attention if symptoms occur. Wash clothing before reuse. Clean shoes thoroughly before reuse.
Ingestion	: As this product is a gas, refer to the inhalation section.

Most important symptoms/effects, acute and delayed

Potential acute health effects

Eye contact	: Contact with rapidly expanding gas may cause burns or frostbite.
Inhalation	: At very high concentrations, can displace the normal air and cause suffocation from lack of oxygen.
Skin contact	: Contact with rapidly expanding gas may cause burns or frostbite.
Frostbite	: Try to warm up the frozen tissues and seek medical attention.
Ingestion	: As this product is a gas, refer to the inhalation section.

Over-exposure signs/symptoms

Eye contact	: No specific data.
Inhalation	: No specific data.
Skin contact	: No specific data.
Ingestion	: No specific data.

Indication of immediate medical attention and special treatment needed, if necessary

Section 4. First aid measures

- Notes to physician** : In case of inhalation of decomposition products in a fire, symptoms may be delayed. The exposed person may need to be kept under medical surveillance for 48 hours.
- Specific treatments** : No specific treatment.
- Protection of first-aiders** : No action shall be taken involving any personal risk or without suitable training. If it is suspected that fumes are still present, the rescuer should wear an appropriate mask or self-contained breathing apparatus. It may be dangerous to the person providing aid to give mouth-to-mouth resuscitation.

See toxicological information (Section 11)

Section 5. Fire-fighting measures

Extinguishing media

Suitable extinguishing media : Use an extinguishing agent suitable for the surrounding fire.

Unsuitable extinguishing media : None known.

Specific hazards arising from the chemical : Contains gas under pressure. In a fire or if heated, a pressure increase will occur and the container may burst or explode.

Hazardous thermal decomposition products : Decomposition products may include the following materials:
nitrogen oxides

Special protective actions for fire-fighters : Promptly isolate the scene by removing all persons from the vicinity of the incident if there is a fire. No action shall be taken involving any personal risk or without suitable training. Contact supplier immediately for specialist advice. Move containers from fire area if this can be done without risk. Use water spray to keep fire-exposed containers cool.

Special protective equipment for fire-fighters : Fire-fighters should wear appropriate protective equipment and self-contained breathing apparatus (SCBA) with a full face-piece operated in positive pressure mode.

Section 6. Accidental release measures

Personal precautions, protective equipment and emergency procedures

For non-emergency personnel : No action shall be taken involving any personal risk or without suitable training. Evacuate surrounding areas. Keep unnecessary and unprotected personnel from entering. Avoid breathing gas. Provide adequate ventilation. Wear appropriate respirator when ventilation is inadequate. Put on appropriate personal protective equipment.

For emergency responders : If specialized clothing is required to deal with the spillage, take note of any information in Section 8 on suitable and unsuitable materials. See also the information in "For non-emergency personnel".

Environmental precautions : Ensure emergency procedures to deal with accidental gas releases are in place to avoid contamination of the environment. Inform the relevant authorities if the product has caused environmental pollution (sewers, waterways, soil or air).

Methods and materials for containment and cleaning up

Small spill : Immediately contact emergency personnel. Stop leak if without risk.

Large spill : Immediately contact emergency personnel. Stop leak if without risk. Note: see Section 1 for emergency contact information and Section 13 for waste disposal.

Section 7. Handling and storage

Precautions for safe handling

- Protective measures** : Put on appropriate personal protective equipment (see Section 8). Contains gas under pressure. Avoid breathing gas. Use only with adequate ventilation. Wear appropriate respirator when ventilation is inadequate. Do not puncture or incinerate container. Use equipment rated for cylinder pressure. Close valve after each use and when empty. Protect cylinders from physical damage; do not drag, roll, slide, or drop. Use a suitable hand truck for cylinder movement.
- Avoid contact with eyes, skin and clothing. Empty containers retain product residue and can be hazardous.

- Advice on general occupational hygiene** : Eating, drinking and smoking should be prohibited in areas where this material is handled, stored and processed. Workers should wash hands and face before eating, drinking and smoking. Remove contaminated clothing and protective equipment before entering eating areas. See also Section 8 for additional information on hygiene measures.

- Conditions for safe storage, including any incompatibilities** : Store in accordance with local regulations. Store in a segregated and approved area. Store away from direct sunlight in a dry, cool and well-ventilated area, away from incompatible materials (see Section 10). Cylinders should be stored upright, with valve protection cap in place, and firmly secured to prevent falling or being knocked over. Cylinder temperatures should not exceed 52 °C (125 °F). Keep container tightly closed and sealed until ready for use. See Section 10 for incompatible materials before handling or use.

Section 8. Exposure controls/personal protection

Control parameters

Occupational exposure limits

Ingredient name	Exposure limits
Nitrogen	ACGIH TLV (United States, 3/2019). Oxygen Depletion [Asphyxiant].

- Appropriate engineering controls** : Use only with adequate ventilation. Use process enclosures, local exhaust ventilation or other engineering controls to keep worker exposure to airborne contaminants below any recommended or statutory limits.

- Environmental exposure controls** : Emissions from ventilation or work process equipment should be checked to ensure they comply with the requirements of environmental protection legislation. In some cases, fume scrubbers, filters or engineering modifications to the process equipment will be necessary to reduce emissions to acceptable levels.

Individual protection measures

- Hygiene measures** : Wash hands, forearms and face thoroughly after handling chemical products, before eating, smoking and using the lavatory and at the end of the working period. Appropriate techniques should be used to remove potentially contaminated clothing. Wash contaminated clothing before reusing. Ensure that eyewash stations and safety showers are close to the workstation location.

- Eye/face protection** : Safety eyewear complying with an approved standard should be used when a risk assessment indicates this is necessary to avoid exposure to liquid splashes, mists, gases or dusts. If contact is possible, the following protection should be worn, unless the assessment indicates a higher degree of protection: safety glasses with side-shields.

Skin protection

- Hand protection** : Chemical-resistant, impervious gloves complying with an approved standard should be worn at all times when handling chemical products if a risk assessment indicates this is necessary. Considering the parameters specified by the glove manufacturer, check during use that the gloves are still retaining their protective properties. It should be noted that the time to breakthrough for any glove material may be different for different glove manufacturers. In the case of mixtures, consisting of several substances, the protection time of the gloves cannot be accurately estimated.

Section 8. Exposure controls/personal protection

- Body protection** : Personal protective equipment for the body should be selected based on the task being performed and the risks involved and should be approved by a specialist before handling this product.
- Other skin protection** : Appropriate footwear and any additional skin protection measures should be selected based on the task being performed and the risks involved and should be approved by a specialist before handling this product.
- Respiratory protection** : The gas can cause asphyxiation without warning by replacing the oxygen in the air. Based on the hazard and potential for exposure, select a respirator that meets the appropriate standard or certification. If operating conditions cause high gas concentrations to be produced or any recommended or statutory exposure limit is exceeded, use an air-fed respirator or self-contained breathing apparatus. Respirators must be used according to a respiratory protection program to ensure proper fitting, training, and other important aspects of use. Respirator selection must be based on known or anticipated exposure levels, the hazards of the product and the safe working limits of the selected respirator.

Section 9. Physical and chemical properties

Appearance

- Physical state** : Gas. [Compressed gas.]
- Color** : Colorless.
- Odor** : Odorless.
- Odor threshold** : Not available.
- pH** : Not available.
- Melting point** : -210.01°C (-346°F)
- Boiling point** : -196°C (-320.8°F)
- Critical temperature** : -146.95°C (-232.5°F)
- Flash point** : [Product does not sustain combustion.]
- Evaporation rate** : Not available.
- Flammability (solid, gas)** : Not available.
- Lower and upper explosive (flammable) limits** : Not available.
- Vapor pressure** : Not available.
- Vapor density** : 0.967 (Air = 1) Liquid Density@BP: 50.46 lb/ft³ (808.3 kg/m³)
- Specific Volume (ft³/lb)** : 13.8889
- Gas Density (lb/ft³)** : 0.072
- Relative density** : Not applicable.
- Solubility** : Not available.
- Solubility in water** : Not available.
- Partition coefficient: n-octanol/water** : 0.67
- Auto-ignition temperature** : Not available.
- Decomposition temperature** : Not available.
- Viscosity** : Not applicable.
- Flow time (ISO 2431)** : Not available.
- Molecular weight** : 28.02 g/mole

Section 10. Stability and reactivity

Reactivity	: No specific test data related to reactivity available for this product or its ingredients.
Chemical stability	: The product is stable.
Possibility of hazardous reactions	: Under normal conditions of storage and use, hazardous reactions will not occur.
Conditions to avoid	: Do not allow gas to accumulate in low or confined areas.
Incompatible materials	: No specific data.
Hazardous decomposition products	: Under normal conditions of storage and use, hazardous decomposition products should not be produced.
Hazardous polymerization	: Under normal conditions of storage and use, hazardous polymerization will not occur.

Section 11. Toxicological information

Information on toxicological effects

Acute toxicity

Not available.

Irritation/Corrosion

Not available.

Sensitization

Not available.

Mutagenicity

Not available.

Carcinogenicity

Not available.

Reproductive toxicity

Not available.

Teratogenicity

Not available.

Specific target organ toxicity (single exposure)

Not available.

Specific target organ toxicity (repeated exposure)

Not available.

Aspiration hazard

Not available.

Information on the likely routes of exposure : Not available.

Potential acute health effects

Eye contact : Contact with rapidly expanding gas may cause burns or frostbite.

Inhalation : At very high concentrations, can displace the normal air and cause suffocation from lack of oxygen.

Section 11. Toxicological information

- Skin contact** : Contact with rapidly expanding gas may cause burns or frostbite.
Ingestion : As this product is a gas, refer to the inhalation section.

Symptoms related to the physical, chemical and toxicological characteristics

- Eye contact** : No specific data.
Inhalation : No specific data.
Skin contact : No specific data.
Ingestion : No specific data.

Delayed and immediate effects and also chronic effects from short and long term exposure

Short term exposure

- Potential immediate effects** : Not available.
Potential delayed effects : Not available.

Long term exposure

- Potential immediate effects** : Not available.
Potential delayed effects : Not available.

Potential chronic health effects

Not available.

- General** : No known significant effects or critical hazards.
Carcinogenicity : No known significant effects or critical hazards.
Mutagenicity : No known significant effects or critical hazards.
Teratogenicity : No known significant effects or critical hazards.
Developmental effects : No known significant effects or critical hazards.
Fertility effects : No known significant effects or critical hazards.

Numerical measures of toxicity

Acute toxicity estimates

Not available.

Section 12. Ecological information

Toxicity

Not available.

Persistence and degradability

Not available.

Bioaccumulative potential

Product/ingredient name	LogP _{ow}	BCF	Potential
Nitrogen	0.67	-	low

Mobility in soil

- Soil/water partition coefficient (K_{oc})** : Not available.






Section 12. Ecological information

Other adverse effects : No known significant effects or critical hazards.

Section 13. Disposal considerations

Disposal methods : The generation of waste should be avoided or minimized wherever possible. Disposal of this product, solutions and any by-products should at all times comply with the requirements of environmental protection and waste disposal legislation and any regional local authority requirements. Dispose of surplus and non-recyclable products via a licensed waste disposal contractor. Waste should not be disposed of untreated to the sewer unless fully compliant with the requirements of all authorities with jurisdiction. Empty Airgas-owned pressure vessels should be returned to Airgas. Waste packaging should be recycled. Incineration or landfill should only be considered when recycling is not feasible. This material and its container must be disposed of in a safe way. Empty containers or liners may retain some product residues. Do not puncture or incinerate container.

Section 14. Transport information

	DOT	TDG	Mexico	IMDG	IATA
UN number	UN1066	UN1066	UN1066	UN1066	UN1066
UN proper shipping name	NITROGEN, COMPRESSED	NITROGEN, COMPRESSED	NITROGEN, COMPRESSED	NITROGEN, COMPRESSED	NITROGEN, COMPRESSED
Transport hazard class(es)	2.2 	2.2 	2.2 	2.2 	2.2 
Packing group	-	-	-	-	-
Environmental hazards	No.	No.	No.	No.	No.

“Refer to CFR 49 (or authority having jurisdiction) to determine the information required for shipment of the product.”

Additional information

DOT Classification : **Limited quantity** Yes.
Quantity limitation Passenger aircraft/rail: 75 kg. Cargo aircraft: 150 kg.

TDG Classification : Product classified as per the following sections of the Transportation of Dangerous Goods Regulations: 2.13-2.17 (Class 2).
Explosive Limit and Limited Quantity Index 0.125
Passenger Carrying Road or Rail Index 75

IATA : **Quantity limitation** Passenger and Cargo Aircraft: 75 kg. Cargo Aircraft Only: 150 kg.

Special precautions for user : **Transport within user's premises:** always transport in closed containers that are upright and secure. Ensure that persons transporting the product know what to do in the event of an accident or spillage.

Transport in bulk according to IMO instruments : Not available.

Section 15. Regulatory information

U.S. Federal regulations : TSCA 8(a) CDR Exempt/Partial exemption: This material is listed or exempted.

Clean Air Act Section 112 (b) Hazardous Air Pollutants (HAPs) : Not listed

Clean Air Act Section 602 Class I Substances : Not listed

Clean Air Act Section 602 Class II Substances : Not listed

DEA List I Chemicals (Precursor Chemicals) : Not listed

DEA List II Chemicals (Essential Chemicals) : Not listed

SARA 302/304

Composition/information on ingredients

No products were found.

SARA 304 RQ : Not applicable.

SARA 311/312

Classification : Refer to Section 2: Hazards Identification of this SDS for classification of substance.

State regulations

Massachusetts : This material is listed.

New York : This material is not listed.

New Jersey : This material is listed.

Pennsylvania : This material is listed.

California Prop. 65

This product does not require a Safe Harbor warning under California Prop. 65.

International regulations

Chemical Weapon Convention List Schedules I, II & III Chemicals

Not listed.

Montreal Protocol

Not listed.

Stockholm Convention on Persistent Organic Pollutants

Not listed.

Rotterdam Convention on Prior Informed Consent (PIC)

Not listed.

UNECE Aarhus Protocol on POPs and Heavy Metals

Not listed.

Inventory list

Australia : This material is listed or exempted.

Canada : This material is listed or exempted.

China : This material is listed or exempted.

Europe : This material is listed or exempted.

Japan : **Japan inventory (ENCS)**: Not determined.
Japan inventory (ISHL): Not determined.

New Zealand : This material is listed or exempted.

Philippines : This material is listed or exempted.

Section 15. Regulatory information

Republic of Korea	: This material is listed or exempted.
Taiwan	: This material is listed or exempted.
Thailand	: Not determined.
Turkey	: Not determined.
United States	: This material is active or exempted.
Viet Nam	: This material is listed or exempted.

Section 16. Other information

Hazardous Material Information System (U.S.A.)

Health	/	0
Flammability		0
Physical hazards		3

Caution: HMIS® ratings are based on a 0-4 rating scale, with 0 representing minimal hazards or risks, and 4 representing significant hazards or risks. Although HMIS® ratings and the associated label are not required on SDSs or products leaving a facility under 29 CFR 1910.1200, the preparer may choose to provide them. HMIS® ratings are to be used with a fully implemented HMIS® program. HMIS® is a registered trademark and service mark of the American Coatings Association, Inc.

The customer is responsible for determining the PPE code for this material. For more information on HMIS® Personal Protective Equipment (PPE) codes, consult the HMIS® Implementation Manual.

National Fire Protection Association (U.S.A.)



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Copyright ©2001, National Fire Protection Association, Quincy, MA 02269. This warning system is intended to be interpreted and applied only by properly trained individuals to identify fire, health and reactivity hazards of chemicals. The user is referred to certain limited number of chemicals with recommended classifications in NFPA 49 and NFPA 325, which would be used as a guideline only. Whether the chemicals are classified by NFPA or not, anyone using the 704 systems to classify chemicals does so at their own risk.

Procedure used to derive the classification

Classification	Justification
GASES UNDER PRESSURE - Compressed gas	Expert judgment
SIMPLE ASPHYXIANTS	Expert judgment

History

Date of printing	: 8/31/2021
Date of issue/Date of revision	: 8/31/2021
Date of previous issue	: 4/30/2019
Version	: 1.04
Key to abbreviations	: ATE = Acute Toxicity Estimate BCF = Bioconcentration Factor GHS = Globally Harmonized System of Classification and Labelling of Chemicals IATA = International Air Transport Association IBC = Intermediate Bulk Container IMDG = International Maritime Dangerous Goods LogPow = logarithm of the octanol/water partition coefficient

Section 16. Other information

MARPOL = International Convention for the Prevention of Pollution From Ships, 1973 as modified by the Protocol of 1978. ("Marpol" = marine pollution)

UN = United Nations

References

: Not available.

Notice to reader

To the best of our knowledge, the information contained herein is accurate. However, neither the above-named supplier, nor any of its subsidiaries, assumes any liability whatsoever for the accuracy or completeness of the information contained herein.

Final determination of suitability of any material is the sole responsibility of the user. All materials may present unknown hazards and should be used with caution. Although certain hazards are described herein, we cannot guarantee that these are the only hazards that exist.

SAFETY DATA SHEET



Hydraulic Oil 68

SECTION 1: Identification of the substance/mixture and of the company/undertaking

Product identifier Hydraulic Oil 68
SDS # 460935
Code 460935-AR08

Relevant identified uses of the substance or mixture and uses advised against

Product use Hydraulic fluid.
For specific application advice see appropriate Technical Data Sheet or consult our company representative.

Manufacturer BP Lubricants USA Inc.
1500 Valley Road
Wayne, NJ 07470
Telephone: +1-888-CASTROL
Product Information: +1-877-641-1600

Supplier PAN AMERICAN ENERGY LLC, SUCURSAL
ARGENTINA AV. LEANDRO N. ALEM 1180
PISO 11 – C1001AAT
CIUDAD AUTÓNOMA DE BUENOS AIRES.

EMERGENCY HEALTH INFORMATION: Consultas Técnicas 0800-888-8088
TELÉFONO PARA EMERGENCIAS (24 HORAS) CIQUIME: 0800-222-2933
+1-800-424-9300 (CHEMTREC USA)
+1-703-527-3887 (CHEMTREC outside the US)

EMERGENCY TELEPHONE NUMBER

SECTION 2: Hazards identification

Classification of the substance or mixture Not classified.

GHS label elements

Signal word No signal word.

Hazard statements No known significant effects or critical hazards.

Precautionary statements

Prevention Not applicable.

Response Not applicable.

Storage Not applicable.

Disposal Not applicable.

Other hazards which do not result in classification Defatting to the skin.
Note: High Pressure Applications
Injections through the skin resulting from contact with the product at high pressure constitute a major medical emergency.
See 'Notes to physician' under First-Aid Measures, Section 4 of this Safety Data Sheet.

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SECTION 3: Composition/information on ingredients

Substance/mixture Mixture

Highly refined base oil (IP 346 DMSO extract < 3%). Proprietary performance additives.

Other means of identification Not available.

Ingredient name	CAS number	%
Base oil - highly refined	Varies - See Key to abbreviations	≥50 - ≤75
Distillates (petroleum), solvent-refined heavy paraffinic	64741-88-4	≥25 - ≤50
2,6-di-tert-butylphenol	128-39-2	<0.25

There are no additional ingredients present which, within the current knowledge of the supplier and in the concentrations applicable, are classified as hazardous to health or the environment and hence require reporting in this section.

Occupational exposure limits, if available, are listed in Section 8.

SECTION 4: First aid measures

Description of necessary first aid measures

Eye contact	In case of contact, immediately flush eyes with plenty of water for at least 15 minutes. Eyelids should be held away from the eyeball to ensure thorough rinsing. Check for and remove any contact lenses. Get medical attention.
Skin contact	Wash skin thoroughly with soap and water or use recognized skin cleanser. Remove contaminated clothing and shoes. Wash clothing before reuse. Clean shoes thoroughly before reuse. Get medical attention if symptoms occur.
Inhalation	If inhaled, remove to fresh air. Get medical attention if symptoms occur.
Ingestion	Do not induce vomiting unless directed to do so by medical personnel. Get medical attention if symptoms occur.
Protection of first-aiders	No action shall be taken involving any personal risk or without suitable training.

Most important symptoms/effects, acute and delayed

See Section 11 for more detailed information on health effects and symptoms.

Indication of immediate medical attention and special treatment needed, if necessary

Notes to physician	Treatment should in general be symptomatic and directed to relieving any effects. Note: High Pressure Applications Injections through the skin resulting from contact with the product at high pressure constitute a major medical emergency. Injuries may not appear serious at first but within a few hours tissue becomes swollen, discolored and extremely painful with extensive subcutaneous necrosis. Surgical exploration should be undertaken without delay. Thorough and extensive debridement of the wound and underlying tissue is necessary to minimize tissue loss and prevent or limit permanent damage. Note that high pressure may force the product considerable distances along tissue planes.
Specific treatments	No specific treatment.

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SECTION 5: Firefighting measures

Extinguishing media

Suitable extinguishing media In case of fire, use foam, dry chemical or carbon dioxide extinguisher or spray.

Unsuitable extinguishing media Do not use water jet.

Specific hazards arising from the chemical

In a fire or if heated, a pressure increase will occur and the container may burst.

Hazardous thermal decomposition products

Combustion products may include the following:
carbon oxides (CO, CO₂) (carbon monoxide, carbon dioxide)

Special protective actions for fire-fighters

No action shall be taken involving any personal risk or without suitable training. Promptly isolate the scene by removing all persons from the vicinity of the incident if there is a fire.

Special protective equipment for fire-fighters

Fire-fighters should wear positive pressure self-contained breathing apparatus (SCBA) and full turnout gear.

SECTION 6: Accidental release measures

Personal precautions, protective equipment and emergency procedures

For non-emergency personnel No action shall be taken involving any personal risk or without suitable training. Evacuate surrounding areas. Keep unnecessary and unprotected personnel from entering. Do not touch or walk through spilled material. Put on appropriate personal protective equipment. Floors may be slippery; use care to avoid falling.

For emergency responders If specialized clothing is required to deal with the spillage, take note of any information in Section 8 on suitable and unsuitable materials. See also the information in "For non-emergency personnel".

Environmental precautions

Avoid dispersal of spilled material and runoff and contact with soil, waterways, drains and sewers. Inform the relevant authorities if the product has caused environmental pollution (sewers, waterways, soil or air).

Methods and materials for containment and cleaning up

Small spill Stop leak if without risk. Move containers from spill area. Absorb with an inert material and place in an appropriate waste disposal container. Dispose of via a licensed waste disposal contractor.

Large spill Stop leak if without risk. Move containers from spill area. Prevent entry into sewers, water courses, basements or confined areas. Contain and collect spillage with non-combustible, absorbent material e.g. sand, earth, vermiculite or diatomaceous earth and place in container for disposal according to local regulations. Dispose of via a licensed waste disposal contractor.

SECTION 7: Handling and storage

Precautions for safe handling

Protective measures Put on appropriate personal protective equipment (see Section 8).

Advice on general occupational hygiene Eating, drinking and smoking should be prohibited in areas where this material is handled, stored and processed. Wash thoroughly after handling. Remove contaminated clothing and protective equipment before entering eating areas. See also Section 8 for additional information on hygiene measures.

SECTION 7: Handling and storage

Conditions for safe storage, including any incompatibilities

Store in accordance with local regulations. Store in original container protected from direct sunlight in a dry, cool and well-ventilated area, away from incompatible materials (see Section 10) and food and drink. Keep container tightly closed and sealed until ready for use. Store and use only in equipment/containers designed for use with this product. Containers that have been opened must be carefully resealed and kept upright to prevent leakage. Do not store in unlabeled containers. Use appropriate containment to avoid environmental contamination.


Not suitable

Prolonged exposure to elevated temperature

SECTION 8: Exposure controls/personal protection

Control parameters

Occupational exposure limits

Ingredient name	Exposure limits
 Base oil - highly refined Distillates (petroleum), solvent-refined heavy paraffinic	Ministry of Labor, Employment and Social Security. Argentina (Resolution 295,11/2003) (Argentina). TWA: 5 mg/m ³ 8 hours. Issued/Revised: 11/2003 Form: mist STEL: 10 mg/m ³ 15 minutes. Issued/Revised: 11/2003 Form: mist Ministry of Labor, Employment and Social Security. Argentina (Resolution 295,11/2003) (Argentina). TWA: 5 mg/m ³ 8 hours. Issued/Revised: 11/2003 Form: mist STEL: 10 mg/m ³ 15 minutes. Issued/Revised: 11/2003 Form: mist

While specific OELs for certain components may be shown in this section, other components may be present in any mist, vapor or dust produced. Therefore, the specific OELs may not be applicable to the product as a whole and are provided for guidance only.

Appropriate engineering controls

All activities involving chemicals should be assessed for their risks to health, to ensure exposures are adequately controlled. Personal protective equipment should only be considered after other forms of control measures (e.g. engineering controls) have been suitably evaluated. Personal protective equipment should conform to appropriate standards, be suitable for use, be kept in good condition and properly maintained.

Your supplier of personal protective equipment should be consulted for advice on selection and appropriate standards. For further information contact your national organisation for standards.

Provide exhaust ventilation or other engineering controls to keep the relevant airborne concentrations below their respective occupational exposure limits.

The final choice of protective equipment will depend upon a risk assessment. It is important to ensure that all items of personal protective equipment are compatible.

Environmental exposure controls

Emissions from ventilation or work process equipment should be checked to ensure they comply with the requirements of environmental protection legislation. In some cases, fume scrubbers, filters or engineering modifications to the process equipment will be necessary to reduce emissions to acceptable levels.

Individual protection measures

Hygiene measures

Wash hands, forearms and face thoroughly after handling chemical products, before eating, smoking and using the lavatory and at the end of the working period. Appropriate techniques should be used to remove potentially contaminated clothing. Wash contaminated clothing before reusing. Ensure that eyewash stations and safety showers are close to the workstation location.

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SECTION 8: Exposure controls/personal protection

Eye/face protection

Safety glasses with side shields.

Skin protection

Hand protection

Wear protective gloves if prolonged or repeated contact is likely. Wear chemical resistant gloves. Recommended: Nitrile gloves. The correct choice of protective gloves depends upon the chemicals being handled, the conditions of work and use, and the condition of the gloves (even the best chemically resistant glove will break down after repeated chemical exposures). Most gloves provide only a short time of protection before they must be discarded and replaced. Because specific work environments and material handling practices vary, safety procedures should be developed for each intended application. Gloves should therefore be chosen in consultation with the supplier/manufacturer and with a full assessment of the working conditions.

Body protection

Use of protective clothing is good industrial practice. Personal protective equipment for the body should be selected based on the task being performed and the risks involved and should be approved by a specialist before handling this product. Cotton or polyester/cotton overalls will only provide protection against light superficial contamination that will not soak through to the skin. Overalls should be laundered on a regular basis. When the risk of skin exposure is high (e.g. when cleaning up spillages or if there is a risk of splashing) then chemical resistant aprons and/or impervious chemical suits and boots will be required.

Other skin protection

Appropriate footwear and any additional skin protection measures should be selected based on the task being performed and the risks involved and should be approved by a specialist before handling this product.

Respiratory protection

In case of insufficient ventilation, wear suitable respiratory equipment. The correct choice of respiratory protection depends upon the chemicals being handled, the conditions of work and use, and the condition of the respiratory equipment. Safety procedures should be developed for each intended application. Respiratory protection equipment should therefore be chosen in consultation with the supplier/manufacturer and with a full assessment of the working conditions.

SECTION 9: Physical and chemical properties

Appearance

Physical state

Liquid.

Color

Amber.

Odor

Not available.

Odor threshold

Not available.

pH

Not available.

Melting point

Not available.

Boiling point

Not available.

Flash point

Open cup: >195°C (>383°F) [Cleveland.]

Pour point

24 °C

Evaporation rate

Not available.

Flammability (solid, gas)

Not applicable. Based on - Physical state

Lower and upper explosive (flammable) limits

Not available.

Vapor pressure

Not available.

Vapor density

Not available.

Density

<1000 kg/m³ (<1 g/cm³) at 15°C

Solubility

insoluble in water.

Partition coefficient: n-octanol/water

Not available.

Auto-ignition temperature

Not available.

Product name Hydraulic Oil 68

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SECTION 9: Physical and chemical properties

Decomposition temperature	Not available.
Viscosity	Kinematic: 68 mm ² /s (68 cSt) at 40°C Kinematic: 8.77 mm ² /s (8.77 cSt) at 100°C

SECTION 10: Stability and reactivity

Reactivity	No specific test data available for this product. Refer to Conditions to avoid and Incompatible materials for additional information.
Chemical stability	The product is stable.
Possibility of hazardous reactions	Under normal conditions of storage and use, hazardous reactions will not occur. Under normal conditions of storage and use, hazardous polymerization will not occur.
Conditions to avoid	Avoid all possible sources of ignition (spark or flame).
Incompatible materials	Reactive or incompatible with the following materials: oxidizing materials.
Hazardous decomposition products	Under normal conditions of storage and use, hazardous decomposition products should not be produced.

SECTION 11: Toxicological information

Information on toxicological effects

Information on the likely routes of exposure	Routes of entry anticipated: Dermal, Inhalation.
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Potential acute health effects

Eye contact	No known significant effects or critical hazards.
Skin contact	Defatting to the skin. May cause skin dryness and irritation.
Inhalation	Vapor inhalation under ambient conditions is not normally a problem due to low vapor pressure.
Ingestion	No known significant effects or critical hazards.

Symptoms related to the physical, chemical and toxicological characteristics

Eye contact	No specific data.
Skin contact	Adverse symptoms may include the following: irritation dryness cracking
Inhalation	No specific data.
Ingestion	No specific data.

Delayed and immediate effects and also chronic effects from short and long term exposure

Short term exposure

Potential immediate effects	Not available.
Potential delayed effects	Not available.

Long term exposure

Potential immediate effects	Not available.
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SECTION 11: Toxicological information

Potential delayed effects Not available.

Potential chronic health effects

General	No known significant effects or critical hazards.
Carcinogenicity	No known significant effects or critical hazards.
Mutagenicity	No known significant effects or critical hazards.
Teratogenicity	No known significant effects or critical hazards.
Developmental effects	No known significant effects or critical hazards.
Fertility effects	No known significant effects or critical hazards.

Numerical measures of toxicity

Acute toxicity estimates

Route


Not available.

SECTION 12: Ecological information

Toxicity

Environmental effects No known significant effects or critical hazards.

Persistence and degradability

 Not expected to be rapidly degradable.

Bioaccumulative potential

This product is not expected to bioaccumulate through food chains in the environment.

Mobility in soil

Soil/water partition coefficient (K_{oc}) Not available.

Mobility Spillages may penetrate the soil causing ground water contamination.

Other adverse effects No known significant effects or critical hazards.

Other ecological information Spills may form a film on water surfaces causing physical damage to organisms. Oxygen transfer could also be impaired.

SECTION 13: Disposal considerations

Disposal methods

The generation of waste should be avoided or minimized wherever possible. Significant quantities of waste product residues should not be disposed of via the foul sewer but processed in a suitable effluent treatment plant. Dispose of surplus and non-recyclable products via a licensed waste disposal contractor. Disposal of this product, solutions and any by-products should at all times comply with the requirements of environmental protection and waste disposal legislation and any regional local authority requirements. Waste packaging should be recycled. Incineration or landfill should only be considered when recycling is not feasible. This material and its container must be disposed of in a safe way. Empty containers or liners may retain some product residues. Avoid dispersal of spilled material and runoff and contact with soil, waterways, drains and sewers.

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SECTION 14: Transport information

	ADR/RID	ADN	IMDG	IATA/ICAO
UN number	Not regulated.	Not regulated.	Not regulated.	Not regulated.
UN proper shipping name	-	-	-	-
Transport hazard class(es)	-	-	-	-
Packing group	-	-	-	-
Environmental hazards	No.	No.	No.	No.
Additional information	-	-	-	-

Special precautions for user Not available.

Transport in bulk according to Annex II of MARPOL and the IBC Code Not available.

SECTION 15: Regulatory information

International regulations

Chemical Weapon Convention List Schedules I, II & III Chemicals

Not listed.

Montreal Protocol

Not listed.

Stockholm Convention on Persistent Organic Pollutants

Not listed.

Rotterdam Convention on Prior Informed Consent (PIC)

Not listed.

UNECE Aarhus Protocol on POPs and Heavy Metals

Not listed.

Other regulations

Australia inventory (AICS) ☒ Not determined.

Canada inventory ☒ Not determined.

China inventory (IECSC) ☒ Not determined.

Japan inventory (ENCS) ☒ At least one component is not listed.

Korea inventory (KECI) ☒ Not determined.

Philippines inventory (PICCS) ☒ Not determined.

Taiwan Chemical Substances Inventory (TCSI) ☒ Not determined.

United States inventory (TSCA 8b) ☒ Not determined.

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SECTION 15: Regulatory information

REACH Status

For the REACH status of this product please consult your company contact, as identified in Section 1.

SECTION 16: Other information

History

Date of issue/Date of revision 01/22/2020.

Date of previous issue 07/20/2018.

Prepared by Product Stewardship

Key to abbreviations

ADN = European Provisions concerning the International Carriage of Dangerous Goods by Inland Waterway
ADR = The European Agreement concerning the International Carriage of Dangerous Goods by Road
ATE = Acute Toxicity Estimate
BCF = Bioconcentration Factor
GHS = Globally Harmonized System of Classification and Labelling of Chemicals
IATA = International Air Transport Association
IBC = Intermediate Bulk Container
IMDG = International Maritime Dangerous Goods
MARPOL = International Convention for the Prevention of Pollution From Ships, 1973 as modified by the Protocol of 1978. ("Marpol" = marine pollution)
UN = United Nations
VOC = Volatile Organic Compound
Varies = may contain one or more of the following 64741-88-4, 64741-89-5, 64741-95-3, 64741-96-4, 64742-01-4, 64742-44-5, 64742-45-6, 64742-52-5, 64742-53-6, 64742-54-7, 64742-55-8, 64742-56-9, 64742-57-0, 64742-58-1, 64742-62-7, 64742-63-8, 64742-65-0, 64742-70-7, 72623-85-9, 72623-86-0, 72623-87-1

📌 Indicates information that has changed from previously issued version.

Notice to reader

All reasonably practicable steps have been taken to ensure this data sheet and the health, safety and environmental information contained in it is accurate as of the date specified below. No warranty or representation, express or implied is made as to the accuracy or completeness of the data and information in this data sheet.

The data and advice given apply when the product is sold for the stated application or applications. You should not use the product other than for the stated application or applications without seeking advice from BP Group.

It is the user's obligation to evaluate and use this product safely and to comply with all applicable laws and regulations. The BP Group shall not be responsible for any damage or injury resulting from use, other than the stated product use of the material, from any failure to adhere to recommendations, or from any hazards inherent in the nature of the material. Purchasers of the product for supply to a third party for use at work, have a duty to take all necessary steps to ensure that any person handling or using the product is provided with the information in this sheet. Employers have a duty to tell employees and others who may be affected of any hazards described in this sheet and of any precautions that should be taken. You can contact the BP Group to ensure that this document is the most current available. Alteration of this document is strictly prohibited.

Printing date 05/13/2009

Reviewed on 05/13/2009

1 Identification of substance

- **Product details**
- **Trade name:** **ALS 192 High speed lubricant for pistons**
- **Article number:** 00995-01
- **Application of the substance / the preparation:** For industrial use only
- **Manufacturer/Supplier:**
CASTOOL TOOLING SYSTEMS
2, Parratt Road
UXBRIDGE
CA-L9P 1R1 ONTARIO
CANADA
Phone: +1 905 852 0121
Fax: +1 905 852 2300
Mailto: allper@allper.com
Internet: www.allper.com
- **Emergency information:** Phone Canada: +1 647 274 9706

2 Composition/Data on components

- **Description:** Mixture of synthetic oils and additives

· Hazardous components:

192268-65-8	Thio-phosphoric acid ester derivatives	1.0-2.4%
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3 Hazards identification

- **Information pertaining to particular dangers for man and environment:**
The product does not have to be labelled due to the calculation procedure of international guidelines.
- **Classification system:**
The classification was made according to the latest editions of international substances lists, and expanded upon from company and literature data.
- **NFPA ratings (scale 0 - 4)**



Health = 0
Fire = 1
Reactivity = 0

- **HMIS-ratings (scale 0 - 4)**

HEALTH	0
FIRE	1
REACTIVITY	0

Health = 0
Fire = 1
Reactivity = 0

4 First aid measures

- **General information:** No special measures required.
- **After inhalation:** Supply fresh air; consult doctor in case of complaints.
- **After skin contact:** Generally the product does not irritate the skin.
- **After eye contact:** Rinse opened eye for several minutes under running water.
- **After swallowing:** If symptoms persist consult doctor.

5 Fire fighting measures

- **Suitable extinguishing agents:**
CO2, extinguishing powder or water spray. Fight larger fires with water spray.

(Contd. on page 2)

Printing date 05/13/2009

Reviewed on 05/13/2009

Trade name: ALS 192 High speed lubricant for pistons

(Contd. of page 1)

- **For safety reasons unsuitable extinguishing agents:** Water with full jet
- **Protective equipment:** No special measures required.

6 Accidental release measures

- **Person-related safety precautions:** Not required.
- **Measures for environmental protection:** Do not allow to enter sewers/ surface or ground water.
- **Measures for cleaning/collecting:**
Absorb with liquid-binding material (sand, diatomite, acid binders, universal binders, sawdust).
- **Additional information:** No dangerous substances are released.

7 Handling and storage

- **Handling:**
- **Information for safe handling:**
The product is not subject to identification regulations according to directives on hazardous materials.
Observe the general safety regulations when handling chemicals.
- **Information about protection against explosions and fires:** No special measures required.
- **Storage:**
- **Requirements to be met by storerooms and receptacles:** Store only in the original receptacle.
- **Information about storage in one common storage facility:** Store away from oxidizing agents.
- **Further information about storage conditions:**
Duration of Storage: In closed, original container, at least 24 months.
Storage temperature between 32°F and 104°F
Protect from heat and direct sunlight.

8 Exposure controls and personal protection

- **Additional information about design of technical systems:** No further data; see item 7.
- **Components with limit values that require monitoring at the workplace:**
TLV value (oil mist) CH: 5 mg/m³
- **Additional information:** The lists that were valid during the creation were used as basis.
- **Personal protective equipment:**
- **General protective and hygienic measures:**
The usual precautionary measures for handling chemicals should be followed.
- **Breathing equipment:** Not required.
- **Material of gloves**
Suitable protective gloves: Nitril gloves, minimum thickness of 0.3 mm, e.g. Ultranitril type 491.
Corresponds to the standards DIN/EN 374-2 and 374-3.
- **Penetration time of glove material**
The exact break trough time has to be found out by the manufacturer of the protective gloves and has to be observed.
- **Eye protection:** Eye protector with side protection (framed eyeglasses) EN 166
- **Body protection:** Protective work clothing

9 Physical and chemical properties (typical data)

· General Information

Form:	Liquid Highly viscous
Color:	White

(Contd. on page 3)

CDN

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Trade name: ALS 192 High speed lubricant for pistons

(Contd. of page 2)

Odor:	Mild
· Change in condition	
Melting point/Melting range:	Not applicable
Boiling point/Boiling range:	> 572 °F (> 300°C) ASTM D86
· Drip point:	
Pour point:	- 11°F (- 24°C) ASTM D97
· Flash point:	> 392°F (> 200°C) ASTM D92
· Ignition temperature:	Not applicable
· Auto igniting:	Product is not selfigniting.
· Danger of explosion:	Product does not present an explosion hazard.
· Density:	0.84 g/cm3 @ 68°F (20°C) ASTM D1217
· Solubility in / Miscibility with Water:	Insoluble.
· Viscosity:	
Kinematic:	1000 mm2/s @ 104°F (40°C) ASTM D445
· Additional information:	safety relevant data, which has to be considered as product specifications.

10 Stability and reactivity

- **Thermal decomposition / conditions to be avoided:**
No decomposition if used according to specifications.
- **Dangerous reactions:** Reacts with strong oxidizing agents.
- **Dangerous products of decomposition:** Carbon monoxide and carbon dioxide

11 Toxicological information

- **Acute toxicity:**
- **LD/LC50 values that are relevant for classification:**
> 15,000 mg / kg (oral, rat)
> 8'100 mg/m3 4h (inhalation, rat)
- **Primary irritant effect:**
- **on the skin:** No irritant effect.
- **on the eye:** No irritating effect.
- **Sensitization:** No sensitizing effects known.
- **Additional toxicological information:**
The product is not subject to classification according to internally approved calculation methods for preparations:
When used and handled according to specifications, the product does not have any harmful effects according to our experience and the information provided to us.

CDN

(Contd. on page 4)

Printing date 05/13/2009

Reviewed on 05/13/2009

Trade name: ALS 192 High speed lubricant for pistons

(Contd. of page 3)

12 Ecological information

- **General notes:**

Do not allow undiluted product or large quantities of it to reach ground water, water course or sewage system.

13 Disposal considerations

- **Product:**

- **Recommendation:**

Must not be disposed of together with household garbage. Do not allow product to reach sewage system.

- **Uncleaned packagings:**

- **Recommendation:** Disposal must be made according to official regulations.

14 Transport information

- **Maritime transport IMDG:**

- **Marine pollutant:** No

- **Transport/Additional information:** Not dangerous according to the above specifications.

15 Regulations

- **Sara**

- **Section 355 (extremely hazardous substances):**

None of the ingredients is listed.

- **Section 313 (Specific toxic chemical listings):**

This product does not contain a chemical that is listed in Section 313 above de minimis concentrations.

- **TSCA (Toxic Substances Control Act):**

All ingredients are listed.

- **California Proposition 65**

- **Listed substances:**

None of the ingredients is listed.

- **Chemicals known to cause reproductive toxicity for females:**

None of the ingredients is listed.

- **Chemicals known to cause reproductive toxicity for males:**

None of the ingredients is listed.

- **Chemicals known to cause developmental toxicity:**

None of the ingredients is listed.

- **Carcinogenic categories**

- **EPA (Environmental Protection Agency)**

None of the ingredients is listed.

- **IARC (International Agency for Research on Cancer)**

None of the ingredients is listed.

- **NTP (National Toxicology Program)**

None of the ingredients is listed.

(Contd. on page 5)

Printing date 05/13/2009

Reviewed on 05/13/2009

Trade name: ALS 192 High speed lubricant for pistons

(Contd. of page 4)

· TLV (Threshold Limit Value established by ACGIH)

None of the ingredients is listed.

· NIOSH-Ca (National Institute for Occupational Safety and Health)

None of the ingredients is listed.

· OSHA-Ca (Occupational Safety & Health Administration)

None of the ingredients is listed.

· Canadian substance listings:**· Canadian Domestic Substances List (DSL)**

All ingredients are listed.

· Canadian Ingredient Disclosure list (limit 0.1%)

None of the ingredients is listed.

· Canadian Ingredient Disclosure list (limit 1%)

None of the ingredients is listed.

· Product related hazard informations:

Observe the general safety regulations when handling chemicals.

The product is not subject to identification regulations according to directives on hazardous materials.

· National regulations: none**16 Other information**

This information is based on our present knowledge. However, this shall not constitute a guarantee for any specific product features and shall not establish a legally valid contractual relationship.

· RoHS:

This product conforms to the RoHS Directive in that the RoHS regulated materials are absent or their concentrations are significantly below regulatory thresholds.

· The product does not contain:

Mineral oil, chlorine, nitrite, nitrite separators, triazine (HHT), boron, diethanolamine, NDELA, silicones, PCB, PCT, TCDD or other dioxine-containing substances.

· Department issuing MSDS: Product Safety Department**· * Data compared to the previous version altered.**

CDN

SAFETY DATA SHEET

CITGO Hytherm® Oil 46



Section 1. Identification

GHS product identifier	: CITGO Hytherm® Oil 46
Synonyms	: Heat transfer oil
Code	: 637130001
MSDS #	: 637130001
Supplier's details	: CITGO Petroleum Corporation P.O. Box 4689 Houston, TX 77210 sdsvend@citgo.com
Emergency telephone number (with hours of operation)	: Technical Contact: (800) 248-4684 Medical Emergency: (832) 486-4700 CHEMTREC Emergency: (800) 424-9300 (United States Only)

Section 2. Hazards identification

OSHA/HCS status	: While this material is not considered hazardous by the OSHA Hazard Communication Standard (29 CFR 1910.1200), this SDS contains valuable information critical to the safe handling and proper use of the product. This SDS should be retained and available for employees and other users of this product.
Classification of the substance or mixture	: Not classified.
<u>GHS label elements</u>	
Signal word	: No signal word.
Hazard statements	: No known significant effects or critical hazards.
<u>Precautionary statements</u>	
General	: Avoid contact with eyes, skin and clothing. Thoroughly wash exposed areas and clothing with soap and water. IF IN EYES: Rinse cautiously with water for several minutes. IF SWALLOWED: Do not induce vomiting. If you feel unwell, seek medical attention and show the label when possible. Keep out of reach of children.
Prevention	: Not applicable.
Response	: Not applicable.
Storage	: Store in a dry place and/or in closed container. Store in accordance with all local, regional, national and international regulations.
Disposal	: Dispose of contents and container in accordance with all local, regional, national and international regulations.
Hazards not otherwise classified	: None known.

Section 3. Composition/information on ingredients

Substance/mixture	: Mixture
Other means of identification	: Heat transfer oil

CAS number/other identifiers

CAS number	: Not applicable.
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Section 3. Composition/information on ingredients

Ingredient name	%	CAS number
Distillates (petroleum), hydrotreated heavy paraffinic	≥90	64742-54-7

Any concentration shown as a range is to protect confidentiality or is due to process variation.

There are no additional ingredients present which, within the current knowledge of the supplier and in the concentrations applicable, are classified as hazardous to health or the environment and hence require reporting in this section.

Occupational exposure limits, if available, are listed in Section 8.

Section 4. First aid measures

Description of necessary first aid measures

Eye contact	: Immediately flush eyes with plenty of water, occasionally lifting the upper and lower eyelids. Check for and remove any contact lenses. Get medical attention if irritation occurs.
Inhalation	: Remove victim to fresh air and keep at rest in a position comfortable for breathing. Get medical attention if symptoms occur.
Skin contact	: Flush contaminated skin with plenty of water. Remove contaminated clothing and shoes. Get medical attention if symptoms occur.
Ingestion	: Wash out mouth with water. Remove victim to fresh air and keep at rest in a position comfortable for breathing. Do not induce vomiting unless directed to do so by medical personnel. Get medical attention if symptoms occur.

Most important symptoms/effects, acute and delayed

Potential acute health effects

Eye contact	: No known significant effects or critical hazards.
Inhalation	: No known significant effects or critical hazards.
Skin contact	: No known significant effects or critical hazards.
Ingestion	: No known significant effects or critical hazards.

Over-exposure signs/symptoms

Eye contact	: No specific data.
Inhalation	: No specific data.
Skin contact	: No specific data.
Ingestion	: No specific data.

Indication of immediate medical attention and special treatment needed, if necessary

Notes to physician	: Treat symptomatically. Contact poison treatment specialist immediately if large quantities have been ingested or inhaled.
Specific treatments	: Treat symptomatically and supportively.
Protection of first-aiders	: No action shall be taken involving any personal risk or without suitable training.

See toxicological information (Section 11)

Section 5. Fire-fighting measures

Extinguishing media

Suitable extinguishing media	: Use an extinguishing agent suitable for the surrounding fire.
Unsuitable extinguishing media	: None known.

Specific hazards arising from the chemical : In a fire or if heated, a pressure increase will occur and the container may burst.

Section 5. Fire-fighting measures

Hazardous thermal decomposition products : No specific data.

Special protective actions for fire-fighters : Promptly isolate the scene by removing all persons from the vicinity of the incident if there is a fire. No action shall be taken involving any personal risk or without suitable training.

Special protective equipment for fire-fighters : Fire-fighters should wear appropriate protective equipment and self-contained breathing apparatus (SCBA) with a full face-piece operated in positive pressure mode.

Section 6. Accidental release measures

Personal precautions, protective equipment and emergency procedures

For non-emergency personnel : No action shall be taken involving any personal risk or without suitable training. Evacuate surrounding areas. Keep unnecessary and unprotected personnel from entering. Do not touch or walk through spilled material. Put on appropriate personal protective equipment.

For emergency responders : If specialized clothing is required to deal with the spillage, take note of any information in Section 8 on suitable and unsuitable materials. See also the information in "For non-emergency personnel".

Environmental precautions : Avoid dispersal of spilled material and runoff and contact with soil, waterways, drains and sewers. Inform the relevant authorities if the product has caused environmental pollution (sewers, waterways, soil or air).

Methods and materials for containment and cleaning up

Small spill : Stop leak if without risk. Move containers from spill area. Dilute with water and mop up if water-soluble. Alternatively, or if water-insoluble, absorb with an inert dry material and place in an appropriate waste disposal container. Dispose of via a licensed waste disposal contractor.

Large spill : Stop leak if without risk. Move containers from spill area. Prevent entry into sewers, water courses, basements or confined areas. Wash spillages into an effluent treatment plant or proceed as follows. Contain and collect spillage with non-combustible, absorbent material e.g. sand, earth, vermiculite or diatomaceous earth and place in container for disposal according to local regulations (see Section 13). Dispose of via a licensed waste disposal contractor. Note: see Section 1 for emergency contact information and Section 13 for waste disposal.

Section 7. Handling and storage

Precautions for safe handling

Protective measures : Put on appropriate personal protective equipment (see Section 8).

Advice on general occupational hygiene : Eating, drinking and smoking should be prohibited in areas where this material is handled, stored and processed. Workers should wash hands and face before eating, drinking and smoking. Remove contaminated clothing and protective equipment before entering eating areas. See also Section 8 for additional information on hygiene measures.

Conditions for safe storage, including any incompatibilities : Store in accordance with local regulations. Store in original container protected from direct sunlight in a dry, cool and well-ventilated area, away from incompatible materials (see Section 10) and food and drink. Keep container tightly closed and sealed until ready for use. Containers that have been opened must be carefully resealed and kept upright to prevent leakage. Do not store in unlabeled containers. Use appropriate containment to avoid environmental contamination. See Section 10 for incompatible materials before handling or use.

Bulk Storage Conditions: Maintain all storage tanks in accordance with applicable regulations. Use necessary controls to monitor tank inventories. Inspect all storage tanks on a periodic basis. Test tanks and associated piping for tightness. Maintain the automatic leak detection devices to assure proper working condition.

Section 8. Exposure controls/personal protection

Control parameters

Occupational exposure limits

Ingredient name	Exposure limits
Distillates (petroleum), hydrotreated heavy paraffinic	ACGIH TLV (United States, 3/2019). TWA: 5 mg/m ³ 8 hours. Form: Inhalable fraction OSHA PEL (United States, 5/2018). TWA: 5 mg/m ³ 8 hours. NIOSH REL (United States, 10/2016). TWA: 5 mg/m ³ 10 hours. Form: Mist STEL: 10 mg/m ³ 15 minutes. Form: Mist

Appropriate engineering controls

: Good general ventilation should be sufficient to control worker exposure to airborne contaminants.

Environmental exposure controls

: Emissions from ventilation or work process equipment should be checked to ensure they comply with the requirements of environmental protection legislation. In some cases, vapor controls, filters or engineering modifications to the process equipment will be necessary to reduce emissions to acceptable levels.

Individual protection measures

Hygiene measures

: Wash hands, forearms and face thoroughly after handling chemical products, before eating, smoking and using the lavatory and at the end of the working period. Appropriate techniques should be used to remove potentially contaminated clothing. Wash contaminated clothing before reusing. Ensure that eyewash stations and safety showers are close to the workstation location.

Eye/face protection

: Safety glasses equipped with side shields are recommended as minimum protection in industrial settings. If contact is possible, the following protection should be worn, unless the assessment indicates a higher degree of protection: chemical splash goggles. Safety eyewear complying with an approved standard should be used when a risk assessment indicates this is necessary to avoid exposure to liquid splashes, mists, gases or dusts. If inhalation hazards exist, a full-face respirator may be required instead.

Skin protection

Hand protection

: Chemical-resistant gloves complying with an approved standard should be worn at all times when handling chemical products if a risk assessment indicates this is necessary.

Body protection

: Personal protective equipment for the body should be selected based on the task being performed and the risks involved and should be approved by a specialist before handling this product.

Other skin protection

: Avoid skin contact with liquid. Appropriate footwear and any additional skin protection measures should be selected based on the task being performed and the risks involved and should be approved by a specialist before handling this product. Leather boots are not protective for liquid contact.

Respiratory protection

: Avoid inhalation of gases, vapors, mists or dusts. Use a properly fitted, air-purifying or supplied-air respirator complying with an approved standard if a risk assessment indicates this is necessary. Respirator selection must be based on known or anticipated exposure levels, the hazards of the product and the safe working limits of the selected respirator.

Section 9. Physical and chemical properties

Appearance

Physical state

: Liquid.

Color

: Light amber to amber

Odor

: Petroleum.

pH

: Not available.

Boiling point

: Not available.

Section 9. Physical and chemical properties

Flash point	: Open cup: 234°C (453.2°F) [Cleveland.]
Evaporation rate	: <1 (n-butyl acetate. = 1)
Lower and upper explosive (flammable) limits	: Not available.
Vapor pressure	: <0.013 kPa (<0.1 mm Hg) [room temperature]
Vapor density	: >1 [Air = 1]
Relative density	: 0.87
Density lbs/gal	: Estimated 7.25 lbs/gal
Density gm/cm ³	: Not available.
Gravity, °API	: Estimated 31 @ 60 F
Solubility	: Insoluble in the following materials: cold water.
Flow time (ISO 2431)	: Not available.
Viscosity	: Kinematic (40°C (104°F)): 0.49 cm ² /s (49 cSt)
Viscosity SUS	: Estimated 227 SUS @104 F

Section 10. Stability and reactivity

Reactivity	: Not expected to be Explosive, Self-Reactive, Self-Heating, or an Organic Peroxide under US GHS Definition(s).
Chemical stability	: The product is stable.
Possibility of hazardous reactions	: Under normal conditions of storage and use, hazardous reactions will not occur.
Conditions to avoid	: No specific data.
Incompatible materials	: No specific data.
Hazardous decomposition products	: Under normal conditions of storage and use, hazardous decomposition products should not be produced.

Section 11. Toxicological information

Information on toxicological effects

Acute toxicity

Product/ingredient name	Result	Species	Dose	Exposure
Distillates (petroleum), hydrotreated heavy paraffinic	LD50 Dermal	Rat	>5000 mg/kg	-
	LD50 Oral	Rat	>5000 mg/kg	-

Conclusion/Summary	: Distillates (petroleum), hydrotreated heavy paraffinic: Mineral oil mists derived from highly refined oils are reported to have low acute and sub-acute toxicities in animals. Effects from single and short-term repeated exposures to high concentrations of mineral oil mists well above applicable workplace exposure levels include lung inflammatory reaction, lipoid granuloma formation and lipoid pneumonia. In acute and sub-acute studies involving exposures to lower concentrations of mineral oil mists at or near current work place exposure levels produced no significant toxicological effects.
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Irritation/Corrosion

Not available.

Skin	: No additional information.
Eyes	: No additional information.
Respiratory	: No additional information.

Sensitization

Section 11. Toxicological information

Not available.

Skin : No additional information.

Respiratory : No additional information.

Mutagenicity

Not available.

Conclusion/Summary : No additional information.

Carcinogenicity

Not available.

Conclusion/Summary : No additional information.

Reproductive toxicity

Not available.

Conclusion/Summary : No additional information.

Teratogenicity

Not available.

Conclusion/Summary : No additional information.

Specific target organ toxicity (single exposure)

Not available.

Specific target organ toxicity (repeated exposure)

Not available.

Aspiration hazard

Not available.

Information on the likely routes of exposure : Routes of entry anticipated: Dermal.

Potential acute health effects

Eye contact : No known significant effects or critical hazards.

Inhalation : No known significant effects or critical hazards.

Skin contact : No known significant effects or critical hazards.

Ingestion : No known significant effects or critical hazards.

Symptoms related to the physical, chemical and toxicological characteristics

Eye contact : No specific data.

Inhalation : No specific data.

Skin contact : No specific data.

Ingestion : No specific data.

Delayed and immediate effects and also chronic effects from short and long term exposure

Short term exposure

Potential immediate effects : Not available.

Potential delayed effects : Not available.

Long term exposure

Potential immediate effects : Not available.

Potential delayed effects : Not available.

Potential chronic health effects

Section 11. Toxicological information

Not available.

General	: No known significant effects or critical hazards.
Carcinogenicity	: No known significant effects or critical hazards.
Mutagenicity	: No known significant effects or critical hazards.
Teratogenicity	: No known significant effects or critical hazards.
Developmental effects	: No known significant effects or critical hazards.
Fertility effects	: No known significant effects or critical hazards.

Section 12. Ecological information

Toxicity

Not available.

Conclusion/Summary : Not available.

Persistence and degradability

Conclusion/Summary : Not available.

Bioaccumulative potential

Not available.

Mobility in soil

Soil/water partition coefficient (K_{oc}) : Not available.

Other adverse effects : No known significant effects or critical hazards.

Section 13. Disposal considerations

Disposal methods : The generation of waste should be avoided or minimized wherever possible. Disposal of this product, solutions and any by-products should at all times comply with the requirements of environmental protection and waste disposal legislation and any regional local authority requirements. Dispose of surplus and non-recyclable products via a licensed waste disposal contractor. Waste should not be disposed of untreated to the sewer unless fully compliant with the requirements of all authorities with jurisdiction. Waste packaging should be recycled. Incineration or landfill should only be considered when recycling is not feasible. This material and its container must be disposed of in a safe way. Empty containers or liners may retain some product residues. Avoid dispersal of spilled material and runoff and contact with soil, waterways, drains and sewers.

Section 14. Transport information

	DOT Classification	IMDG	IATA
UN number	Not regulated.	Not regulated.	Not regulated.
UN proper shipping name	-	-	-
Transport hazard class(es)	-	-	-

Section 14. Transport information

Packing group	-	-	-
Environmental hazards	No.	No.	No.

Special precautions for user : **Transport within user's premises:** always transport in closed containers that are upright and secure. Ensure that persons transporting the product know what to do in the event of an accident or spillage.

Transport in bulk according to Annex II of MARPOL and the IBC Code : Not available.

Section 15. Regulatory information

U.S. Federal regulations : **United States inventory (TSCA 8b):** All components are listed or exempted. This material is classified as an oil under Section 311 of the Clean Water Act (CWA) and the Oil Pollution Act of 1990 (OPA). Discharges or spills which produce a visible sheen on waters of the United States, their adjoining shorelines, or into conduits leading to surface waters must be reported to the EPA's National Response Center at (800) 424-8802.

SARA 302/304

Composition/information on ingredients

SARA 304 RQ : Not applicable.

SARA 311/312

Classification : Not applicable.

Composition/information on ingredients

No products were found.

State regulations


Massachusetts : None of the components are listed.

New York : None of the components are listed.

New Jersey : None of the components are listed.

Pennsylvania : None of the components are listed.

California Prop. 65 Clear and Reasonable Warnings (2018)

 **WARNING:** This product can expose you to chemicals including Ethyl acrylate, which is known to the State of California to cause cancer, and Ethylene Glycol, which is known to the State of California to cause birth defects or other reproductive harm. For more information go to www.P65Warnings.ca.gov.

Ingredient name	%	Cancer	Reproductive	No significant risk level	Maximum acceptable dosage level
ethyl acrylate	<0.001	Yes.	No.	-	-
ethanediol	<0.1	No.	Yes.	-	Yes.

International regulations

Inventory list

United States : All components are listed or exempted.

Australia : All components are listed or exempted.

Canada : All components are listed or exempted.

China : All components are listed or exempted.

Europe : All components are listed or exempted.

Section 15. Regulatory information

Japan	: Japan inventory (ENCS): Not determined. Japan inventory (ISHL): Not determined.
Malaysia	: Not determined.
New Zealand	: Not determined.
Philippines	: All components are listed or exempted.
Republic of Korea	: All components are listed or exempted.
Taiwan	: Not determined.
Thailand	: Not determined.
Turkey	: Not determined.
Viet Nam	: Not determined.

Section 16. Other information

National Fire Protection Association (U.S.A.)



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Copyright ©2001, National Fire Protection Association, Quincy, MA 02269. This warning system is intended to be interpreted and applied only by properly trained individuals to identify fire, health and reactivity hazards of chemicals. The user is referred to certain limited number of chemicals with recommended classifications in NFPA 49 and NFPA 325, which would be used as a guideline only. Whether the chemicals are classified by NFPA or not, anyone using the 704 systems to classify chemicals does so at their own risk.

Procedure used to derive the classification

Classification	Justification
Not classified.	

History

Date of printing	: 1/15/2021
Date of issue/Date of revision	: 1/15/2021
Date of previous issue	: 10/8/2020
Version	: 5
Key to abbreviations	: ATE = Acute Toxicity Estimate BCF = Bioconcentration Factor GHS = Globally Harmonized System of Classification and Labelling of Chemicals IATA = International Air Transport Association IBC = Intermediate Bulk Container IMDG = International Maritime Dangerous Goods LogPow = logarithm of the octanol/water partition coefficient MARPOL = International Convention for the Prevention of Pollution From Ships, 1973 as modified by the Protocol of 1978. ("Marpol" = marine pollution) UN = United Nations
References	: Not available.

Indicates information that has changed from previously issued version.

Notice to reader

Section 16. Other information

THE INFORMATION IN THIS SAFETY DATA SHEET (SDS) WAS OBTAINED FROM SOURCES WHICH WE BELIEVE ARE RELIABLE. HOWEVER, THE INFORMATION IS PROVIDED WITHOUT ANY WARRANTY, EXPRESSED OR IMPLIED REGARDING ITS CORRECTNESS OR ACCURACY. SOME INFORMATION PRESENTED AND CONCLUSIONS DRAWN HEREIN ARE FROM SOURCES OTHER THAN DIRECT TEST DATA ON THE SUBSTANCE ITSELF. THIS SDS WAS PREPARED AND IS TO BE USED ONLY FOR THIS PRODUCT. IF THE PRODUCT IS USED AS A COMPONENT IN ANOTHER PRODUCT, THIS SDS INFORMATION MAY NOT BE APPLICABLE. USERS SHOULD MAKE THEIR OWN INVESTIGATIONS TO DETERMINE THE SUITABILITY OF THE INFORMATION OR PRODUCTS FOR THEIR PARTICULAR PURPOSE OR APPLICATION.

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SAFETY DATA SHEET

Creation Date 11-Apr-2011

Revision Date 14-Feb-2020

Revision Number 2

1. Identification

Product Name Boron nitride

Cat No. : 40608

CAS-No 10043-11-5
Synonyms No information available

Recommended Use Laboratory chemicals.
Uses advised against Food, drug, pesticide or biocidal product use.
Details of the supplier of the safety data sheet

Company

Alfa Aesar
Thermo Fisher Scientific Chemicals, Inc.
30 Bond Street
Ward Hill, MA 01835-8099
Tel: 800-343-0660
Fax: 800-322-4757
Email: tech@alfa.com
www.alfa.com

Emergency Telephone Number

During normal business hours (Monday-Friday, 8am-7pm EST), call (800) 343-0660.
After normal business hours, call Carechem 24 at (866) 928-0789.

2. Hazard(s) identification

Classification

This chemical is considered hazardous by the 2012 OSHA Hazard Communication Standard (29 CFR 1910.1200)

Specific target organ toxicity (single exposure) Category 3
Target Organs - Respiratory system.

Label Elements

Signal Word

Warning

Hazard Statements

May cause respiratory irritation

**Precautionary Statements****Prevention**

Avoid breathing dust/fume/gas/mist/vapors/spray
Use only outdoors or in a well-ventilated area

Inhalation

IF INHALED: Remove victim to fresh air and keep at rest in a position comfortable for breathing
Call a POISON CENTER or doctor/physician if you feel unwell

Storage

Store in a well-ventilated place. Keep container tightly closed
Store locked up

Disposal

Dispose of contents/container to an approved waste disposal plant

Hazards not otherwise classified (HNOC)

None identified

3. Composition/Information on Ingredients

Component	CAS-No	Weight %
Boron nitride (BN)	10043-11-5	>95

4. First-aid measures

General Advice	If symptoms persist, call a physician.
Eye Contact	Rinse immediately with plenty of water, also under the eyelids, for at least 15 minutes. Get medical attention.
Skin Contact	Wash off immediately with plenty of water for at least 15 minutes. If skin irritation persists, call a physician.
Inhalation	Remove to fresh air. If not breathing, give artificial respiration. Get medical attention if symptoms occur.
Ingestion	Clean mouth with water and drink afterwards plenty of water. Get medical attention if symptoms occur.
Most important symptoms and effects	None reasonably foreseeable.
Notes to Physician	Treat symptomatically

5. Fire-fighting measures

Unsuitable Extinguishing Media	No information available
Flash Point	No information available
Method -	No information available

Autoignition Temperature

Explosion Limits

Upper	No data available
Lower	No data available
Sensitivity to Mechanical Impact	No information available
Sensitivity to Static Discharge	No information available

Specific Hazards Arising from the Chemical

Keep product and empty container away from heat and sources of ignition.

Hazardous Combustion Products

Oxides of boron. Nitrogen oxides (NO_x).

Protective Equipment and Precautions for Firefighters

As in any fire, wear self-contained breathing apparatus pressure-demand, MSHA/NIOSH (approved or equivalent) and full protective gear.

NFPA

Health
2

Flammability
0

Instability
1

Physical hazards
N/A

6. Accidental release measures

Personal Precautions Ensure adequate ventilation. Use personal protective equipment as required. Avoid dust formation.

Environmental Precautions Should not be released into the environment.

Methods for Containment and Clean Up Sweep up and shovel into suitable containers for disposal. Keep in suitable, closed containers for disposal.

7. Handling and storage

Handling Wear personal protective equipment/face protection. Ensure adequate ventilation. Avoid ingestion and inhalation. Avoid dust formation. Do not get in eyes, on skin, or on clothing.

Storage Keep containers tightly closed in a dry, cool and well-ventilated place.

8. Exposure controls / personal protection

Exposure Guidelines This product does not contain any hazardous materials with occupational exposure limits established by the region specific regulatory bodies.

Engineering Measures None under normal use conditions.

Personal Protective Equipment

Eye/face Protection Wear appropriate protective eyeglasses or chemical safety goggles as described by OSHA's eye and face protection regulations in 29 CFR 1910.133 or European Standard EN166.

Skin and body protection Wear appropriate protective gloves and clothing to prevent skin exposure.

Respiratory Protection No protective equipment is needed under normal use conditions.

Hygiene Measures Handle in accordance with good industrial hygiene and safety practice.

9. Physical and chemical properties

Physical State	Solid
Appearance	No information available
Odor	Odorless

Odor Threshold	No information available
pH	No information available
Melting Point/Range	2700 - 3000 °C / 4892 - 5432 °F
Boiling Point/Range	No information available
Flash Point	No information available
Evaporation Rate	Not applicable
Flammability (solid,gas)	No information available
Flammability or explosive limits	
Upper	No data available
Lower	No data available
Vapor Pressure	No information available
Vapor Density	Not applicable
Specific Gravity	No information available
Solubility	No information available
Partition coefficient; n-octanol/water	No data available
Autoignition Temperature	
Decomposition Temperature	No information available
Viscosity	Not applicable
Molecular Formula	B N
Molecular Weight	24.82

10. Stability and reactivity

Reactive Hazard	None known, based on information available
Stability	Hygroscopic.
Conditions to Avoid	Incompatible products. Excess heat. Avoid dust formation. Exposure to moist air or water.
Incompatible Materials	Strong oxidizing agents
Hazardous Decomposition Products	Oxides of boron, Nitrogen oxides (NO _x)
Hazardous Polymerization	Hazardous polymerization does not occur.
Hazardous Reactions	None under normal processing.

11. Toxicological information

Acute Toxicity

Product Information	See actual entry in RTECS for complete information.
Component Information	
Toxicologically Synergistic Products	No information available
<u>Delayed and immediate effects as well as chronic effects from short and long-term exposure</u>	

Irritation	No information available
Sensitization	No information available
Carcinogenicity	The table below indicates whether each agency has listed any ingredient as a carcinogen.

Component	CAS-No	IARC	NTP	ACGIH	OSHA	Mexico
Boron nitride (BN)	10043-11-5	Not listed	Not listed	Not listed	Not listed	Not listed

Mutagenic Effects	No information available
Reproductive Effects	No information available.
Developmental Effects	No information available.

Teratogenicity	No information available.
STOT - single exposure	Respiratory system
STOT - repeated exposure	None known
Aspiration hazard	No information available
Symptoms / effects, both acute and delayed	No information available
Endocrine Disruptor Information	No information available
Other Adverse Effects	The toxicological properties have not been fully investigated.

12. Ecological information

Ecotoxicity

Do not empty into drains. .

Component	Freshwater Algae	Freshwater Fish	Microtox	Water Flea
Boron nitride (BN)	Not listed	LC50: > 100 mg/L, 96h static (Oncorhynchus mykiss)	Not listed	Not listed

Persistence and Degradability	No information available
Bioaccumulation/ Accumulation	No information available.
Mobility	No information available.

13. Disposal considerations

Waste Disposal Methods	Chemical waste generators must determine whether a discarded chemical is classified as a hazardous waste. Chemical waste generators must also consult local, regional, and national hazardous waste regulations to ensure complete and accurate classification.
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14. Transport information

DOT	Not regulated
TDG	Not regulated
IATA	Not regulated
IMDG/IMO	Not regulated

15. Regulatory information

United States of America Inventory

Component	CAS-No	TSCA	TSCA Inventory notification - Active/Inactive	TSCA - EPA Regulatory Flags
Boron nitride (BN)	10043-11-5	X	ACTIVE	-

Legend:

TSCA - Toxic Substances Control Act, (40 CFR Part 710)

X - Listed

'-' - Not Listed

TSCA 12(b) - Notices of Export	Not applicable
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International Inventories

Canada (DSL/NDSL), Europe (EINECS/ELINCS/NLP), Philippines (PICCS), Japan (ENCS), Australia (AICS), China (IECSC), Korea (ECL).

Component	CAS-No	DSL	NDSL	EINECS	PICCS	ENCS	AICS	IECSC	KECL
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Boron nitride (BN)	10043-11-5	X	-	233-136-6	X	X	X	X	KE-03535
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U.S. Federal Regulations

SARA 313	Not applicable
SARA 311/312 Hazard Categories	See section 2 for more information
CWA (Clean Water Act)	Not applicable
Clean Air Act	Not applicable
OSHA - Occupational Safety and Health Administration	Not applicable
CERCLA	Not applicable
California Proposition 65	This product does not contain any Proposition 65 chemicals.
U.S. State Right-to-Know Regulations	Not applicable
U.S. Department of Transportation	
Reportable Quantity (RQ):	N
DOT Marine Pollutant	N
DOT Severe Marine Pollutant	N
U.S. Department of Homeland Security	This product does not contain any DHS chemicals.

Other International Regulations

Mexico - Grade	No information available
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16. Other information

Prepared By	Health, Safety and Environmental Department Email: tech@alfa.com www.alfa.com
Creation Date	11-Apr-2011
Revision Date	14-Feb-2020
Print Date	14-Feb-2020
Revision Summary	SDS authoring systems update, replaces ChemGes SDS No. 10043-11-5/1.

Disclaimer

The information provided in this Safety Data Sheet is correct to the best of our knowledge, information and belief at the date of its publication. The information given is designed only as a guidance for safe handling, use, processing, storage, transportation, disposal and release and is not to be considered a warranty or quality specification. The information relates only to the specific material designated and may not be valid for such material used in combination with any other materials or in any process, unless specified in the text

End of SDS

Product Name: NYVAC FR 200D

Revision Date: 17 Mar 2015

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SAFETY DATA SHEET

SECTION 1**PRODUCT AND COMPANY IDENTIFICATION****PRODUCT****Product Name:** NYVAC FR 200D**Product Description:** Water-glycol**Product Code:** 201560108020, 602151-00, 977959**Intended Use:** Fire-resistant hydraulic fluid**COMPANY IDENTIFICATION****Supplier:****EXXON MOBIL CORPORATION**22777 Springwoods Village Parkway
Spring, TX. 77389 USA**24 Hour Health Emergency**

609-737-4411

Transportation Emergency Phone

800-424-9300 or 703-527-3887 CHEMTREC

Product Technical Information

800-662-4525

MSDS Internet Address<http://www.exxon.com>, <http://www.mobil.com>**SECTION 2****HAZARDS IDENTIFICATION**

This material is hazardous according to regulatory guidelines (see (M)SDS Section 15).

CLASSIFICATION:

Acute oral toxicant: Category 4. Specific target organ toxicant (repeated exposure): Category 2.

LABEL:**Pictogram:****Signal Word:** Warning**Hazard Statements:**

H302: Harmful if swallowed. H373: May cause damage to organs through prolonged or repeated exposure. Kidney

Precautionary Statements:

P101: If medical advice is needed, have product container or label at hand. P102: Keep out of reach of children.

P103: Read label before use. P260: Do not breathe mist / vapours. P264: Wash skin thoroughly after handling.

P270: Do not eat, drink or smoke when using this product. P301 + P310: IF SWALLOWED: Immediately call a

POISON CENTER or doctor/physician. P315: Get immediate medical advice/attention. P330: Rinse mouth. P501:

Dispose of contents and container in accordance with local regulations.

Contains: DIETHYLENE GLYCOL

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Other hazard information:

HAZARD NOT OTHERWISE CLASSIFIED (HNOC): None as defined under 29 CFR 1910.1200.

PHYSICAL / CHEMICAL HAZARDS

No significant hazards.

HEALTH HAZARDS

High-pressure injection under skin may cause serious damage. Ingestion may cause serious adverse effects and may be fatal. May cause kidney failure and central nervous system effects. Prolonged exposure to elevated concentrations of mist or liquid may cause irritation of the skin, eyes, and respiratory tract.

ENVIRONMENTAL HAZARDS

No significant hazards.

NFPA Hazard ID:	Health: 1	Flammability: 1	Reactivity: 0
HMIS Hazard ID:	Health: 1*	Flammability: 1	Reactivity: 0

NOTE: This material should not be used for any other purpose than the intended use in Section 1 without expert advice. Health studies have shown that chemical exposure may cause potential human health risks which may vary from person to person.

SECTION 3	COMPOSITION / INFORMATION ON INGREDIENTS
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This material is defined as a mixture.

Hazardous Substance(s) or Complex Substance(s) required for disclosure

Name	CAS#	Concentration*	GHS Hazard Codes
ETHANOL, 2,2-OXYBIS-	111-46-6	40 - < 50%	H302, H373
MORPHOLINE	110-91-8	0.1 - < 1%	H226, H302, H312, H332, H314(1B)

* All concentrations are percent by weight unless material is a gas. Gas concentrations are in percent by volume.

As per paragraph (i) of 29 CFR 1910.1200, formulation is considered a trade secret and specific chemical identity and exact percentage (concentration) of composition may have been withheld. Specific chemical identity and exact percentage composition will be provided to health professionals, employees, or designated representatives in accordance with applicable provisions of paragraph (i).

SECTION 4	FIRST AID MEASURES
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INHALATION

Remove from further exposure. For those providing assistance, avoid exposure to yourself or others. Use adequate respiratory protection. If respiratory irritation, dizziness, nausea, or unconsciousness occurs, seek immediate medical assistance. If breathing has stopped, assist ventilation with a mechanical device or use mouth-to-mouth resuscitation.

SKIN CONTACT

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Wash contact areas with soap and water. If product is injected into or under the skin, or into any part of the body, regardless of the appearance of the wound or its size, the individual should be evaluated immediately by a physician as a surgical emergency. Even though initial symptoms from high pressure injection may be minimal or absent, early surgical treatment within the first few hours may significantly reduce the ultimate extent of injury.

EYE CONTACT

Flush thoroughly with water. If irritation occurs, get medical assistance.

INGESTION

Seek immediate medical attention. Seek medical attention.

NOTE TO PHYSICIAN

This product contains ethylene glycol and/or diethylene glycol which, if ingested, are metabolized to toxic metabolites by the enzyme alcohol dehydrogenase, for which ethanol and 4-methylpyrazole {U.S. drug name Fomepizole, trade name Antizol} are antagonists. Administration of oral or intravenous ethanol or intravenous 4-methylpyrazole may arrest further metabolism of this material and thereby ameliorate the toxicity. Use of ethanol or 4-methylpyrazole does not affect toxic metabolites that are already present and is not a substitute for hemodialysis.

SECTION 5 FIRE FIGHTING MEASURES

EXTINGUISHING MEDIA

Appropriate Extinguishing Media: Use water fog, alcohol-resistant foam, dry chemical or carbon dioxide (CO₂) to extinguish flames.

FIRE FIGHTING

Fire Fighting Instructions: Evacuate area. Prevent runoff from fire control or dilution from entering streams, sewers, or drinking water supply. Firefighters should use standard protective equipment and in enclosed spaces, self-contained breathing apparatus (SCBA). Use water spray to cool fire exposed surfaces and to protect personnel.

Unusual Fire Hazards: Pressurized mists may form a flammable mixture. Hazardous material. Firefighters should consider protective equipment indicated in Section 8.

Hazardous Combustion Products: Aldehydes, Smoke, Fume, Oxides of carbon, Incomplete combustion products

FLAMMABILITY PROPERTIES

Flash Point [Method]: >101°C (214°F)

Flammable Limits (Approximate volume % in air): LEL: N/D UEL: N/D

Autoignition Temperature: 407°C (765°F)

SECTION 6 ACCIDENTAL RELEASE MEASURES

NOTIFICATION PROCEDURES

In the event of a spill or accidental release, notify relevant authorities in accordance with all applicable regulations. US regulations require reporting releases of this material to the environment which exceed the

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applicable reportable quantity or oil spills which could reach any waterway including intermittent dry creeks. The National Response Center can be reached at (800)424-8802.

PROTECTIVE MEASURES

Avoid contact with spilled material. Warn or evacuate occupants in surrounding and downwind areas if required due to toxicity or flammability of the material. See Section 5 for fire fighting information. See the Hazard Identification Section for Significant Hazards. See Section 4 for First Aid Advice. See Section 8 for advice on the minimum requirements for personal protective equipment. Additional protective measures may be necessary, depending on the specific circumstances and/or the expert judgment of the emergency responders.

SPILL MANAGEMENT

Land Spill: Stop leak if you can do it without risk. Do not touch or walk through spilled material. Recover by pumping or with suitable absorbent.

Water Spill: Stop leak if you can do it without risk. Seek advice of a specialist. This product emulsifies, disperses or is miscible in water.

Water spill and land spill recommendations are based on the most likely spill scenario for this material; however, geographic conditions, wind, temperature, (and in the case of a water spill) wave and current direction and speed may greatly influence the appropriate action to be taken. For this reason, local experts should be consulted. Note: Local regulations may prescribe or limit action to be taken.

ENVIRONMENTAL PRECAUTIONS

Remove debris in path of spill and remove contaminated debris from shoreline and water surface and dispose of according to local regulations. Large Spills: Dike far ahead of liquid spill for later recovery and disposal. Prevent entry into waterways, sewers, basements or confined areas.

SECTION 7 HANDLING AND STORAGE

HANDLING

Avoid breathing mists or vapors. Avoid all personal contact. Prevent small spills and leakage to avoid slip hazard. Contains amines. Do not add sodium nitrite or other nitrosating agents which may form cancer causing nitrosamines.

Static Accumulator: This material is not a static accumulator.

STORAGE

Do not store in open or unlabelled containers.

SECTION 8 EXPOSURE CONTROLS / PERSONAL PROTECTION

EXPOSURE LIMIT VALUES

Exposure limits/standards (Note: Exposure limits are not additive)

Substance Name	Form	Limit / Standard			NOTE	Source
ETHANOL, 2,2-OXYBIS-		TWA	10 mg/m3		N/A	OARS WEEL
MORPHOLINE		TWA	70 mg/m3	20 ppm	Skin	OSHA Z1

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MORPHOLINE		TWA	20 ppm		Skin	ACGIH
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NOTE: Limits/standards shown for guidance only. Follow applicable regulations.

No biological limits allocated.

ENGINEERING CONTROLS

The level of protection and types of controls necessary will vary depending upon potential exposure conditions. Control measures to consider:

No special requirements under ordinary conditions of use and with adequate ventilation.

PERSONAL PROTECTION

Personal protective equipment selections vary based on potential exposure conditions such as applications, handling practices, concentration and ventilation. Information on the selection of protective equipment for use with this material, as provided below, is based upon intended, normal usage.

Respiratory Protection: If engineering controls do not maintain airborne contaminant concentrations at a level which is adequate to protect worker health, an approved respirator may be appropriate. Respirator selection, use, and maintenance must be in accordance with regulatory requirements, if applicable. Types of respirators to be considered for this material include:

No protection is ordinarily required under normal conditions of use and with adequate ventilation.

For high airborne concentrations, use an approved supplied-air respirator, operated in positive pressure mode. Supplied air respirators with an escape bottle may be appropriate when oxygen levels are inadequate, gas/vapor warning properties are poor, or if air purifying filter capacity/rating may be exceeded.

Hand Protection: Any specific glove information provided is based on published literature and glove manufacturer data. Glove suitability and breakthrough time will differ depending on the specific use conditions. Contact the glove manufacturer for specific advice on glove selection and breakthrough times for your use conditions. Inspect and replace worn or damaged gloves. The types of gloves to be considered for this material include:

No protection is ordinarily required under normal conditions of use. If prolonged or repeated contact is likely, chemical resistant gloves are recommended. If contact with forearms is likely, wear gauntlet style gloves.

Eye Protection: If contact is likely, safety glasses with side shields are recommended.

Skin and Body Protection: Any specific clothing information provided is based on published literature or manufacturer data. The types of clothing to be considered for this material include:

No skin protection is ordinarily required under normal conditions of use. In accordance with good industrial hygiene practices, precautions should be taken to avoid skin contact. If prolonged or repeated contact is likely, chemical, and oil resistant clothing is recommended.

Specific Hygiene Measures: Always observe good personal hygiene measures, such as washing after handling the material and before eating, drinking, and/or smoking. Routinely wash work clothing and protective equipment to remove contaminants. Discard contaminated clothing and footwear that cannot be cleaned. Practice good housekeeping.

Product Name: NYVAC FR 200D

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ENVIRONMENTAL CONTROLS

Comply with applicable environmental regulations limiting discharge to air, water and soil. Protect the environment by applying appropriate control measures to prevent or limit emissions.

SECTION 9 PHYSICAL AND CHEMICAL PROPERTIES

Note: Physical and chemical properties are provided for safety, health and environmental considerations only and may not fully represent product specifications. Contact the Supplier for additional information.

GENERAL INFORMATION

Physical State: Liquid

Color: Red

Odor: Characteristic

Odor Threshold: N/D

IMPORTANT HEALTH, SAFETY, AND ENVIRONMENTAL INFORMATION

Relative Density (at 15 °C): 1.08

Flammability (Solid, Gas): N/A

Flash Point [Method]: >101°C (214°F)

Flammable Limits (Approximate volume % in air): LEL: N/D UEL: N/D

Autoignition Temperature: 407°C (765°F)

Boiling Point / Range: 102°C (216°F)

Decomposition Temperature: N/D

Vapor Density (Air = 1): N/D

Vapor Pressure: 1.756 kPa (13.2 mm Hg) at 20 °C

Evaporation Rate (n-butyl acetate = 1): N/D

pH: 9.5

Log Pow (n-Octanol/Water Partition Coefficient): N/D

Solubility in Water: Complete

Viscosity: [N/D at 40 °C]

Oxidizing Properties: See Hazards Identification Section.

OTHER INFORMATION

Freezing Point: N/D

Melting Point: N/D

Pour Point: -40°C (-40°F) [ASTM D97]

SECTION 10 STABILITY AND REACTIVITY

REACTIVITY: See sub-sections below.

STABILITY: Material is stable under normal conditions.

CONDITIONS TO AVOID: Excessive heat. High energy sources of ignition.

MATERIALS TO AVOID: Strong oxidizers, Strong Acids, Strong Bases

HAZARDOUS DECOMPOSITION PRODUCTS: Material does not decompose at ambient temperatures.

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POSSIBILITY OF HAZARDOUS REACTIONS: Hazardous polymerization will not occur.

SECTION 11	TOXICOLOGICAL INFORMATION
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INFORMATION ON TOXICOLOGICAL EFFECTS

Hazard Class	Conclusion / Remarks
Inhalation	
Acute Toxicity: No end point data for material.	Minimally Toxic. Based on assessment of the components.
Irritation: No end point data for material.	Negligible hazard at ambient/normal handling temperatures.
Ingestion	
Acute Toxicity: No end point data for material.	Moderately toxic. Based on assessment of the components.
Skin	
Acute Toxicity: No end point data for material.	Minimally Toxic. Based on assessment of the components.
Skin Corrosion/Irritation: No end point data for material.	Negligible irritation to skin at ambient temperatures. Based on assessment of the components.
Eye	
Serious Eye Damage/Irritation: No end point data for material.	May cause mild, short-lasting discomfort to eyes. Based on assessment of the components.
Sensitization	
Respiratory Sensitization: No end point data for material.	Not expected to be a respiratory sensitizer.
Skin Sensitization: No end point data for material.	Not expected to be a skin sensitizer. Based on assessment of the components.
Aspiration: No end point data for material.	Not expected to be an aspiration hazard. Based on physico-chemical properties of the material.
Germ Cell Mutagenicity: No end point data for material.	Not expected to be a germ cell mutagen. Based on assessment of the components.
Carcinogenicity: No end point data for material.	Not expected to cause cancer. Based on assessment of the components.
Reproductive Toxicity: No end point data for material.	Not expected to be a reproductive toxicant. Based on assessment of the components.
Lactation: No end point data for material.	Not expected to cause harm to breast-fed children.
Specific Target Organ Toxicity (STOT)	
Single Exposure: No end point data for material.	Not expected to cause organ damage from a single exposure.
Repeated Exposure: No end point data for material.	Concentrated, prolonged or deliberate exposure may cause organ damage. Based on assessment of the components.

TOXICITY FOR SUBSTANCES

NAME	ACUTE TOXICITY
MORPHOLINE	Dermal Lethality: LD50 0.5 g/kg (Rabbit); Oral Lethality: LD50 1900 mg/kg (Rat)

OTHER INFORMATION

For the product itself:

Target Organs Repeated Exposure: Kidney

Contains:

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DIETHYLENE GLYCOL (DEG): Orally, DEG is more toxic to humans than animal test data indicate. Probable lethal dose for an adult is about 50 ml (2 oz.), or 2 -3 swallows. Smaller amounts may cause kidney degeneration and failure. Benign urinary bladder tumors were observed in rats, no tumors were observed in mice.

The following ingredients are cited on the lists below: None.

--REGULATORY LISTS SEARCHED--

1 = NTP CARC

3 = IARC 1

5 = IARC 2B

2 = NTP SUS

4 = IARC 2A

6 = OSHA CARC

SECTION 12

ECOLOGICAL INFORMATION

The information given is based on data available for the material, the components of the material, and similar materials.

ECOTOXICITY

Material -- Not expected to be harmful to aquatic organisms.

MOBILITY

Material -- Expected to remain in water or migrate through soil.

PERSISTENCE AND DEGRADABILITY

Biodegradation:

Material -- Expected to be readily biodegradable.

Atmospheric Oxidation:

Material -- Expected to degrade rapidly in air

BIOACCUMULATION POTENTIAL

Material -- Potential to bioaccumulate is low.

SECTION 13

DISPOSAL CONSIDERATIONS

Disposal recommendations based on material as supplied. Disposal must be in accordance with current applicable laws and regulations, and material characteristics at time of disposal.

DISPOSAL RECOMMENDATIONS

Even though this product is biodegradable, it must not be indiscriminately discarded into the environment. Product is suitable for burning in an enclosed controlled burner for fuel value or disposal by supervised incineration at very high temperatures to prevent formation of undesirable combustion products.

REGULATORY DISPOSAL INFORMATION

Product Name: NYVAC FR 200D

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RCRA Information: The unused product, in our opinion, is not specifically listed by the EPA as a hazardous waste (40 CFR, Part 261D), nor is it formulated to contain materials which are listed as hazardous wastes. It does not exhibit the hazardous characteristics of ignitability, corrosivity or reactivity and is not formulated with contaminants as determined by the Toxicity Characteristic Leaching Procedure (TCLP). However, used product may be regulated.

Empty Container Warning Empty Container Warning (where applicable): Empty containers may contain residue and can be dangerous. Do not attempt to refill or clean containers without proper instructions. Empty drums should be completely drained and safely stored until appropriately reconditioned or disposed. Empty containers should be taken for recycling, recovery, or disposal through suitably qualified or licensed contractor and in accordance with governmental regulations. DO NOT PRESSURISE, CUT, WELD, BRAZE, SOLDER, DRILL, GRIND, OR EXPOSE SUCH CONTAINERS TO HEAT, FLAME, SPARKS, STATIC ELECTRICITY, OR OTHER SOURCES OF IGNITION. THEY MAY EXPLODE AND CAUSE INJURY OR DEATH.

SECTION 14	TRANSPORT INFORMATION
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LAND (DOT): Not Regulated for Land Transport

LAND (TDG): Not Regulated for Land Transport

SEA (IMDG): Not Regulated for Sea Transport according to IMDG-Code

Marine Pollutant: No

AIR (IATA): Not Regulated for Air Transport

SECTION 15	REGULATORY INFORMATION
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OSHA HAZARD COMMUNICATION STANDARD: This material is considered hazardous in accordance with OSHA HazCom 2012, 29 CFR 1910.1200.

Listed or exempt from listing/notification on the following chemical inventories: AICS, DSL, IECSC, PICCS, TSCA

Special Cases:

Inventory	Status
ENCS	Not determined
KECI	Restrictions Apply

EPCRA SECTION 302: This material contains no extremely hazardous substances.

SARA (311/312) REPORTABLE HAZARD CATEGORIES: Immediate Health. Delayed Health.

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SARA (313) TOXIC RELEASE INVENTORY: This material contains no chemicals subject to the supplier notification requirements of the SARA 313 Toxic Release Program.

The following ingredients are cited on the lists below:

Chemical Name	CAS Number	List Citations
ETHANOL, 2,2-OXYBIS-	111-46-6	16, 18

--REGULATORY LISTS SEARCHED--

1 = ACGIH ALL	6 = TSCA 5a2	11 = CA P65 REPRO	16 = MN RTK
2 = ACGIH A1	7 = TSCA 5e	12 = CA RTK	17 = NJ RTK
3 = ACGIH A2	8 = TSCA 6	13 = IL RTK	18 = PA RTK
4 = OSHA Z	9 = TSCA 12b	14 = LA RTK	19 = RI RTK
5 = TSCA 4	10 = CA P65 CARC	15 = MI 293	

Code key: CARC=Carcinogen; REPRO=Reproductive

SECTION 16	OTHER INFORMATION
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N/D = Not determined, N/A = Not applicable

KEY TO THE H-CODES CONTAINED IN SECTION 3 OF THIS DOCUMENT (for information only):

H226: Flammable liquid and vapor; Flammable Liquid, Cat 3

H302: Harmful if swallowed; Acute Tox Oral, Cat 4

H312: Harmful in contact with skin; Acute Tox Dermal, Cat 4

H314(1B): Causes severe skin burns and eye damage; Skin Corr/Irritation, Cat 1B

H332: Harmful if inhaled; Acute Tox Inh, Cat 4

H373: May cause damage to organs through prolonged or repeated exposure; Target Organ, Repeated, Cat 2

THIS SAFETY DATA SHEET CONTAINS THE FOLLOWING REVISIONS:

Updates made in accordance with implementation of GHS requirements.

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Internal Use Only

MHC: 2, 0, 0, 0, 0, 0

PPEC: C



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DGN: 2007591XUS (1015398)

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Chemical Safety Data Sheet

Foseco India Coveral GR 2510

Foseco (a part of Vesuvius)

Chemwatch: 32-1271

Version number: 4.1

Chemical Safety Data Sheet - prepared in accordance with GB/T 16483 (2008) and GB/T 17519 (2013)

Chemwatch Hazard Alert Code:

Tabulation date:
12/10/2021 Printing
date: 03/31/2023
S.GHS.CHN.ZH-CHT

Part 1: Chemicals and Enterprise Identification

Product Name

Product Name	Foseco India Coveral GR 2510
Chinese name of chemical	Discomfort
Chemical English name	Discomfort
alias	Information
Chemical formula	Discomfort
Other identification formulas	Information

Product recommendations and restrictions on travel

Related determination path	Use according to the manufacturer's instructions.
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Manufacturer, importer, or supplier

Enterprise Name	Foseco (a part of Vesuvius)
Enterprise address	Gate No. 922/923, Sanaswadi Taluka Shirur Dist. Pune 421108 India
Phone:	+91 213 7668 100
Fax:	+91 213 7668 160
网 Station	Www.fosecon.com
Email	Information

Emergency phone number

Association/Organization	CHEMWATCH Emergency Response (24/7)
Emergency phone number:	+400 120 1632
Other emergency phone numbers	Information

Information

Part 2: Hazard Overview

Classification of substances and mixtures

Emergency Overview

Solid. Non combustible. Irritating to the eyes
May cause respiratory irritation. Irritating to skin
Inhalation may cause sensitization
There is limited evidence that contact with skin may cause sensitization and carcinogenesis.
Harmful: Prolonged exposure poses a risk of serious health damage through inhalation, contact with the skin, and ingestion. May cause damage to the embryo or fetus.
There may be a risk of reducing fertility. May be harmful to breastfeeding infants

Hazard category [1]	Acute transdermal toxicity category 5, skin corrosion/irritation category 2, skin allergen category 1, severe eye injury/eye irritation category 1, respiratory allergen category 1, specific target organ toxicity - single exposure category 3 (respiratory irritation), reproductive toxicity category 1B, additional classification of effects on or through lactation, specific target organ toxicity single exposure category 1, specific target organ toxicity repeated exposure category 1, hazards Occupational Environment - Phase I Hazard Category 3
Legend:	1. Chemwatch level identification; 2. Hazardous chemical classification information table; 3. EC Directive 1272/2008- Annex VI - Classification

Label Elements

GHS pictogram	
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Signal word	danger
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Hazard Statement

H303	Swallowing may be harmful
H315	Causing skin irritation
H317	May cause skin allergic reactions
H318	Causing serious eye damage
H334	Inhalation may cause allergic or asthma symptoms or breathing difficulties
H335	May cause respiratory irritation
H360	May cause harm to fertility or fetuses
H362	May cause harm to breastfeeding children
H370	Damage to organs
H372	Prolonged or repeated exposure can cause damage to organs
H412	Harmful to human health and has a long-lasting impact

Prevention instructions: Preventive measures

P201	Obtain specialized instructions before proceeding.
P260	Do not inhale dust/smoke.
P261	Avoid inhaling dust/smoke
P263	Avoid contact during pregnancy/lactation.

Prevention instructions: accident response

P304+P340	If inhaled by mistake: Transfer the air to a fresh place and maintain a comfortable breathing position.
P305+P351+P338	If it enters the eyes: rinse thoroughly for 30 minutes. If wearing contact lenses and easily removing them, remove the contact lenses. Continue rinsing.
P308+P311	If in contact: Call detoxification center/medical staff/emergency personnel
P308+P313	If in contact or in doubt: seek medical attention/seek medical attention.

Precautions: Safe Storage

P405	The storage area must be locked.
P403+P233	Store in a well ventilated area. Keep the container tightly closed.

Prevention

P501	Hazardous materials or special waste collection points authorized for disposal of content/containers in accordance with any local regulations
------	---

instructions:

Physical and

chemical hazards

of waste disposal

Solid. Non combustible.
The fire produces toxic smoke.

Health hazards

inhalation	The dust produced may cause discomfort.
Ingestion	According to EU directives or other classification systems, this substance is not classified as 'harmful to swallowing'. This is because there is a lack of conclusive animal or animal evidence. Ingestion of this substance can still pose a threat to individual health, especially when there has been prior significant organ damage (such as liver and kidney). Previously, the definition of harmful or toxic substances was generally based on the dosage that caused death, but not on the dosage that caused the disease or discomfort. Gastrointestinal discomfort may cause nausea and vomiting. However, ingesting trace amounts of this substance in workplaces is not considered dangerous.
Skin contact	Do not believe that exposure to this substance may have harmful effects on health or skin irritation (according to EU regulations using animal experimental models). However, good hygiene measures require maintaining a minimum level of exposure and wearing appropriate protective clothing in the workplace. Entering the fluid through cuts, abrasions, or lesions may result in complete injury. Before using the substance, the skin should be checked to ensure that any damage is properly protected before using the substance.
Eyes	Although the substance is not considered irritating (classified according to EU directives), direct eye contact can cause temporary discomfort, such as tearing or conjunctival redness (similar to skin injury caused by blowing). May cause mild injury, and this substance may produce a foreign body irritation response to certain individuals.

chronic	<p>Harmful: There is a risk of serious health damage through inhalation and prolonged exposure</p> <p>Prolonged exposure to this substance can cause serious damage. It can be inferred that this substance contains components that can cause serious harm.</p> <p>Limited evidence suggests that repeated or prolonged occupational exposure may have cumulative health effects involving organs or digestive systems.</p> <p>There is conclusive evidence that certain inhaled substances are more prone to allergic reactions than most individuals.</p> <p>There is conclusive evidence that certain skin contact substances are more likely to cause allergic reactions than most people.</p> <p>Prolonged exposure to high concentrations of dust can cause pulmonary dysfunction, namely pneumoconiosis; This is due to particles with a diameter of less than 0.5 microns penetrating and staying in the lungs. The main symptom is wheezing; Chest X-ray can reveal lung shadows.</p> <p>Based mainly on animal experiments, a few classification institutions have expressed their concern that the substance may produce carcinogenic or mutagenic effects; Regarding the existing information, there is currently a lack of sufficient data to make a satisfactory evaluation.</p>
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Environmental hazards

Please refer to section 十二

Other hazardous properties

Exposure may have cumulative effects.

Section 3: Composition/Composition Information

material

Please refer to the following section - Mixture Composition Information.

mixture

CAS number concentration or concentration range (mass fraction%) component		
7789-75-5	5-10	Calcium fluoride
497-19-8	5-10	sodium carbonate
7631-99-4	5-7	Sodium nitrate
13775-52-5	3-5	(OC-6-11) - Potassium hexafluoroaluminate (3-)
Legend: 1. Chemwatch level identification; 2. Hazardous chemical classification information table; 3. EC Directive 1272/2008- Annex VI - Classification; 4. Categorize C&L*		

Section 4: First Aid Measures

first aid

Eye contact	If the eyes come into contact with this product: <ul style="list-style-type: none">Immediately clean and rinse. If irritation persists, seek medical attention.After an eye injury, contact lenses can only be removed by trained personnel.
Skin contact	If there is skin contact: <ul style="list-style-type: none">Immediately remove all contaminated clothing, including shoes and socks.Rinse the skin and hair with a flowing cleanser(soap if possible); If there is irritation, seek medical attention.
inhalation	<ul style="list-style-type: none">If inhaling smoke, aerosols, or combustion products, transfer the patient out of the contaminated area.Generally, no other measures need to be taken.
Ingestion	<ul style="list-style-type: none">Immediately provide a cup of coffee.Generally, there is no need for first aid. If you have any questions, please contact the poison information center or medical staff.

Advice on

protecting rescuers

and special

recommendations

for doctors

Symptomatic treatment.

Section 5: Fire Protection Measures

Fire extinguishing agent

- There are no restrictions on the types of extinguishing agents used. A fire extinguishing medium that is suitable for the surrounding environment.

Special danger

Fire taboos	<ul style="list-style-type: none">Avoid contamination by oxidants such as nitrates, oxidizing acids, chlorine containing bleaching powder, swimming pool disinfectant chlorine, etc., as it may cause ignition.
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Fire extinguishing precautions and protective measures

Fire protection measures	<ul style="list-style-type: none">Notify the fire brigade and inform them of the location and hazard characteristics of the accident. Only wear respiratory equipment and protective gloves in case of fire.Take all possible measures to prevent spillage from entering the next or lower road. Use fire extinguishing procedures that are suitable for the surrounding environment.
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Fire/explosion hazards	<div><div>▶ Non combustible.</div><div>▶ There is a high risk of fire, but the container may burn. Decomposition may produce toxic fumes:<div><div>— Carbon oxide (CO)</div><div>— Carbon oxide (CO 2)</div></div>Hydrogen fluoride nitrogen oxides (NOx)</div><div>Oxides of sulfur (SOx)</div><div>Aluminum oxide</div><div>Made from typical combustion organic materials of other pyrolysis products. May release toxic fumes.</div></div>
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Part 6: Emergency Response for Leakage

Protective measures, equipment, and emergency response procedures for operators

Please refer to Part 8

Preventive measures against secondary disasters

Please refer to the above section

Environmental protection measures

Please refer to section 12

Storage, removal, and disposal materials for leaked chemicals

Volume leakage	<ul style="list-style-type: none">▶ Immediately clean up all leaks.▶ Avoid inhaling dust, avoiding contact with hands and eyes.▶ Wear protective clothing, gloves, safety goggles, and dust masks. Mining and drying cleaning procedures to avoid dust production.
Volume leakage	<p>Moderate level of harm.</p> <ul style="list-style-type: none">▶ Warning: Notify all personnel in the area.▶ Report to the emergency department and▶ inform them of the accident location and hazard characteristics. Wear protective clothing to control personal contact.

The recommendations for personal protective equipment are located in Part 8 of this SDS.

Section 7: Handling and Storage

Precautions for operation and disposal

Safe operation	<ul style="list-style-type: none">▶ Prevent all contact, including inhalation.▶ When there is a risk of contact, wear protective clothing. Use in▶ areas with good ventilation.▶ Prevent this product from gathering in low-lying areas. <p>Organic powder can form explosive dust air mixtures and cause fires or dust explosions (including secondary explosions) by minimizing the dust in the air and eliminating any sources of ignition, regardless of the concentration of particles or shapes within a certain range. Keep away from heat sources, heat sources, sparks, and open flames. Establish good internal management. By vacuuming or gently sweeping the floor, regular dust accumulation can be avoided by removing dust from the dust cloud. Continuously aspirate and capture dust at the point of dust production, and minimize the accumulation of dust as much as possible. Special attention should be paid to maximizing the possibility of a "second explosion" in expenses and hidden financial statements. According to NFPA Standard 654, a dust layer 1/32 inch (0.8 mm) thick can be applied to ensure proper cleaning of the area. Do not clean the empty hose. Minimize sweeping to avoid dust clouds. Vacuum dust accumulation table and transfer to chemical disposal area. The explosion-proof motor should be vacuumed. Control source of static electricity. Dust or static charges that may accumulate on its packaging, as well as electrostatic discharge, may be a source of ignition. The design of solid treatment systems must comply with applicable standards (such as NFPA including 654 and 77) and guidance from other countries. Do not directly discharge flammable solvents or flammable vapors. Operators, packaging containers, and all equipment must be connected to the electrical system and grounded to the grounding system. Plastic bags and plastics cannot be grounded, and anti-static bags cannot completely prevent the development of static charges. Empty containers may contain residual dust, which has the potential to accumulate and settle. This powder can explode in the presence of an appropriate ignition source. Do not cut, drill, grind or weld such containers. In addition to ensuring the safety of such activities, there is also no lack of appropriate authorization or permission for the workplace to approach full or partially empty containers.</p>
Other information	<ul style="list-style-type: none">▶ Store in the original container. Keep the container securely▶ sealed.▶ Store in a cool, dry place and isolate from severe▶ environmental changes. Protect the container from damage and regularly check for leaks.

Storage precautions

Suitable container	<ul style="list-style-type: none">▶ Polyethylene or polypropylene containers.▶ Check all containers to ensure clear labels and no leaks.
Storage prohibition	<p>Contact with acid can form toxic smoke</p> <p>In humid environments, this substance is corrosive to aluminum, zinc, and</p> <ul style="list-style-type: none">▶ tin, and can produce highly flammable hydrogen. Avoid reaction with oxidants

Section 8: Exposure Control and Personal Protection

Control parameters

Occupational exposure limit composition data

source	component	Substance name	TWA	STEL	peak value	annotation
Occupational Exposure Limits for Hazardous Factors in Chinese Workplace	Calcium fluoride	Fluorine and its compounds (excluding hydrogen fluoride) (calculated by F)	2 mg/m3	Information	Information	Information
Occupational Exposure Limits for Hazardous Factors in Chinese Workplace	sodium carbonate	sodium carbonate	3 mg/m3	6 mg/m3	Information	Information
Occupational Exposure Limits for Hazardous Factors in Chinese Workplace	(OC-6-11) - Potassium hexafluoroaluminate (3-)	Fluorine and its compounds (excluding hydrogen fluoride) (calculated by F)	2 mg/m3	Information	Information	Information

Emergency restrictions

component	TEEL-1	TEEL-2	TEEL-3
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Continued...

Calcium fluoride	15 mg/m3	170 mg/m3	1000 mg/m3
sodium carbonate	7.6 mg/m3	83 mg/m3	500 mg/m3
Sodium nitrate	4.1 mg/m3	45 mg/m3	270 mg/m3

component	Original IDLH	Revised IDLH
Calcium fluoride	250 mg/m3	Information
sodium carbonate	Information	Information
Sodium nitrate	Information	Information
(OC-6-11) - Potassium hexafluoroaluminate (3-)	Information	Information


Occupational exposure limit

Occupational exposure limit levels for ingredients Occupational exposure limit values

Note: Occupational exposure limits are the process of assigning chemicals to specific categories or bands of chemical based effects and exposure related adverse health outcomes. The output of this process is an occupational exposure limit (OEB), which corresponds to the expected range of exposure concentrations for protecting human health.

component	Occupational exposure limit level	Occupational exposure limit
Sodium nitrate	E	$\leq 0.01 \text{ mg/m}^3$
Annotations:	Occupational exposure limits are the process of assigning chemicals to specific categories or bands of chemical based effects and exposure related adverse health outcomes. The output of this process is an occupational exposure limit (OEB), which corresponds to the expected range of exposure concentrations for protecting human health.	

Contact control

Process control	<p>Control the mining process to eliminate hazards, or set up a barrier between the site and the hazards. A well-designed process control can effectively protect the environment, and it usually improves the level of protection without being affected by the interaction between individuals.</p> <p>The basic types of process control include:</p> <p>Reduce risk by changing the process control of homework activities or process flow.</p> <p>Enclose and/or isolate the emission source to physically isolate the hazardous area from the environment, as well as a communication system that can strategically "add fresh air" and "remove contaminated air" to the workplace. If the design is reasonable, ventilation can remove or reduce air pollution. The design of the communication system must comply with specific processes and the chemicals or pollutants involved.</p> <p>Employers may need to implement various types of control measures to prevent excessive exposure of employees.</p>	
Personal protective equipment		
Eye protection	<ul style="list-style-type: none"> Safety glasses with side frame protection. Chemical goggles. Contact lenses may pose special hazards; Soft contact lenses may absorb and accumulate irritants. Each workplace or work platform should have a written strategy document regarding the wearing of contact lenses or restrictions. 	
Skin protection	Please refer to the following protection:	
手/Foot protection	<p>Attention:</p> <ul style="list-style-type: none"> This substance may cause skin allergic reactions to susceptible groups. When removing gloves and other protective equipment, it is necessary to be careful and avoid skin contact as much as possible. Contaminated household products, such as shoes, straps, and watch straps, should be removed and destroyed. <p>Choosing a suitable sleeve not only depends on the material, but also on the quality of the material, which varies from manufacturer to manufacturer. If the chemical reagent is a preparation of a substance, the resistance of the set of materials must be calculated in advance, so it must be checked before application. The exact breakthrough time of the substance must be obtained from the manufacturer of the protective sleeve and must be observed when making the final choice.</p> <p>Personal hygiene is a key factor in effective personal care. The condom must be worn on a clean cloth. After using the sleeve, the double sleeve should be thoroughly cleaned and dried. Recommend moisturizing creams with a strong fragrance.</p> <p>The suitability and durability of the sleeve type depend on the operating conditions. The important factors for choosing a condom are:</p> <ul style="list-style-type: none"> The frequency and time of contact; Chemical resistance of sleeve material Thickness of sleeve Dexterity <p>Select a set that meets relevant standards (such as European EN 374, US F739, AS/NZS 2161.1 or corresponding national standards). Experience has shown that the following polymers are suitable as sheath materials for undissolved, dry solids, where abrasive particles do not provide protection. Neoprene rubber. Nitrile rubber. Butyl rubber. Fluorine -. Polychloroprene. The sleeve should be inspected for continuous wear and/or degradation.</p>	
Physical protection	Please refer to other protections:	
Other protections	<ul style="list-style-type: none"> Work clothes. PVC (polyvinyl chloride) apron. Protective cream. Skin cleansing cream. 	

Recommended materials

Set of selection indexes

The selection of sets is based on the modified model of the Forsberg Clothing Performance Index. When selecting a computer system, the following substances should be taken into account:

Foseco India Coveral GR 2510

material	CPI
NATURAL RUBBER	A
NITRILE	A

*CPI Chemwatch Performance Index A: Best Choice

B: Acceptable; When continuously immersing the substance for 4 days, it may degrade C. In addition to short-term immersion, the choice is not good and can be very dangerous

Note: Because the performance of the sleeve depends on multiple factors, it is important to observe the situation in detail before making a final decision.

- When a condom is only for short-term, temporary, or infrequent use, it can be selected based on factors such as "feeling comfortable" or bowel movements (such as secondary) that are not suitable for short-term or frequent use. The opinions of qualified experts should be consulted.

respiratory system protection

The particulate filter has sufficient energy. (AS/NZS1716 and 1715, ANSI Z88 EN143:2000 and 149:001, or equivalent national)

Protection coefficient	Half piece respirator	Full set respirator	Electric breathing apparatus
10 x ES	P1 Air duct*	- -	PAPR-P1 -
50 x ES	Air duct**	P2	PAPR-P2
100 x ES	-	P3	-
		Air duct*	-
100+x ES	-	Air duct**	PAPR-P3

*Negative pressure type ** - continuous flow

- When the process and management control measures are effective in preventing exposure, it may be necessary to use a respirator.
- Whether to use respiratory protection should depend on professional intent and judgment, including consideration of toxicological information, exposure measurement data, frequency, and the likelihood of personal exposure - ensuring that the user does not wear personal protective equipment (optional) Auxiliary, positive pressure, fully enclosed filtration equipment is subjected to
- heat loads that may cause thermal stress or fatigue. If there are published occupational exposure limits, it will help determine whether the selected respiratory protective equipment is effective enough. These limits may be mandatory by the government or recommended by the seller.

Continued...

When selected appropriately and tested as part of a complete respiratory protection system, certified respirators can effectively protect individuals from inhaling particulate matter.

- When there is a considerable amount of dust in the air, use
- an approved positive pressure breathing device. Try to avoid dust producing conditions as much as possible.

Section 9: Physical and Chemical Properties

Basic physical and chemical properties

exterior	Information		
Physical state	Finely ground solid	Relative density (水=1)	1.0

Taste	Information	Partition coefficient n-octanol/水	Information
Taste threshold	Information	Ignition temperature (° C)	Discomfort
PH (by supply)	Discomfort	decomposition temperature	Information
Melting point/freezing point (° C)	>650	Viscosity (cSt)	Discomfort
Initial boiling point and boiling point range (° C)	Discomfort	Distribution amount (g/mol)	Discomfort
Flash point (° C)	Discomfort	taste	Information
Evaporation rate	Discomfort	Explosive properties	Information
Flammability	Discomfort	Oxidative properties	Information
Upper explosion limit (%)	Discomfort	Table 1 (dyn/cm or mN/m)	Discomfort
Lower explosive limit (%)	Discomfort	Volatile components (% by volume)	Discomfort
Vapor pressure (kPa)	Discomfort	Corpuscular group	Information
Medium solubility	Partial miscibility	PH value of solution (1%)	Discomfort
Steam density (air density=1)	Discomfort	Volatile organic compounds g/l	Information

Section 10: Stability and Reactivity

Reactivity	Please refer to section 7
stability	<ul style="list-style-type: none"> There are incompatible substances present. Substances are considered to have stability. No dangerous polymerization reactions will occur.
Hazardous reactions	Please refer to section 7
Conditions to avoid	Please refer to section 7
Prohibited compound	Please refer to section 7
Hazardous decomposition products	Please refer to Part 5

Section 11: Toxicological Information

Foseco India Coveral GR 2510	Toxic Irritability Data	
Calcium fluoride	toxicity	Irritability
	Oral (rat) LD50; 101 mg/kg [1]	Information
	toxicity	Irritability
	Oral (rat) LD50; 2800 mg/kg [2] Rat LD50: >905 mg/kg [1]	Eye (rabbit): 100 mg/24h moderate
sodium carbonate	Rat LD50: >2000 mg/kg [2]	Eye (rabbit): 100 mg/30s mill
		Eye (rabbit): 50 mg SEVERE
		Skin (rabbit): 500 mg/24h mill
		Skin irritation: No adverse effects observed (no stimulation) [1]
		Eye: Adverse effects observed (irritant) [1]
	toxicity	Irritability
Sodium nitrate	Oral (rat) LD50; 1267 mg/kg [2]	Information
	Rat LD50: >5000 mg/kg [1]	
	toxicity	Irritability
	Oral (rat) LD50; 2150 mg/kg [2]	Skin irritation: No adverse effects observed (no stimulation) [1]
		Eye: Adverse effects observed (irritant) [1]
(OC-6-11) - Potassium hexafluoroaluminate (3-)		
Legend:	1. Value taken from European ECHA registered substance - Acute toxicity 2 Unless otherwise specified, all data are based on RTECS - Chemical Toxicity Record - * Values taken from the manufacturer's SDS	

sodium carbonate	Prolonged or repeated exposure to this substance can cause inflammation of the skin, which can cause redness, swelling, blistering, peeling, and hypertrophy of the skin after contact.
Sodium nitrate	Laboratory (in vitro) and animal experiments indicate that exposure to this substance poses a risk of irreversible damage and may cause genetic mutations.

**(OC-6-11) - Potassium
hexafluoroaluminate (3-)**



Contact allergies can quickly manifest as contact rash, occasionally manifested as urticaria or ductal nerve swelling. The pathogenesis of contact rash is a delayed immune response mediated by T lymphocytes. Other allergic skin reactions, such as contact urticaria, are caused by immune responses mediated by antibodies. The importance of contact allergens is not only determined by their allergenic potential, but also by the distribution of substances and exposure opportunities. The weakly allergenic substances that are widely distributed may be more important allergens compared to the stronger allergenic substances that few people come into contact with. From a clinical perspective, if more than 1% of the participants in the trial show a positive allergic reaction to a substance, this substance should be taken into account.

The allergic reactions that develop into bronchial asthma or conjunctivitis in the respiratory tract are mainly the result of the reaction between allergens and IgE specific antibodies, and belong to their reaction speed to immediate manifestations. In addition to the allergen specific potential that causes respiratory allergies, the number of allergens, exposure time, and the disposal of exposure groups influenced by genetic factors may also be decisive. Factors that increase mucosal sensitivity may play a role in making individuals susceptible to allergies. For example, during the process of infection or exposure to irritating substances, they can be determined or obtained through genetic methods. In immunology, low molecular weight substances become intact allergens by binding to peptides or proteins (haptens) or after metabolism (haptens).

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	<p>Attention should be paid to individuals with atopic qualities, characterized by increased susceptibility to inflammation, asthma, and rash. Exogenous allergic alveolitis is caused by allergen specific IgG antibodies; It may involve T-lymphocyte mediated reactions. This allergic reaction belongs to the delayed onset type, which lasts for 4 hours after contact</p> <p>Only then did it happen.</p>
Foseco India Coveral GR 2510 &(OC-6-11) - Potassium hexafluoroaluminate (3-)	<p>There was no significant acute toxicity data determined in the literature search.</p>
Calcium fluoride&sodium carbonate&sodium nitrate	<p>After discontinuing exposure to this substance, the recognition of asthma like symptoms persists for several years or even more. This may be due to a non allergic condition called "Reactive Respiratory Dysfunction Syndrome" (RADS), which often occurs after exposure to high concentrations of highly irritating compounds. The key criteria for diagnosing RADS include individuals who are not specific to the disease and do not exhibit a prior respiratory history, as well as determining the sudden onset of persistent asthma like symptoms within minutes or hours of exposure to irritants. The diagnostic criteria for RADS also include reversible flow patterns detected by spirometry, accompanied by moderate to severe tubular reactivity in the methacholine challenge test, but without lymphocytic inflammation and eosinophilia. The incidence of RADS (or asthma) after inhaling irritants is generally low; The incidence rate is related to the concentration of irritating substances (often particulate properties) in contact and exposure time; Occupational cholangitis is a physical disorder caused by exposure to high concentrations of irritants (often particulate in nature)</p> <p>After exposure, it has complete reversibility. The main symptoms of this condition include difficulty breathing, coughing, and the accumulation of mucus.</p>

acute toxicity	✓	carcinogenicity	✗
Skin irritation/corrosion	✓	Genital toxicity	✓
Serious damage/eye irritation	✓	Specific target organ systemic toxicity - secondary exposure touch	✓
Respiratory or skin allergies	✓	Specific target organ systemic toxicity - repeated exposure touch	✓
Mutagenicity	✗	Inhalation hazards	✗

Legend:  Data cannot be classified or
 classification criteria are not
filled in - There is enough
data to classify

Section 12: Morphological Information

Physical toxicity

Foseco India Coveral GR 2510	end point	Test duration (in hours)	type		price value	source
	Information		Information		Information	Information
Calciu	Information				Information	Information
	end point	Test duration (in hours)	type		value	source
	NOEC (ECx)	504h	Crustaceans		3.7mg/l	2
	EC50	96h	Algae or other aquatic plants		43mg/l	2
sodiu	EC50	72h	Algae or other aquatic plants		>100mg/l	2
	LC50	96h	魚		>= 10.4 <= 150mg/l	2
	EC50	48h	Crustaceans		97mg/l	2
	end point	Test duration (in hours)	type		value	source
	NOEC (ECx)	48h	魚		0.0106mg/l	4
	LC50	96h	魚		300mg/l	4
Sodium nitrate	EC50	72h	Algae or other aquatic plants		>800mg/l	2
	EC50	96h	Algae or other aquatic plants		242mg/l	4
	EC50	48h	Crustaceans		156.6-298.9mg/l	4
	end point	Test duration (in hours)	type		value	source
(OC-6-11) - Potassium hexafluoroaluminate (3-)	NOEC (ECx)	1056h	Algae or other aquatic plants		0.2mg/l	4
	LC50	96h	魚		7.1mg/l	4
	EC50	48h	Crustaceans		3581mg/l	2
	Abstract 1 HCLID Toxicity Data 2 Substances Registered with the European Chemical Administration (ECHA) - Physical Toxicology					
	end point	Test duration (in hours)	type		value	source
	EC50	48h	Crustaceans		22.8mg/l	Information

Continued...

				o n
EC50 (ECx)	48h	Crustaceans	22.8mg/l	Inf or m ati o n

Prohibit discharge into the next path or body.

Persistence and degradability

component	Persistence: soil/soil	Persistence: Empty
sodium carbonate	low	low
Sodium nitrate	low	low

Potential accumulation of pollutants

component	Material accumulation
sodium carbonate	Low (LogKOW=-0.4605)
Sodium nitrate	Low (LogKOW=0.209)

Mobility in soil

component	Mobility
sodium carbonate	高 (KOC=1)
Sodium nitrate	Low (KOC=14.3)

Other adverse effects**Section 13: Waste Disposal****Waste disposal**

Waste Chemicals:	<p>The laws regarding waste disposal requirements may vary between different countries, states, or regions. The user of the product must refer to local regulatory procedures. In some places, certain waste must be tracked.</p> <p>The control level system is basically hierarchical - product users must investigate and study:</p> <ul style="list-style-type: none"> ▶ minimize waste production ▶ If possible, reuse the waste (when it is already in use). If possible, recycle the waste ▶ If waste cannot be reused or recycled, dispose of or destroy it <p>If the material has not been used or contaminated to be unsuitable for the intended use, it can be recycled.</p> <ul style="list-style-type: none"> ▶ Do not allow cleaning or processing equipment to enter the next lane. ▶ Before disposal, it is necessary to collect all cleaning materials for disposal. ▶ In any case, the discharge of waste liquid into the downstream channel should comply with local laws and regulations, which is an issue that should be considered in the selection process. If you have any questions, please contact the competent department. ▶ Try to recycle as much as possible. ▶ If it is uncertain whether suitable treatment or waste disposal equipment is available, consult the manufacturer regarding recycling laws or consult the local or local waste management department regarding waste laws. ▶ Dispose of the waste according to the following method: bury it in an approved landfill for receiving chemicals and/or medical waste, or incinerate it in a licensed incineration site (mixed with appropriate combustible substances). Decontaminate the emptied container. Comply with all labeling regulations and ensure that the container is cleaned or destroyed as a container.
Contaminated packaging:	Please refer to the above section
Transportation precautions:	Please refer to the above section

Section 14: Transportation Information**Packaging Mark**

Marine pollutants	无
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Land transportation (UN): Not regulated as dangerous goods transportation

Air freight (ICAO IATA/DG): not regulated as dangerous goods transportation

Maritime transportation (IMDG Code/GGVSee):

Uncontrolled transportation of dangerous goods

in bulk according to Appendix II of MARPOL and

IBC code

Discomfort

Bulk transportation in accordance with MARPOL Annex V and IMSBC rules

Product Name	group
Calcium fluoride	Information
sodium carbonate	Information
Sodium nitrate	Information
(OC-6-11) - Potassium hexafluoroaluminate (3-)	Information

Bulk transportation according to IGC code

Product Name	Type of vessel
Calcium fluoride	Information
sodium carbonate	Information
Sodium nitrate	Information
(OC-6-11) - Potassium hexafluoroaluminate (3-)	Information

Precautions

for
transportatio
n and
packaging
Please refer to section 7

Section 15: Regulatory Information

Specific safety, health, and environmental regulations/rules for this substance or mixture

Calcium fluoride appears in the following regulations

Occupational Exposure Limits for Hazardous Factors in Chinese Workplace List of Existing Chemical Substances in China	International Agency for Research on Cancer (IARC) - Drugs specifically classified by
Sodium carbonate appears in the following regulations Occupational Exposure Limits for Hazardous Factors in Chinese Workplace	List of Existing Chemical Substances in China
Sodium nitrate appears in the following regulations List of Existing Chemical Substances in China Hazardous Chemicals List	International Agency for Research on Cancer (IARC) - IARC Specialized Classification of International Agency for Research on Cancer (IARC) - Drugs specifically classified by IARC
(OC-6-11) - Potassium hexafluoroaluminate (3-) appears in the following regulations Occupational Exposure Limits for Hazardous Factors in Chinese Workplace	List of Existing Chemical Substances in China

Country/region directory inclusion status

List of Chemical Substances	situation
Australia AIIC/Australia Non Industry On the Way	yes
Cana 大 - DSL	yes
Cana 大 - NDSL	No (sodium carbonate; sodium nitrate)
China - IECSC	yes
EU - EINECS/ELINCS/NLP	yes
日日 - ENCS	yes
Korea - KECI	yes
New Zealand - NZIoC	yes
Philippines - PICCS	yes
United States - TSCA	yes
Taiwan - TCSI	yes
Mo Ge - INSQ	yes
Vietnam NCI	yes
Russia - FBEPH	No (OC-6-11) - Potassium hexafluoroaluminate (3-)
Legend:	Yes=All chemical components with CAS numbers are listed. No=One or more CAS listed ingredients are not in stock. These ingredients may be exempt or require registration.

Section 16: Other Information

Revision period:	12/10/2021
Initial preparation period	06/26/2012

SDS Version Summary

version	Latest update	Partial updated
3.1	11/01/2019	Secondary system updates. Note: This may or may not change the GHS classification
4.1	12/10/2021	Classification changes due to complete database hazard calculations/updates.

Other information

The preparation and classification of its individual components are based on official and authoritative data, as well as the Chemwatch Classification Expert Committee's existing references.

As a means of exchanging hazard information, the (Material) Safety Data Sheet (SDS) should be used to assist in risk assessment. Many factors can be used to determine whether a hazard needs to be reported, whether it is a hazard in a workplace or other placement. The danger can be determined by referring to the exposure situation. The degree of scale, frequency, and existing or feasible process control must be considered.

Abbreviations and Acronyms

- PC TWA: Time Weighted Average Permissible Concentration
- PC STEL: Short term Exposure Permissible Concentration
- IARC: International Agency for Cancer Research
- ACGIH: United States Conference of Government Occupational Hygienists
- STEL: Short term Exposure Limits
- TEEL: Temporary Emergency Exposure Limit
- IDLH: Immediately dangerous to human life or health
- ES: Exposure standard
- OSF: Odor safety factor
- NOAEL: Minimum observed adverse effect level
- TLV: Threshold limit value
- LOD: detection lower limit
- OTV: lower limit

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odor threshold
BCF: substance
enrichment
coefficient BEI:
substance
contact index
AII.C: Australian Chemical
Inventory DSL: Domestic
Substance List
NDSL: List of Non Domestic
Substances IECSC: List of
Existing Chemical
Substances in China
EINECS: European List of Existing
Commercial Chemical Substances
ELINCS: European List of Notified
Chemical Substances NLP: No
longer a Polymer
ENCS: List of Existing and New Chemical Substances

[illegible]

- ▶ KECI: List of Existing
- ▶ Chemicals in Korea
- ▶ NZIoC: New Zealand
- ▶ Chemical List
- ▶ PICCS: Philippine List of Chemicals
- ▶ and Chemical Substances TSCA:
- ▶ Toxic Substances Control Act
- ▶ TCSI: Taiwan Chemical
- ▶ Substance Inventory
- ▶ INSQ: National
- ▶ Chemical Substance
- ▶ Inventory NCI: National
- ▶ Chemical Inventory
- ▶ FBEPH: Russian Register of Potential Hazardous Chemicals and Hazardous Substances

Disclaimers

The information in this SDS is only applicable to the specified product, unless otherwise specified, and is not suitable for mixtures of this product and other substances. This SDS only provides information on product safety for operators who have received appropriate professional training for the product.

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MATERIAL SAFETY DATA SHEET

Version 2.2
Issued 1st March 2022

I. PRODUCTION IDENTIFICATION

Product name: Stainless Steel Shot, TufGrit , NicroShot, Cr12Shot
 Manufacturer: Sigma Wear Parts (Pty) Ltd.
 Web Site: www.satactics.co.za
 Address: Atlantis Business Park, Atlantis
 Telephone: +27 0827796071

Product Description: Stainless Steel Shot, TufGrit Cr12Shot and NicroShot comprise stainless steel spherical balls and angular grit of size range 0.025mm up to 4mm diameter.

Chemical Family: Ferrous

II. Hazardous Ingredients.

The term HAZARDOUS should be interpreted as a term required and defined by laws, regulations, Statutes or ordinances, and does not necessarily imply the existence of any hazard when the products are used as directed by Sigma Stainless steel.

<u>Chemical Name</u>	<u>CAS Reg. No</u>	<u>% Weight</u>	<u>ACGIH TLV (mg/m³)</u>	<u>OSHA PEL(mg/m³)</u>
Carbon (C)	7740-44-0	<0.30	3.5 (Carbon Black)	3.5 (Carbon Black)
Chromium (Cr), Elemental metal and Inorganic compounds as Cr metal Cr II compounds –as Cr CR III compounds –as Cr CR VI compounds –Water soluble Cr VI compounds –Insoluble Chromic Acid and Chromates as CrOx Chromium salts-Insoluble as Cr	7440-47-3	16-20	0.5 None established. 0.5 0.05 0.01 None established. None established.	1 0.5 0.5 None established. None established. 0.1(ceiling) 1
Iron (Fe)	7439-89-6	Balance	5 (As Oxide Fume)	10 (Total Particulate)
Manganese (Mn) Elemental and Inorganic compounds, as Mn Fume as Mn and Mn Oxide	7439-96-5	<2.0	0.2 (Fume)	5 (Ceiling) 5 (ceiling)
Nickel (Ni) Elemental metal, Insoluble inorganic compounds of Ni Soluble organic compounds of Ni	7440-02-0	6-12	1.5 (Inhalable fraction) 0.2 (Inhalable Fraction) 0.1 (Inhalable Fraction)	0.1 (Soluble)
Silicon (Si) As Silicon Dioxide (SiO ₂)	7440-21-3 14808-60-7	<4.0 0.00	10 (Dust). 0.05 (Respirable fraction)	5 (Respirable) 10/(%SiO ₂ +2); SiO ₂ measured as Respirable fraction

III. PHYSICAL DATA

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Cast stainless steel shot is in a non-hazardous condition when received. Fine metallic dust is generated as the shot breaks down from impact and wear during normal use. The Fe content of the product is greater than 70% and thus the dust or fume produced will consist of mainly of Iron Oxide, this dust so created can be a small explosion hazard.

Boiling Point:	3123-3423°C	Melting Point:	1410°C - 1480°C
Specific Gravity (at 293°K):	7.7g.ccm	Vapour Pressure	Not Applicable
% Volatile by volume	Not Applicable	pH:	Not Applicable
Evaporation Rate	Not Applicable	Vapour Density	Not Applicable
Solubility in Water	Not Applicable	Percent Solid by Weight	100%

IV. FIRE AND EXPLOSION HAZARD DATA

Flash Point:

Not Applicable

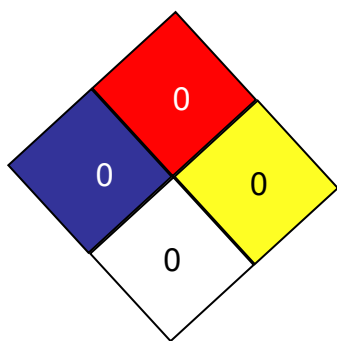
Auto-ignition Temperature:

(Solid iron exposed to oxygen)-1200°K

Flammability Limits:

Not Applicable

Cast stainless steel shot will not burn or explode. A mild fire or explosion hazard situation may be created due to the fine dust that may result from use, when the vacuum condition of the shot blaster is poor. Fire extinguishing method for dust created due to use-use Class D extinguishing agents or dry sand to exclude air. Do not use water or other liquids or foam.



NFPA HAZARD RATING

4= Extreme	3=High	2=Moderate	1=Slight	0=Insignificant
Health (blue): 0	Flammability (red): 0	Reactivity (yellow): 0	Special (Colourless):	

V. HEALTH HAZARD DATA

Threshold Limit Values: Permissible exposure limits – see Section II

Carcinogenicity:

OSHA, not listed, IARC, chromium [VI] – carcinogenic to humans (Group 1), metallic chromium and chromium [III] compounds-not classifiable as to their carcinogenicity to humans (Group 3); nickel compounds are carcinogenic to humans, metallic nickel is possibly carcinogenic to humans (Group 2B) Stainless steel Shot, made thereof respectively, is not reported to be carcinogenic.

Fumes can be generated by welding or flame cutting surface containing new or used stainless steel shot or the dust created by use of the abrasive. Welding or flame cutting may convert a small portion of the chromium to hexavalent chromium [VI]. IARC reports that welding fumes are possibly carcinogenic to humans.

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Over exposure to dust and fumes may cause mouth, eye and nose irritation. Prolonged over exposure to manganese dust or fume affects the central nervous system. Chronic over exposure can cause manganese poisoning and attendant apathy, loss of appetite, uncontrolled laughter, insomnia followed by sleepiness, headache, difficulty in walking, frequent falling, tremors, salivation sweating and mental detachment. Prolonged over exposure to iron oxide fume can cause siderosis or “iron pigmentation” of the lung. It can be seen on a chest x-ray but causes little or no disability.

Target Organs: Lung for chromium and lung and nasal for nickel

Primary Routes of Entry: Inhalation of dust formed during use or shot or dust particles in eyes

Emergency and First

Aid Procedure: If inhaled, move out of the area into fresh air. Flush eyes with running water and have any remaining particles removed from eyes by a qualified person.

VI. REACTIVITY DATA

Stability: Stable

Hazardous polymerization: Will not occur

Hazardous decomposition products: None, Shot will break down into progressively smaller particles and dust during normal use.

VII. SPILL OR LEAK PROCEDURES

Shot spilled or leaked onto floors can create hazardous walking conditions. No special precautions need to be followed when cleaning up spills or leaks of shot. When cleaning up large quantities of dust an OSH approved respirator should be used. Spilled shot can be reclaimed for reuse or disposed of as a non-hazardous solid waste. Collected dust from blast cleaning or shot preening operations always contains contaminants from the surface of the parts being processed and therefore the dust may be classed as hazardous waste and, as such, must be disposed of according to appropriate local, state or federal regulations.

VIII. SPECIAL PROTECTION INFORMATION

Ventilation: General Ventilation and local exhaust should be provided to keep the dust levels below the TLV's shown in Section II

Respiratory protection: If the dust created by use exceeds the ACGIH TLV's and OSHA PEL's indicated in Section II, an OSH approved respirator should be worn.

Eye Protection: Approved safety glasses with eye shields should be worn

Other Protective

Equipment: None required

IX. SPECIAL PRECAUTIONS

SIMPLE ACTIVE TACTICS SA PTY LTD

Precautions to be taken

in handling and storage: Observe maximum floor loading limitations

The above information is believed to be accurate based on the most current data available. Simple Active Tactics makes no warranty, either expressed or implied, with respect to such information, and assumes no liability resulting from its use. Simple Active Tactics shall not be liable for any claims, losses, or damages of any Third party or for lost profits or incidental or consequential damages, howsoever arising even if Simple Active Tactics has been advised of the possibility of such damages.

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MATERIAL SAFETY DATA SHEET

SECTION 1 - CHEMICAL PRODUCT AND COMPANY IDENTIFICATION

PRODUCT IDENTIFICATION

Product Name: Polyaluminium Chloride

CAS #: 1327-41-9

Formula: $[Al_2(OH)nCl_{6-n}]_m$

Synonyms: Aluminum Chlorohydrate; Polyaluminium Hydroxychloride, Aluminium Chloride Hydroxide

Product Use: Water treatment chemical

COMPANY IDENTIFICATION

Manufacturer

HENAN XUNYU CHEMICAL CO.,LTD

NO.18,SHANGWU NEIHUAN RD, ZHENGDONG NEW DIS,ZHENGZHOU, HENAN,CHINA

Emergency Number: 86-371-63681121

Information Number: 86-371-63681125

SECTION 2 - COMPOSITION / INFORMATION ON INGREDIENTS

CHEMICAL NAME	CAS NUMBER	WEIGHT %	Hazardous
Polyaluminium Chloride	1327-41-9	29 - 32 (as Aluminium oxide) 40-90 (basicity)	No

SECTION 3 - HAZARD IDENTIFICATION

Emergency Overview: CORROSIVE! Inhalation, ingestion or skin contact with material may cause injury. Causes eye and skin irritation. Mist and Vapor: Causes respiratory tract and mucous membrane irritation.

Potential Health Effects:

Inhalation: Irritation to mucous membranes

Skin Contact: Possible irritation

Eye Contact: May cause irritation with redness and swelling.

Ingestion: Irritation of the mouth and stomach.

Sub-chronic Effects: No data available

Chronic Effects: None known

Carcinogenicity: Polyaluminum chloride is not classified as a carcinogen by ACGIH (American Conference of Governmental Industrial Hygienists) or IARC (International Agency for Research on Cancer), not regulated as a carcinogen by OSHA (Occupational Safety and Health Administration) and not listed as a carcinogen by NTP (National Toxicology Program).

SECTION 4 - FIRST AID MEASURES

General: If you feel unwell, seek medical advice (show the label where possible).

Inhalation: If symptoms are experienced, move victim to fresh air. Give artificial respiration ONLY if breathing has stopped. Obtain medical attention.

Skin Contact: Remove contaminated clothing, jewelry and shoes. Immediately wash skin with soap or mild detergent and running water for at least 15 minutes, until no evidence of chemical remains. For minor skin contact, avoid spreading material on unaffected skin. Obtain medical attention if irritation persists.



Eye Contact: Immediately flush eyes with running water for at least 15 minutes, occasionally lifting upper and lower lids, until no evidence of chemical remains. Obtain medical attention if irritation persists.

Ingestion: If swallowed, DO NOT INDUCE VOMITING. Give large quantities of water. Never give anything by mouth to an unconscious person. Loosen tight clothing such as a collar, tie, belt or waistband. Seek immediate medical attention.

NOTE TO PHYSICIAN: Antidote: There is no specific antidote for aluminum chlorohydrate. Treatment of overexposure should be directed at the control of symptoms and the clinical condition

SECTION 5 - FIRE FIGHTING MEASURES

Flash point	Not applicable.
Flammable Limits (Lower)	Not applicable
Flammable Limits (Upper)	Not applicable
Auto Ignition Temperature	Not applicable
Combustion and Thermal Decomposition Products	Hydrogen chloride, aluminum oxides
Rate of Burning	Does not burn
Explosive Power	Not applicable
Sensitivity to Static Discharge	Not available

Fire and Explosion Hazards: During a fire, irritating/toxic hydrogen chloride gas may be generated.

Extinguishing Media: Water spray, fog or regular foam appropriate for surrounding material. Cool any exposed containers with water.

Special Information:

Fire fighters should wear protective equipment and self-contained breathing apparatus with full-face piece operated in positive pressure mode. Move exposed containers from fire area if it can be done without risk. Use water to keep fire-exposed containers cool.

NOTE: Also see "Section 10 - Stability and Reactivity"

SECTION 6 - ACCIDENTAL RELEASE MEASURES

IN CASE OF SPILL OR OTHER RELEASE:

Dike area to contain spill. Neutralize spilled material with alkali such as soda ash. When using carbonates for neutralization, adequate precautions should be taken to minimize hazards from carbon dioxide gas generation. Collect liquid and/or residue and dispose of in accordance with applicable regulations.

SECTION 7 - HANDLING AND STORAGE

Handling: Avoid contact with skin, eyes and clothing. Do not breathe product mists. Use with adequate ventilation. Handle as material of moderate oral toxicity. Do not smoke or eat while handling. Use good housekeeping and personal hygiene. Wash thoroughly after handling.

Storage Recommendations: Store at moderate temperatures in a dry, well-ventilated area. Protect from physical damage and from freezing. Keep containers tightly closed.

SECTION 8 - EXPOSURE CONTROLS / PERSONAL PROTECTION

PREVENTIVE MEASURES



Recommendations listed in this section indicate the type of equipment, which will provide protection against over-exposure to this product. Conditions of use, adequacy of engineering or other control measures and actual exposures will dictate the need for specific protective devices at your workplace.

Engineering Controls: A ventilation system of local and/or general exhaust is recommended to keep employee exposures below the Airborne Exposure Limits. Local exhaust ventilation is generally preferred because it can control the emissions of the contaminant at its source, preventing dispersion of it into the general work area. Ensure that eyewash station and safety showers are proximal to the workstation location.

PERSONAL PROTECTIVE EQUIPMENT

Eye Protection: Wear splash resistant chemical goggles and/or a full face shield where splashing is possible. Maintain eye wash fountain and quick-drench facilities in work area.

Skin Protection: Wear impervious protective clothing, including boots, gloves, lab coat, apron or coveralls, as appropriate, to prevent skin contact.

Recommended Protective Material: Neoprene or rubber

Respiratory Protection: Under conditions of frequent use or heavy exposure, respiratory protection may be needed. For exposures under 20 mg/m³, a NIOSH/MSHA approved air-purifying respirator with high efficiency particulate cartridge(s) may be used. For unknown concentration, use any supplied air respirator with full facepiece and operated in a pressure-demand or other positive-pressure mode.

EXPOSURE GUIDELINES

Product: ACGIH: TLV - 2mg/m³ (as Al) (Aluminum salts, soluble)

SECTION 9 - PHYSICAL AND CHEMICAL PROPERTIES

Alternate Name	Aluminium Chloride Hydroxide
Chemical Name	Polyaluminium Chloride
Chemical Family	Inorganic salt
Molecular Formula	[Al ₂ (OH) _n C _{16-n}] _m
Molecular Weight	133.5 -174.5
Appearance	Yellow to brown powder
Odor	Slight chlorine odor
pH(1% aqueous solution)	3.5-5.0
Melting Point	No Data
Solubility (Water)	100% Soluble
Solubility (Other)	Not available
Evaporation Rate	Not applicable
% Volatile Organic Compounds	Not applicable

SECTION 10 - STABILITY AND REACTIVITY

Hazardous Decomposition Products: Thermal decomposition: hydrochloric acid, aluminium oxides.

Chemical Stability: Stable at normal temperatures and pressure.

Conditions to Avoid: None

Incompatibility with other Substances: Bases (alkaline materials) such as ammonia and its solutions, carbonates, sodium hydroxide (caustic), and potassium hydroxide. Corrosive to common metals such as aluminium, stainless and mild steel, nickel, copper, and brass.



Hazardous Polymerization: Will not occur.

SECTION 11 - TOXICOLOGICAL INFORMATION

TOXICOLOGICAL DATA:

Polyaluminum chloride: No data available

Aluminum chloride hydroxide: (base unit of polymer- monomer)

Irritation data: 150mg/m³ day(s)-intermittent skin-human mild

Toxicity data: 25mg/m³/6 hour(s)-2 year(s) intermittent inhalation-rat TCLo;

25g/m³/6 hour(s)-2 year(s) intermittent inhalation-guinea pig TCLo

Mutagenicity: Not available

Reproductive Effects Data: ND

Teratogenicity and Fetotoxicity: Not available

Synergistic Materials: Not available

SECTION 12 - ECOLOGICAL INFORMATION

Ecotoxicological Information: fish toxicity: 10000 µg/L 24 week(s) (Mortality) Coho salmon, silver salmon (Oncorhynchus kisutch)

Persistence and Degradation: No data available

SECTION 13 - DISPOSAL CONSIDERATIONS

Review federal, state and local government requirements prior to disposal.

Whatever cannot be saved for recovery or recycling, including containers, should be managed in an appropriate and approved waste disposal facility. Processing, use or contamination of this product may change the waste management options

RCRA: Hazardous if pH is less than 2. Test waste material for corrosivity, D002, prior to disposal.

SECTION 14 - TRANSPORT INFORMATION

Shipping information:

Not regulated as a hazardous material by DOT, IMO, or IATA.

Shipping Containers:

Tank Cars

Tank Trucks

Flexible Intermediate Bulk Containers

Tote Bins

Bags

SECTION 15 - REGULATORY INFORMATION

USA CLASSIFICATION:

OSHA Classification: Hazardous by definition of Hazard Communication Standard (29 CFR 1910.1200)

SARA Regulations sections 313 and 40 CFR 372: N

SARA Hazard Categories, SARA SECTIONS 311/312 (40 CFR 370.21):

Acute: N

Chronic: N

Fire: N



Reactive: N

Sudden Release: N

OSHA Process Safety (29CFR1910.119): N

TSCA Inventory Status: Y

This product does not contain, nor is it manufactured with, ozone-depleting substances.

Other Regulations/Legislation which apply to this product:

California Proposition 65: N

CANADIAN CLASSIFICATION

This product has been classified in accordance with the hazard criteria of the CPR (Controlled Products Regulations) and this MSDS (Material Safety Data Sheet) contains all information required by the CPR.

Controlled Products Regulation (WHMIS) Classification:

E: Corrosive

CEPA / Canadian Domestic Substances List (DSL): The substance in this product is on the Canadian Domestic Substances List (CEPA DSL).

EEC CLASSIFICATION

EINECS: 215-477-2

SECTION 16 - OTHER INFORMATION

This information is given without any warranty or representation. It is believed to be correct but does not claim to be all inclusive and shall be used only as a guide. HENAN XUNYU CHEMICAL CO.,LTD shall not be held liable for any damage resulting from handling or for contact with the above product. It is offered solely for your consideration, investigation and verification.

National Fire Protection Association (NFPA) Rating

Hazardous Materials Identification System (HMIS) Rating

	NFPA	HMIS
HEALTH	1	1
FIRE	0	0
REACTIVITY	0	0

4 = Extreme/Severe

3 = High/Serious

2 = Moderate

1 = Slight

0 = Minimum

REFERENCES:

1. American Water Works Association, ANSI/AWWA B408-93, "Liquid Polyaluminum Chloride", Colorado, Dec. 1993
2. RTECS-Registry of Toxic Effects of Chemical Substances, On-line search, Canadian Centre for Occupational Health and Safety RTECS database, Doris V. Sweet, Ed., National Institute for Occupational Safety and Health, U.S. Dept. of Health and Human Services, Cincinnati, Updated Nov 1998.
3. NIOSH POCKET GUIDE TO CHEMICAL HAZARDS, U.S. Department of Health and Human Services, National Institute for Occupational Safety and Health, June 1997
4. Sax, N.I., "Dangerous Properties of Industrial Materials", 7th Edition, 1989
5. "1999 Threshold Limit Values and Biological Exposure Indices", American Conference of Government Industrial Hygienists, 1999.
6. Merck, 11th Edition, 1989
7. Supplier's Material Safety Data Sheets.

Legend:

CAS # - Chemical Abstracts Service Registry Number



CERCLA- Comprehensive Environmental Response, Compensation, and Liability Act

CFR - Code of Federal Regulations

DOT- Department of Transportation

EPA - Environmental Protection Agency

LC₅₀- The concentration of material in air expected to kill 50% of a group of test animals

LD₅₀- Lethal Dose expected to kill 50% of a group of test animals

MSHA - Mine Safety and Health Administration

NIOSH - National Institute for Occupational Safety and Health

PEL - Permissible Exposure Limit

PVC - Polyvinyl chloride

RCRA - Resource Conservation and Recovery Act

SARA - Superfund Amendments and Reauthorization Act of the U.S. EPA

STEL - Short Term Exposure Limit

TDG- Transportation of Dangerous Goods Act/Regulations

TLV - Threshold Limit Value

TSCA - Toxic Substances Control Act

TWA - Time-Weighted Average



Section 1. Product and Company Identification

Product Name Polyacrylamide

Parchem - fine & specialty chemicals

415 Huguenot Street

New Rochelle, NY 10801

(914) 654-6800 (914) 654-6899

parchem.com info@parchem.com

EMERGENCY RESPONSE NUMBER

CHEMTEL

Toll Free US & Canada: 1 (800) 255-3924

All other Origins: 1 (813) 248-0585

Collect Calls Accepted

Section 2. Hazards Identification

Classification of the substance or mixture

Classification according to paragraph (d) of Regulation 29 CFR 1910.1200: Not classified

GHS Label Elements

Pictograms: N/A

Signal word: N/A

Hazard and precautionary statements

None

Other Hazards: Spills produce extremely slippery surfaces.

Section 3. Composition / Information on Ingredients

Common Name Polyacrylamide

Section 4. First Aid Measures

Description of first-aid measures

Inhalation: Move to fresh air. No Hazards which require special first aid measures.

Skin contact: Wash off with plenty of water. Get medical attention if irritation develops and persists.

Eye contact: In case of contact with eyes, rinse immediately with plenty of water and seek medical advice.

Ingestion: If swallowed, DO NOT induce vomiting unless directed to do so by medical personnel. Get medical attention.

Most important symptoms and effects, both acute and delayed: None under normal use.

Indications of any immediate medical attention and special treatment needed: None reasonably foreseeable.



Other information: Aqueous solutions or powders that become wet render surfaces extremely slippery.

Section 5. Firefighting Measures

Extinguishing media

Suitable extinguishing media: Use water spray, alcohol-resistant foam, dry powder, carbon dioxide.

Unsuitable extinguishing media: None.

Special hazards arising from the substance or mixture

Hazardous decomposition products: Thermal decomposition may produce: Nitrogen oxides (NO_x), carbon oxides (CO_x). Hydrogen cyanide (hydrocyanic acid) may be produced in the event of combustion in an oxygen deficient atmosphere.

Advice for firefighter.

Protective measures: In the event of fire, wear self-contained breathing apparatus.

Other information: Aqueous solutions or powders that become wet render surfaces extremely slippery.

Section 6. Accidental Release Measures

Personal precautions, protective equipment, and emergency procedures

Personal precautions: Aqueous solutions or powders that become wet render surfaces extremely slippery.

Protective equipment: Wear adequate personal protective equipment (see Section 8 - EXPOSURE CONTROLS / PERSONAL PROTECTION).

Emergency procedures: Keep people away from spill/leak.

Environmental Precautions: As with all chemical products, DO NOT flush into surface water.

Method and materials for containment and cleaning up

Small Spills: DO NOT flush with water. Clean up promptly by scoop or vacuum. Keep in suitable, closed containers for disposal. After cleaning, flush away traces with water.

Large Spills: DO NOT flush with water. Clean up promptly by scoop or vacuum. Keep in suitable, closed containers for disposal. After cleaning, flush away traces with water.

Residues: Flush away traces with water.

Reference to other sections

Section 7: Handling and Storage

Section 8: Exposure Controls/Personal Protection

Section 13: Disposal Considerations

Section 7. Handling and Storage

Precautions for safe handling: Aqueous solutions or powders that become wet render surfaces extremely slippery.

Conditions for safe storage: Keep in a dry place. Keep container closed when not in use. Incompatible with oxidizing agents.

Section 8. Exposure Controls / Personal Protection

Control parameters

Occupational exposure limits: None

Exposure controls

Appropriate engineering controls: Use local exhaust if dusting occurs. Natural ventilation is adequate in absence of dusts.

Individual protection measures, such as personal protective equipment

Eye/face protection: Safety glasses with side-shields

Skin protection: Chemical-resistant apron or protective suit if splashing or repeated contact is likely.

Hand protection: PVC or other plastic material gloves.

Respiratory protection: No personal respiratory protective equipment normally required. Dust safety masks recommended where working powder concentration is more than 10 mg/m³.

Additional advice: Handle in accordance with good industrial hygiene and safety practices.

Environmental exposure controls: DO NOT allow uncontrolled discharge of product into the environment. DO NOT flush into surface water.

Section 9. Physical and Chemical Properties

Information on basic physical and chemical properties

Appearance: Granular solid, white

Odor: None

Odor threshold: Not applicable

pH (5 g/L): 5 - 9

Melting point/range: > 150°C

Initial boiling point and boiling range: Not applicable

Flash point: Not applicable

Evaporation rate: Not applicable

Flammability (solid, gas): No data available

Upper/lower flammable or explosive limits: Not expected to create explosive atmospheres

Vapor pressure: Not applicable

Vapor density: Not applicable
Relative density: 0.6 - 0.9
Solubility(ies): Soluble in water
Partition coefficient: - 2
Auto-ignition temperature: does not self-ignite (based on the chemical structure)
Decomposition temperature: > 150°C
Viscosity: See Technical Bulletin
Explosive properties: Kst = 0
Non-flammable to ignition sources of less than 2.5kJ
Oxidizing properties: not expected to be oxidizing based on the chemical structure

Other information: None

Section 10. Stability and Reactivity

Reactivity: None known.
Chemical stability: Stable under normal conditions.
Possibility of hazardous reactions: Oxidizing agents may cause exothermic reaction.
Conditions to avoid: None known.
Incompatible materials: Incompatible with oxidizing agents.

Hazardous decomposition products

Thermal decomposition may produce: Nitrogen oxides (NO_x), carbon oxides (CO_x), hydrogen cyanide (hydrocyanic acid)

Section 11. Toxicological Information

Information on toxicological effects

Acute oral toxicity - LD50/oral/rat: > 5000 mg/kg
Acute dermal toxicity - LD50/dermal/rat: > 5000 mg/kg
Acute inhalation toxicity: The product is not expected to be toxic by inhalation.
Skin corrosion/irritation: Not irritating.
Serious eye damage/eye irritation: Not irritating.
Respiratory/skin sensitization: Not sensitizing.
Mutagenicity: Not mutagenic.
Carcinogenicity: Not carcinogenic.
Reproduction toxicity: Not toxic for reproduction.
STOT - single exposure: No known effects.
STOT - repeated exposure: No known effects.
Aspiration hazard: No hazard resulting from the material as supplied.

Section 12. Ecological Information

Toxicity

Acute toxicity to fish: LC50 / Danio rerio / 96 hours > 100 mg / L (OECD 203)

LC50 / Fathead minnow / 96 hours > 100 mg / L (OECD 203)

Acute toxicity to invertebrates: EC50 / Daphnia / 48 hours > 100 mg / L (OECD 202)

Acute toxicity to algae: IC50 / Scenedesmus subspicatus / 72 hours > 100 mg / L (OECD 201)

Chronic toxicity to fish: No data available.

Chronic toxicity to invertebrates: No data available.

Chronic toxicity to algae: No data available.

Effects on terrestrial organisms: No known effects.

Sediment toxicity: No data available.

Persistence and degradability

Degradation: Not readily biodegradable.

Hydrolysis: Does not hydrolyze.

Photolysis: No data available.

Bioaccumulation potential: This product is not expected to bioaccumulate.

Partition coefficient (Log Pow): - 2

Bioconcentration factor (BCF): ~ 0

Mobility in soil: None.

Other adverse effects: None known.

Section 13. Disposal Considerations

Waste Treatment Methods: Dispose of product and contaminated packaging in accordance with all local, state, and federal environmental control regulations.

Section 14. Transport Information

Land transport (DOT): Not classified.

Sea transport (IMDG): Not classified.

Air transport (IATA): Not classified.

Section 15. Regulatory Information

Safety, health, and environmental regulations/legislation specific for the substance or mixture

TSCA Chemical Substances Inventory: All components of this product are either listed on the inventory or are exempt from listing.



US SARA Reporting Requirements

SARA (Section 311 / 312) Hazard Class: Not concerned.

RCRA Status: Not RCRA hazardous.

California Proposition 65 Information: WARNING! This product contains a chemical known to the state of California to cause birth defects or other reproductive harm, Acrylamide.

NFPA Rating

Health: 0

Flammability: 0

Reactivity: 0

HMIS Rating

Health: 0

Flammability: 0

Reactivity: 0

Personal Protection: B

Section 16. Other Information

Disclaimer: The above information is believed to be correct but does not purport to be all inclusive and shall be used only as a guide. The information in this document is based on the present state of our knowledge and is applicable to the product with regard to appropriate safety precautions. It does not represent any guarantee of the properties of the product.

REVISION DATE: 4/17/2017

SAFETY DATA SHEET

Creation Date 11-Oct-2010

Revision Date 14-Feb-2020

Revision Number 2

1. Identification

Product Name Calcium hydroxide

Cat No. : 14662

CAS-No 1305-62-0
Synonyms Biocalc; Calcium dihydrate; Calcium hydrate

Recommended Use Laboratory chemicals.
Uses advised against Food, drug, pesticide or biocidal product use.
Details of the supplier of the safety data sheet

Company

Alfa Aesar
Thermo Fisher Scientific Chemicals, Inc.
30 Bond Street
Ward Hill, MA 01835-8099
Tel: 800-343-0660
Fax: 800-322-4757
Email: tech@alfa.com
www.alfa.com

Emergency Telephone Number

During normal business hours (Monday-Friday, 8am-7pm EST), call (800) 343-0660.
After normal business hours, call Carechem 24 at (866) 928-0789.

2. Hazard(s) identification

Classification

This chemical is considered hazardous by the 2012 OSHA Hazard Communication Standard (29 CFR 1910.1200)

Skin Corrosion/Irritation	Category 1
Serious Eye Damage/Eye Irritation	Category 1
Specific target organ toxicity (single exposure)	Category 3
Target Organs - Respiratory system.	

Label Elements

Signal Word

Danger

Hazard Statements

Causes severe skin burns and eye damage
May cause respiratory irritation

**Precautionary Statements****Prevention**

Wash face, hands and any exposed skin thoroughly after handling
Wear protective gloves/protective clothing/eye protection/face protection
Use only outdoors or in a well-ventilated area
Do not breathe dust/fume/gas/mist/vapors/spray

Inhalation

IF INHALED: Remove victim to fresh air and keep at rest in a position comfortable for breathing
Call a POISON CENTER or doctor/physician if you feel unwell

Skin

Immediately call a POISON CENTER or doctor/physician
IF ON SKIN (or hair): Take off immediately all contaminated clothing. Rinse skin with water/shower
Wash contaminated clothing before reuse

Eyes

IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing
Immediately call a POISON CENTER or doctor/physician

Ingestion

IF SWALLOWED: Rinse mouth. DO NOT induce vomiting

Storage

Store in a well-ventilated place. Keep container tightly closed
Store locked up

Disposal

Dispose of contents/container to an approved waste disposal plant

Hazards not otherwise classified (HNOC)

None identified

3. Composition/Information on Ingredients

Component	CAS-No	Weight %
Calcium hydroxide	1305-62-0	>95

4. First-aid measures

General Advice

If symptoms persist, call a physician.

Eye Contact

Rinse immediately with plenty of water, also under the eyelids, for at least 15 minutes. Get medical attention.

Skin Contact

Wash off immediately with plenty of water for at least 15 minutes. Immediate medical attention is required.

Inhalation

Remove to fresh air. If not breathing, give artificial respiration. Get medical attention if symptoms occur.

Ingestion

Do NOT induce vomiting. Call a physician or poison control center immediately.

Most important symptoms and effects

Causes severe skin burns and eye damage.

Notes to Physician

Treat symptomatically

5. Fire-fighting measures

Suitable Extinguishing Media Water spray, carbon dioxide (CO₂), dry chemical, alcohol-resistant foam.

Unsuitable Extinguishing Media Carbon dioxide (CO₂)

Flash Point No information available
Method - No information available

Autoignition Temperature No information available

Explosion Limits

Upper No data available

Lower No data available

Sensitivity to Mechanical Impact No information available

Sensitivity to Static Discharge No information available

Specific Hazards Arising from the Chemical

Non-combustible. Contact with metals may evolve flammable hydrogen gas. Thermal decomposition can lead to release of irritating gases and vapors.

Hazardous Combustion Products

Calcium oxides.

Protective Equipment and Precautions for Firefighters

As in any fire, wear self-contained breathing apparatus pressure-demand, MSHA/NIOSH (approved or equivalent) and full protective gear.

NFPA

Health
3

Flammability
0

Instability
1

Physical hazards
N/A

6. Accidental release measures

Personal Precautions Use personal protective equipment as required. Ensure adequate ventilation. Avoid dust formation. Avoid contact with skin, eyes or clothing.

Environmental Precautions Should not be released into the environment.

Methods for Containment and Clean Up Sweep up and shovel into suitable containers for disposal. Avoid dust formation.

7. Handling and storage

Handling Wear personal protective equipment/face protection. Ensure adequate ventilation. Avoid dust formation. Do not get in eyes, on skin, or on clothing. Avoid ingestion and inhalation.

Storage Keep containers tightly closed in a dry, cool and well-ventilated place. Corrosives area.

8. Exposure controls / personal protection

Exposure Guidelines

Component	ACGIH TLV	OSHA PEL	NIOSH IDLH	Mexico OEL (TWA)
Calcium hydroxide	TWA: 5 mg/m ³	(Vacated) TWA: 5 mg/m ³ TWA: 15 mg/m ³ TWA: 5 mg/m ³	TWA: 5 mg/m ³	TWA: 5 mg/m ³

Legend

ACGIH - American Conference of Governmental Industrial Hygienists

OSHA - Occupational Safety and Health Administration

NIOSH IDLH: NIOSH - National Institute for Occupational Safety and Health

Engineering Measures Ensure that eyewash stations and safety showers are close to the workstation location. Use only under a chemical fume hood.

Personal Protective Equipment

Eye/face Protection Wear appropriate protective eyeglasses or chemical safety goggles as described by OSHA's eye and face protection regulations in 29 CFR 1910.133 or European Standard EN166.

Skin and body protection Wear appropriate protective gloves and clothing to prevent skin exposure.

Respiratory Protection Follow the OSHA respirator regulations found in 29 CFR 1910.134 or European Standard EN 149. Use a NIOSH/MSHA or European Standard EN 149 approved respirator if exposure limits are exceeded or if irritation or other symptoms are experienced.

Hygiene Measures Handle in accordance with good industrial hygiene and safety practice.

9. Physical and chemical properties

Physical State	Solid
Appearance	Off-white
Odor	Odorless
Odor Threshold	No information available
pH	12.4 saturated solution
Melting Point/Range	580 °C / 1076 °F
Boiling Point/Range	2850 °C / 5162 °F
Flash Point	No information available
Evaporation Rate	Not applicable
Flammability (solid,gas)	No information available
Flammability or explosive limits	
Upper	No data available
Lower	No data available
Vapor Pressure	No information available
Vapor Density	Not applicable
Specific Gravity	No information available
Solubility	1.65 g/L (20°C)
Partition coefficient; n-octanol/water	No data available
Autoignition Temperature	No information available
Decomposition Temperature	No information available
Viscosity	Not applicable
Molecular Formula	H2 Ca O2
Molecular Weight	74.09

10. Stability and reactivity

Reactive Hazard	None known, based on information available
Stability	Air sensitive. Moisture sensitive.
Conditions to Avoid	Avoid dust formation. Incompatible products. Excess heat. Exposure to air or moisture over prolonged periods.
Incompatible Materials	Strong oxidizing agents, Metals, Reducing Agent, Acids, Bases
Hazardous Decomposition Products	Calcium oxides
Hazardous Polymerization	Hazardous polymerization does not occur.

Hazardous Reactions None under normal processing.

11. Toxicological information

Acute Toxicity

Product Information Component Information

Component	LD50 Oral	LD50 Dermal	LC50 Inhalation
Calcium hydroxide	LD50 = 7340 mg/kg (Rat)	Not listed	Not listed

Toxicologically Synergistic Products No information available

Delayed and immediate effects as well as chronic effects from short and long-term exposure

Irritation CAUSES (SEVERE) EYE BURNS, Causes skin burns, Irritating to respiratory system

Sensitization No information available

Carcinogenicity The table below indicates whether each agency has listed any ingredient as a carcinogen.

Component	CAS-No	IARC	NTP	ACGIH	OSHA	Mexico
Calcium hydroxide	1305-62-0	Not listed	Not listed	Not listed	Not listed	Not listed

Mutagenic Effects No information available

Reproductive Effects No information available.

Developmental Effects No information available.

Teratogenicity No information available.

STOT - single exposure Respiratory system
STOT - repeated exposure None known

Aspiration hazard No information available

Symptoms / effects, both acute and delayed No information available

Endocrine Disruptor Information No information available

Other Adverse Effects The toxicological properties have not been fully investigated.

12. Ecological information

Ecotoxicity

Do not empty into drains. .

Component	Freshwater Algae	Freshwater Fish	Microtox	Water Flea
Calcium hydroxide	Not listed	LC50 = 160 mg/L, 96h static (Gambusia affinis)	Not listed	Not listed

Persistence and Degradability Soluble in water Persistence is unlikely based on information available.

Bioaccumulation/ Accumulation No information available.

Mobility Will likely be mobile in the environment due to its water solubility.

13. Disposal considerations

Waste Disposal Methods Chemical waste generators must determine whether a discarded chemical is classified as a hazardous waste. Chemical waste generators must also consult local, regional, and

national hazardous waste regulations to ensure complete and accurate classification.

14. Transport information

<u>DOT</u>	Not regulated
<u>TDG</u>	Not regulated
<u>IATA</u>	Not regulated
<u>IMDG/IMO</u>	Not regulated

15. Regulatory information

United States of America Inventory

Component	CAS-No	TSCA	TSCA Inventory notification - Active/Inactive	TSCA - EPA Regulatory Flags
Calcium hydroxide	1305-62-0	X	ACTIVE	-

Legend:

TSCA - Toxic Substances Control Act, (40 CFR Part 710)

X - Listed

'-' - Not Listed

TSCA 12(b) - Notices of Export Not applicable

International Inventories

Canada (DSL/NDL), Europe (EINECS/ELINCS/NLP), Philippines (PICCS), Japan (ENCS), Australia (AICS), China (IECSC), Korea (ECL).

Component	CAS-No	DSL	NDL	EINECS	PICCS	ENCS	AICS	IECSC	KECL
Calcium hydroxide	1305-62-0	X	-	215-137-3	X	X	X	X	KE-04518

U.S. Federal Regulations

SARA 313 Not applicable

SARA 311/312 Hazard Categories See section 2 for more information

CWA (Clean Water Act) Not applicable

Clean Air Act Not applicable

OSHA - Occupational Safety and Health Administration Not applicable

CERCLA Not applicable

California Proposition 65 This product does not contain any Proposition 65 chemicals.

U.S. State Right-to-Know Regulations

Component	Massachusetts	New Jersey	Pennsylvania	Illinois	Rhode Island
Calcium hydroxide	X	X	X	-	X

U.S. Department of Transportation

Reportable Quantity (RQ):	N
DOT Marine Pollutant	N
DOT Severe Marine Pollutant	N

U.S. Department of Homeland Security This product does not contain any DHS chemicals.

Other International Regulations

Mexico - Grade No information available

16. Other information

Prepared By	Health, Safety and Environmental Department Email: tech@alfa.com www.alfa.com
Creation Date	11-Oct-2010
Revision Date	14-Feb-2020
Print Date	14-Feb-2020
Revision Summary	SDS authoring systems update, replaces ChemGes SDS No. 1305-62-0.

Disclaimer

The information provided in this Safety Data Sheet is correct to the best of our knowledge, information and belief at the date of its publication. The information given is designed only as a guidance for safe handling, use, processing, storage, transportation, disposal and release and is not to be considered a warranty or quality specification. The information relates only to the specific material designated and may not be valid for such material used in combination with any other materials or in any process, unless specified in the text

End of SDS



SAFETY DATA SHEET

1. Identification

Product identifier TrueTap® HD Cutting Fluid - 16 fl oz

Other means of identification

Product Code No. 03400 (Item# 1003504)

Recommended use Cutting fluid

Recommended restrictions None known.

Manufacturer/Importer/Supplier/Distributor information

Manufactured or sold by:

Company name CRC Industries, Inc.

Address 885 Louis Dr.
Warminster, PA 18974 US

Telephone

General Information 215-674-4300

Technical Assistance 800-521-3168

Customer Service 800-272-4620

24-Hour Emergency 800-424-9300 (US)

(CHEMTREC)

Website www.crcindustries.com

2. Hazard(s) identification

Physical hazards Not classified.

Health hazards Not classified.

Environmental hazards Hazardous to the aquatic environment, acute hazard Category 3

Hazardous to the aquatic environment, long-term hazard Category 3

OSHA defined hazards Not classified.

Label elements

Hazard symbol None.

Signal word None.

Hazard statement Harmful to aquatic life. Harmful to aquatic life with long lasting effects.

Precautionary statement

Prevention Use with adequate ventilation. Open doors and windows or use other means to ensure a fresh air supply during use and while product is drying. Avoid release to the environment.

Response Wash hands after handling.

Storage Store away from incompatible materials.

Disposal Dispose of contents/container in accordance with local/regional/national regulations.

Hazard(s) not otherwise classified (HNOC) None known.

Supplemental information None.

3. Composition/information on ingredients

Mixtures

Chemical name	Common name and synonyms	CAS number	%
chlorinated paraffins		63449-39-8	50 - 60
distillates (petroleum), hydrotreated light naphthenic		64742-53-6	1 - 3
methyl salicylate		119-36-8	1 - 3

4. First-aid measures

Inhalation	If breathing is difficult, remove to fresh air and keep at rest in a position comfortable for breathing. If breathing stops, provide artificial respiration. Call a physician if symptoms develop or persist.
Skin contact	Remove contaminated clothing. Wash off with soap and water. Get medical attention if irritation develops and persists. Wash contaminated clothing before reuse.
Eye contact	Rinse immediately with plenty of water, also under the eyelids, for at least 15 minutes. Get medical attention if irritation develops and persists.
Ingestion	Do not induce vomiting without advice from poison control center. Call a physician or poison control center immediately.
Most important symptoms/effects, acute and delayed	May cause skin irritation. May cause eye irritation.
Indication of immediate medical attention and special treatment needed	Treat symptomatically.
General information	Ensure that medical personnel are aware of the material(s) involved, and take precautions to protect themselves.

5. Fire-fighting measures

Suitable extinguishing media	Water fog. Foam. Dry chemical powder. Carbon dioxide (CO ₂).
Unsuitable extinguishing media	Do not use water jet as an extinguisher, as this will spread the fire.
Specific hazards arising from the chemical	During fire, gases hazardous to health may be formed.
Special protective equipment and precautions for firefighters	Firefighters must use standard protective equipment including flame retardant coat, helmet with face shield, gloves, rubber boots, and in enclosed spaces, SCBA.
Fire-fighting equipment/instructions	Cool containers exposed to heat with water spray and remove container, if no risk is involved. Prevent fire extinguishing water from contaminating surface water or the ground water system.
General fire hazards	No unusual fire or explosion hazards noted.

6. Accidental release measures

Personal precautions, protective equipment and emergency procedures	Keep unnecessary personnel away. Keep people away from and upwind of spill/leak. Wear appropriate protective equipment and clothing during clean-up. Ensure adequate ventilation. Local authorities should be advised if significant spillages cannot be contained. For personal protection, see section 8 of the SDS.
Methods and materials for containment and cleaning up	<p>In the event of a spill or accidental release, notify relevant authorities in accordance with all applicable regulations.</p> <p>Large Spills: Stop the flow of material, if this is without risk. Dike the spilled material, where this is possible. Cover with plastic sheet to prevent spreading. Absorb in vermiculite, dry sand or earth and place into containers. Following product recovery, flush area with water.</p> <p>Small Spills: Wipe up with absorbent material (e.g. cloth, fleece). Clean surface thoroughly to remove residual contamination.</p> <p>Never return spills to original containers for re-use. For waste disposal, see section 13 of the SDS.</p>
Environmental precautions	Avoid release to the environment. Prevent further leakage or spillage if safe to do so. Avoid discharge into drains, water courses or onto the ground. Inform appropriate managerial or supervisory personnel of all environmental releases.

7. Handling and storage

Precautions for safe handling	Provide adequate ventilation. Avoid prolonged exposure. Avoid breathing dust/fume/gas/mist/vapors/spray. Wear appropriate personal protective equipment. Observe good industrial hygiene practices. Wash hands thoroughly after handling. Avoid release to the environment. Use care in handling/storage. For product usage instructions, see the product label.
Conditions for safe storage, including any incompatibilities	Keep containers tightly closed in a dry, cool and well-ventilated place. Keep away from heat and flame. Do not store container below 40 °F. Store away from incompatible materials (see Section 10 of the SDS).

8. Exposure controls/personal protection

Occupational exposure limits

US. OSHA Table Z-1 Limits for Air Contaminants (29 CFR 1910.1000)

Components	Type	Value	Form
distillates (petroleum), hydrotreated light naphthenic (CAS 64742-53-6)	PEL	5 mg/m3	Mist.
		2000 mg/m3	
		500 ppm	

US. ACGIH Threshold Limit Values

Components	Type	Value	Form
distillates (petroleum), hydrotreated light naphthenic (CAS 64742-53-6)	TWA	5 mg/m3	Inhalable fraction.

US. NIOSH: Pocket Guide to Chemical Hazards

Components	Type	Value	Form
distillates (petroleum), hydrotreated light naphthenic (CAS 64742-53-6)	Ceiling	1800 mg/m3	
	STEL	10 mg/m3	Mist.

Biological limit values

No biological exposure limits noted for the ingredient(s).

Appropriate engineering controls

Good general ventilation (typically 10 air changes per hour) should be used. Ventilation rates should be matched to conditions. If applicable, use process enclosures, local exhaust ventilation, or other engineering controls to maintain airborne levels below recommended exposure limits. If exposure limits have not been established, maintain airborne levels to an acceptable level. Eye wash facilities and emergency shower should be available when handling this product.

Individual protection measures, such as personal protective equipment

Eye/face protection Wear safety glasses with side shields (or goggles).

Skin protection

Hand protection

Wear protective gloves such as: Nitrile. Viton®.

Other

Wear suitable protective clothing.

Respiratory protection

If engineering controls are not feasible or if exposure exceeds the applicable exposure limits, use a NIOSH-approved cartridge respirator with an organic vapor cartridge. Use a self-contained breathing apparatus in confined spaces and for emergencies. Air monitoring is needed to determine actual employee exposure levels.

Thermal hazards

Wear appropriate thermal protective clothing, when necessary.

General hygiene considerations

Avoid contact with skin. Avoid contact with eyes. Avoid contact with clothing. Always observe good personal hygiene measures, such as washing after handling the material and before eating, drinking, and/or smoking. Routinely wash work clothing and protective equipment to remove contaminants.

9. Physical and chemical properties

Appearance

Physical state Liquid.

Form Liquid.

Color Amber.

Odor Wintergreen.

Odor threshold Not available.

pH Not available.

Melting point/freezing point Not available.

Initial boiling point and boiling range > 450 °F (> 232.2 °C) at 760 mmHg

Flash point	> 415 °F (> 212.8 °C) Pensky-Martens Closed Cup
Evaporation rate	Slow.
Flammability (solid, gas)	Not available.
Upper/lower flammability or explosive limits	
Flammability limit - lower (%)	Not available.
Flammability limit - upper (%)	Not available.
Vapor pressure	< 1 mm Hg at 20 °C
Vapor density	< 1 (air = 1)
Relative density	1.11
Solubility(ies)	
Solubility (water)	Negligible.
Partition coefficient (n-octanol/water)	Not available.
Auto-ignition temperature	500 °F (260 °C) estimated
Decomposition temperature	Not available.
Viscosity	Not available.
Percent volatile	Not available.

10. Stability and reactivity

Reactivity	The product is stable and non-reactive under normal conditions of use, storage and transport.
Chemical stability	Material is stable under normal conditions.
Possibility of hazardous reactions	No dangerous reaction known under conditions of normal use.
Conditions to avoid	Contact with incompatible materials.
Incompatible materials	Oxidizing agents. Strong acids. Strong bases.
Hazardous decomposition products	Hydrocarbon fumes and smoke. Carbon oxides.

11. Toxicological information

Information on likely routes of exposure

Inhalation	Prolonged inhalation may be harmful. Prolonged or excessive inhalation may cause respiratory tract irritation.
Skin contact	Prolonged skin contact may cause temporary irritation.
Eye contact	Direct contact with eyes may cause temporary irritation.
Ingestion	Ingestion may cause gastrointestinal irritation, nausea, vomiting and diarrhea.

Symptoms related to the physical, chemical and toxicological characteristics
Direct contact with eyes may cause temporary irritation.

Information on toxicological effects

Acute toxicity

Components	Species	Test Results
distillates (petroleum), hydrotreated light naphthenic (CAS 64742-53-6)		
Acute		
Dermal		
LD50	Rabbit	> 5000 mg/kg
Inhalation		
LC50	Rat	2180 mg/m ³ , 4 hours
Oral		
LD50	Rat	> 5000 mg/kg

Components	Species	Test Results
methyl salicylate (CAS 119-36-8)		
<u>Acute</u>		
Oral		
LD50	Rat	0.887 g/kg
* Estimates for product may be based on additional component data not shown.		
Skin corrosion/irritation	Prolonged skin contact may cause temporary irritation.	
Serious eye damage/eye irritation	Direct contact with eyes may cause temporary irritation.	
Respiratory or skin sensitization		
Respiratory sensitization	Not a respiratory sensitizer.	
Skin sensitization	This product is not expected to cause skin sensitization.	
Germ cell mutagenicity	No data available to indicate product or any components present at greater than 0.1% are mutagenic or genotoxic.	
Carcinogenicity	This product is not considered to be a carcinogen by IARC, ACGIH, NTP, or OSHA.	
IARC Monographs. Overall Evaluation of Carcinogenicity		
Not listed.		
OSHA Specifically Regulated Substances (29 CFR 1910.1001-1053)		
Not listed.		
US. National Toxicology Program (NTP) Report on Carcinogens		
Not listed.		
Reproductive toxicity	This product is not expected to cause reproductive or developmental effects.	
Specific target organ toxicity - single exposure	Not classified.	
Specific target organ toxicity - repeated exposure	Not classified.	
Aspiration hazard	Not an aspiration hazard.	
Chronic effects	Prolonged inhalation may be harmful. Prolonged exposure may cause chronic effects.	

12. Ecological information

Ecotoxicity	Harmful to aquatic life with long lasting effects.		
Components	Species	Test Results	
chlorinated paraffins (CAS 63449-39-8)			
Aquatic			
Fish	LC50	Bluegill (Lepomis macrochirus)	> 0.1 mg/l, 96 hours
* Estimates for product may be based on additional component data not shown.			
Persistence and degradability	No data is available on the degradability of this product.		
Bioaccumulative potential			
Partition coefficient n-octanol / water (log Kow)			
methyl salicylate		2.55	
Mobility in soil	No data available.		
Other adverse effects	No other adverse environmental effects (e.g. ozone depletion, photochemical ozone creation potential, endocrine disruption, global warming potential) are expected from this component.		

13. Disposal considerations

Disposal instructions	This product is not a RCRA hazardous waste (See 40 CFR Part 261.20 – 261.33). Empty containers may be recycled. Collect and reclaim or dispose in sealed containers at licensed waste disposal site. Dispose in accordance with all applicable regulations.
Hazardous waste code	Not regulated.
Contaminated packaging	Empty containers should be taken to an approved waste handling site for recycling or disposal. Since emptied containers may retain product residue, follow label warnings even after container is emptied.

14. Transport information

DOT

Not regulated as dangerous goods.

IATA

Not regulated as dangerous goods.

IMDG

Not regulated as dangerous goods.

15. Regulatory information

US federal regulations

This product is not known to be a "Hazardous Chemical" as defined by the OSHA Hazard Communication Standard, 29 CFR 1910.1200.

TSCA Section 12(b) Export Notification (40 CFR 707, Subpt. D)

Not regulated.

SARA 304 Emergency release notification

Not regulated.

OSHA Specifically Regulated Substances (29 CFR 1910.1001-1053)

Not listed.

CERCLA Hazardous Substance List (40 CFR 302.4)

Not listed.

CERCLA Hazardous Substances: Reportable quantity

Not listed.

Spills or releases resulting in the loss of any ingredient at or above its RQ require immediate notification to the National Response Center (800-424-8802) and to your Local Emergency Planning Committee.

Other federal regulations

Clean Air Act (CAA) Section 112 Hazardous Air Pollutants (HAPs) List

Not regulated.

Clean Air Act (CAA) Section 112(r) Accidental Release Prevention (40 CFR 68.130)

Not regulated.

Safe Drinking Water Act (SDWA) Not regulated.

Food and Drug Administration (FDA) Not regulated.

Superfund Amendments and Reauthorization Act of 1986 (SARA)

SARA 302 Extremely hazardous substance

Not listed.

SARA 311/312 Hazardous chemical No

SARA 313 (TRI reporting)
Not regulated.

US state regulations

US. New Jersey Worker and Community Right-to-Know Act

Not listed.

US. Massachusetts RTK - Substance List

distillates (petroleum), hydrotreated light naphthenic (CAS 64742-53-6)

US. Pennsylvania Worker and Community Right-to-Know Law

methyl salicylate (CAS 119-36-8)

US. Rhode Island RTK

distillates (petroleum), hydrotreated light naphthenic (CAS 64742-53-6)

methyl salicylate (CAS 119-36-8)

California Proposition 65

California Safe Drinking Water and Toxic Enforcement Act of 2016 (Proposition 65): This material is not known to contain any chemicals currently listed as carcinogens or reproductive toxins.

US. California. Candidate Chemicals List. Safer Consumer Products Regulations (Cal. Code Regs, tit. 22, 69502.3, subd. (a))

chlorinated paraffins (CAS 63449-39-8)

distillates (petroleum), hydrotreated light naphthenic (CAS 64742-53-6)

Volatile organic compounds (VOC) regulations

EPA

VOC content (40 CFR 51.100(s)) Not determined

Consumer products (40 CFR 59, Subpt. C) Not regulated

State

Consumer products This product is regulated as a Cutting or Tapping Oil (non-aerosol). This product is compliant for use in all 50 states. *Local restriction: This product cannot be used in the South Coast Air Quality Management District of California.

VOC content (CA) 0.4 %

VOC content (OTC) 0.4 %

International Inventories

Country(s) or region	Inventory name	On inventory (yes/no)*
Australia	Australian Inventory of Chemical Substances (AICS)	No
Canada	Domestic Substances List (DSL)	Yes
Canada	Non-Domestic Substances List (NDSL)	No
China	Inventory of Existing Chemical Substances in China (IECSC)	No
Europe	European Inventory of Existing Commercial Chemical Substances (EINECS)	No
Europe	European List of Notified Chemical Substances (ELINCS)	No
Japan	Inventory of Existing and New Chemical Substances (ENCS)	No
Korea	Existing Chemicals List (ECL)	No
New Zealand	New Zealand Inventory	No
Philippines	Philippine Inventory of Chemicals and Chemical Substances (PICCS)	No
Taiwan	Taiwan Chemical Substance Inventory (TCSI)	No
United States & Puerto Rico	Toxic Substances Control Act (TSCA) Inventory	Yes

*A "Yes" indicates that all components of this product comply with the inventory requirements administered by the governing country(s)

A "No" indicates that one or more components of the product are not listed or exempt from listing on the inventory administered by the governing country(s).

16. Other information, including date of preparation or last revision

Issue date 07-11-2019

Prepared by Dustin Kern

Version # 01

Disclaimer CRC Industries, Inc. cannot anticipate all conditions under which this information and its product, or the products of other manufacturers in combination with its product, may be used. It is the user's responsibility to ensure safe conditions for handling, storage and disposal of the product, and to assume liability for loss, injury, damage or expense due to improper use. The information contained in this document applies to this specific material as supplied. It may not be valid for this material if it is used in combination with any other materials. This information is accurate to the best of CRC's knowledge or obtained from sources believed by CRC to be accurate. Before using any product, read all warnings and directions on the label. For further clarification of any information contained on this (M)SDS consult your supervisor, a health & safety professional, or CRC Industries, Inc..

Revision information This document has undergone significant changes and should be reviewed in its entirety.

IDENTIFICATION OF THE PRODUCT AND OF THE COMPANY

Identification of the product

Product Name: **HEMOSIL® CLEANING AGENT**

Product Number: **0009832700**

Use of the product: For in vitro diagnostic use

Company identification:

MANUFACTURER:
Instrumentation Laboratory Co.
180 Hartwell Road,
Bedford, MA 01730-2443 (USA)
Tel. +1 800 678 0710
Fax +1 781 863 9928

DISTRIBUTOR EU:
Via Leonardo da Vinci, 36
20877 Roncello (MB), Italy

DISTRIBUTOR US/CANADA:
Instrumentation Laboratory Co.
526 Route 303
Orangeburg, New York 10962 (USA)

E-mail address of the competent person: infosds@mail.ilww.it

Emergency phone: +44 (0) 3700 492 795
+1 215 207 0061 (USA and Canada)

INFORMATION ON COMPOSITION/HAZARD OF THE PRODUCT

P/N	Mixture name	Mixture classification According to Hazard Communication Standard, 29 CFR 1910.1200 (HCS) Hazardous Product Regulation HPR (WHMIS 2015)	Mixture classification According to 1272/2008/EC Regulation	Kit configuration
0009832700	HEMOSIL CLEANING AGENT	Not classified	Not classified	1 x 80 mL

Disclaimer

This document is intended only as a guide to appropriate precautionary handling of this product by a trained person, or supervised by a person trained in chemical handling. The product shall not be used for purposes different from those indicated in section 1, unless having received suitable written instructions on how to handle the material. Use the product in accordance with the Good Laboratory Practice. This document cannot describe all potential dangers of use or interaction with other chemicals or materials. It is the user's responsibility for the product's safe use, the product's suitability for the intended use and the product's safe disposal. No representation or warranties, either expressed or implied, of merchantability, fitness for a particular purpose or of any other nature are made hereunder with respect to the information set forth herein or to the product to which the information refers. The contained information in this SDS are in accordance with Annex II of the Regulation (EC) No 1907/2006 of the European Parliament and of the Council on the Registration, Evaluation, Authorization and Restriction of Chemicals (REACH) and its subsequent amendments, in accordance with Hazard Communication Standard (HCS), 29 CFR 1910.1200 (HazCom 2012) as recommended by US OSHA, and in accordance with Hazardous Product Regulation HPR (WHMIS 2015) as recommended by Health Canada (HC).

Prepared by: Chemsafe Srl

SECTION 1. IDENTIFICATION OF THE MIXTURE AND OF THE COMPANY

1.1 Identification of the mixture:

Product Name: **HEMOSIL® CLEANING AGENT**
Product Number: **0009832700**

1.2 Use of the mixture:

Relevant use: For in vitro diagnostic use.
Uses advised against: There are no specific uses advised against.

1.3 Company identification:

MANUFACTURER:
Instrumentation Laboratory Co.
180 Hartwell Road,
Bedford, MA 01730-2443 (USA)
Tel. +1 800 678 0710
Fax +1 781 863 9928

DISTRIBUTOR EU:
Via Leonardo da Vinci, 36
20877 Roncello (MB), Italy

DISTRIBUTOR US/CANADA:
Instrumentation Laboratory Co.
526 Route 303
Orangeburg, New York 10962 (USA)

E-mail address of the competent person: infosds@mail.ilww.it

1.4 Emergency phone: +44 (0) 3700 492 795
+1 215 207 0061 (USA and Canada)

SECTION 2. HAZARDS IDENTIFICATION

2.1 Classification of the mixture:

This product is not hazardous according to Regulation (EC) No 1272/2008, OSHA 29 CFR 1910.1200 and Hazardous Product Regulation HPR (WHMIS 2015).

Any additional information concerning the risks for health and/or the environment are given in sections 11 and 12 of this sheet.

According to Regulation (EC) No 1272/2008, according to Hazard Communication Standard, 29 CFR 1910.1200 (HCS), and according to Hazardous Product Regulation HPR (WHMIS 2015):

<i>Hazard class</i>	<i>Hazard category</i>	<i>Hazard statement</i>
Not classified		
<i>For exposure limits see section 8.</i>		

Potential adverse physicochemical, human health and environmental effects

(see also ch. 9-12)

Under normal conditions of use, the mixture does not cause adverse effects to humans and to the environment.

2.2 Label elements, according to Regulation (EC) No 1272/2008, according to Hazard Communication Standard, 29 CFR 1910.1200 (HCS), and according to Hazardous Product Regulation HPR (WHMIS 2015):

Hazard pictogram(s):	None
Signal word(s):	None
Hazard statement(s):	None
Precautionary statement(s):	None
Other labeling details:	Safety data sheet available on request. (EUH210)

Safety precautions:

Use the product in accordance with the Good Laboratory Practice.
Wear suitable protective clothing, gloves and eye/face protection.
Do not let the product enter drainage system, surface and ground-water or soil. Do not empty into drains.

2.3 Other hazards (which do not results in the classification)

The mixture does not meet the criteria for PBT or vPvB.

SECTION 3. COMPOSITION/INFORMATION ON INGREDIENTS

Composition: aqueous solution containing inorganic components.

3.1 Hazardous components:

Name	EINECS/ ELINCS n°	CAS n°	Conc. % w/w*	Classification 29 CFR 1910.1200 (HCS) HPR (WHMIS 2015)	Classification 1272/2008/EC
Sodium hypochlorite <i>Index N. (Annex VI of CLP Reg.): 017-011-00-1</i>	231-668-3	7681-52-9	< 4.9 %	Skin Corrosion/Irritation, cat. 1B Aquatic Acute, cat. 1**	Skin Corr. 1B, H314 Aquatic Acute 1, H400 <u>Specific Conc. Limits</u> EUH031: C ≥ 5 %
Sodium hydroxide <i>Index N. (Annex VI of CLP Reg.): 011-002-00-6</i>	215-185-5	1310-73-2	< 0.5 %	Skin Corrosion/Irritation, cat. 1A	Skin Corr. 1A, H314 <u>Specific Conc. Limits</u> Skin Corr. 1A, H314: C ≥ 5% Skin Corr. 1B; H314: 2 % ≤ C < 5 % Skin Irrit. 2; H315: 0.5 % ≤ C < 2 % Eye Irrit. 2; H319: 0.5 % ≤ C < 2 %
<p><i>For exposure limits see ch. 8, for hazard statements text see ch. 16. * a range may be indicated, considering batch-to batch variation. **Environmental classification according to Reg. N. 1272/2008 (EC) and subsequent amendments.</i></p>					

The mixture contains substances listed in the Hazardous Substance Lists and/or evaluated for carcinogenicity by IARC, NTP, OSHA: Sodium hydroxide, Sodium hypochlorite. See Section 11 and 15.

SECTION 4. FIRST AID MEASURES

4.1 Description of first aid measures

Ingestion:	If swallowed rinse mouth with plenty of water provided person is conscious. Do not induce vomiting. Get medical advice if adverse symptoms appear.
Inhalation exposure:	If inhaled, move person to fresh air. If breathing is difficult, oxygen should be administered. Get medical advice if adverse symptoms appear.
Contact with skin:	Remove contaminated clothes and shoes. Wash immediately affected area with soap or mild detergent and plenty of water until the removal of the mixture (15-20 minutes). Get medical advice if adverse symptoms appear.
Contact with eyes:	Wash immediately with plenty of water or normal saline for at least 15 minutes. Keep eyelid open with the finger. Get medical advice if adverse symptoms appear.

4.2 Most important symptoms and effects (acute and delayed)

Acute:	Inhalation: May cause irritation to the mucous membranes and upper respiratory tract. Skin : May be irritant for skin. Eyes: May cause irritation. Ingestion: May cause irritation to the gastrointestinal mucous membranes.
Delayed:	Delayed symptoms and effects are not known.

4.3 Indication of any immediate medical attention and special treatment needed

Medical monitoring:	Not foreseen.
Antidotes, if known:	Not known.

SECTION 5. FIRE-FIGHTING MEASURES

5.1 Extinguishing media

Suitable extinguishing media:	Water spray or regular foam, CO ₂ , dry powder.
Unsuitable extinguishing media:	Not known.

5.2 Special hazards arising from the substance or mixture

Hazardous combustion products: Thermal decomposition or combustion may include toxic and hazardous fumes of Na₂O, HCl, Cl₂.

5.3 Advice for firefighters

Protective actions:	Water jets can be used successfully to cool containers exposed to the fire and disperse fumes.
Equipment for self-protection:	Self-contained breathing apparatus, flame and chemical resistant clothing, boots and gloves. Equipment must be conformed with the national/international standards and used in highest condition of protection on the basis of the information reported in the previous sub-sections.

SECTION 6. ACCIDENTAL RELEASE MEASURES

6.1 Personal precautions, protective equipment and emergency procedures

For non-emergency personnel:	Remove the ignition and heat sources, provide sufficient ventilation and evacuate the area. Respiratory protection: is not required. Where risk assessment shows air-purifying respirators are appropriate, use masks with approved filter. Suitable protective clothing, rubber or polythene gloves, rubber shoes, safety glasses.
For emergency responders:	Wear appropriate protective equipment (see Section 8) to minimize exposure to the product.

6.2 Environmental precautions Do not let the product enter drainage system, surface and ground-water or soil. Contact local authorities in case of environmental release. Do not empty into drains.

6.3 Methods and material for containment and cleaning up Soak up with inert absorbent material, and clean with plenty of water. collect spilled material in containers. Send to the storage waiting for disposal procedures.

6.4 Reference to other sections See also section 8 and 13.

SECTION 7. HANDLING AND STORAGE

7.1 Precautions for safe handling	Handle in a well ventilated place. Keep the mixture away from drains, surface or ground waters. Avoid contact with incompatible materials. Wear suitable Personal Protection Equipment (see section 8). Do not eat, drink and smoke in the working areas. Wash hands with soap and water after handling the mixture. Remove contaminated clothing and protective equipment before entering eating areas.
7.2 Conditions for safe storage, incompatibilities	Recommended temperature: store at 15-25°C. Avoid light exposure and keep away from heat sources. Room ventilation: well ventilated workplace. Keep containers tightly closed and labelled with the name of the product. Avoid environmental release. Keep away from food and drinks.
7.3 Specific end use	<i>Hemosil® Cleaning Agent</i> is intended for in vitro diagnostic use. Use the product in accordance with the Good Laboratory Practice.

SECTION 8. EXPOSURE CONTROLS/PERSONAL PROTECTION

8.

1 Control parameters

Community/National occupational exposure limit values:

	<i>Limit value – 8 hours</i>	<i>Limit value – short term</i>
Sodium hydroxide ⁽¹⁾⁽²⁾		
Austria	2 mg/m ³ - inhalable aerosol	4 mg/m ³ - inhalable aerosol
Belgium	2 mg/m ³	-
Denmark	2 mg/m ³	2 mg/m ³
France	2 mg/m ³	
Hungary	2 mg/m ³	2 mg/m ³
New Zealand		2 mg/m ³ - ceiling value
Poland	0.5 mg/m ³	1 mg/m ³
Spain	2 mg/m ³	-
Sweden	1 mg/m ³	2 mg/m ³ - inhalable dust; ceiling value
Switzerland	2 mg/m ³ - inhalable aerosol	2 mg/m ³ - inhalable aerosol
United Kingdom	-	2 mg/m ³
Canada – Québec	-	2 mg/m ³ - ceiling value

Canada – Ontario - 2 mg/m³ - ceiling value
 USA – NIOSH - 2 mg/m³ - ceiling value (15 min)
 USA –OSHA 2 mg/m³ -
 ACGIH: STEL 2 mg/m³ - ceiling value
 NIOSH IDLH: 10 mg/m³ for NaOH

For sodium hypochlorite, the occupational exposure limits for **Chlorine** are considered⁽¹⁾:

	Limit value – 8 hours	Limit value – short term
Austria	0.5 ppm; 1.5 mg/m ³	0.5 ppm; 1.5 mg/m ³
Belgium	-	0.5 ppm; 1.5 mg/m ³
Denmark	0.5 ppm; 1.5 mg/m ³	1.0 ppm; 3.0 mg/m ³
European Union	-	0.5 ppm; 1.5 mg/m ³
Finland	-	0.5 ppm; 1.5 mg/m ³ ^(a)
France	-	0.5 ppm; 1.5 mg/m ³ ^(b)
Germany (AGS)	0.5 ppm; 1.5 mg/m ³	0.5 ppm; 1.5 mg/m ³ ^(a)
Germany (DFG)	0.5 ppm; 1.5 mg/m ³	0.5 ppm; 1.5 mg/m ³
Hungary	-	1.5 mg/m ³
Ireland	-	0.5 ppm; 1.5 mg/m ³ ^(c)
Italy	-	0.5 ppm; 1.5 mg/m ³
Latvia	0.3 ppm; 1 mg/m ³	0.5 ppm; 1.5 mg/m ³ ^(b)
New Zealand	0.5 ppm; 1.5 mg/m ³	1 ppm; 2.9 mg/m ³
Poland	0.7 mg/m ³	1.5 mg/m ³
Spain	-	0.5 ppm; 1.5 mg/m ³
Sweden	0.5 ppm; 1.5 mg/m ³	1.0 ppm; 3.0 mg/m ³ ^(d)
Switzerland	0.5 ppm; 1.5 mg/m ³	0.5 ppm; 1.5 mg/m ³
The Netherlands	-	1.5 mg/m ³
United Kingdom	-	0.5 ppm; 1.5 mg/m ³ ^(c)
Canada – Québec	0.5 ppm; 1.5 mg/m ³	1 ppm; 2.9 mg/m ³
Canada – Ontario	0.5 ppm;	1 ppm;
USA – NIOSH	-	0.5 ppm; 1.42 mg/m ³ ^(d)
USA –OSHA	-	1.0 ppm; 3.0 mg/m ³

ACGIH 2012⁽²⁾: TLV – TWA (Chlorine): 0,5 ppm; TLV – STEL (Chlorine): 1 ppm.

^(a) 15 minutes average value; ^(b) restrictive statutory limit values;

^(c) 15 minutes reference period; ^(d) ceiling limit value.

Community/National biological exposure limit values: Not established.

DNEL values (components):

Component	Route of exposure	Workers				Consumers			
		Acute effects		Chronic effects		Acute effects		Chronic effects	
		local	systemic	local	systemic	local	systemic	local	systemic
Sodium hydroxide ⁽⁶⁾	Oral (mg/(mg/kg bw/day) Dermal (mg/kg bw/day) Inhalation (mg/m ³)				1			1	
Sodium Hypochlorite ⁽¹¹⁾	Oral (mg/kgbw/day) Dermal - % in mixture (weight basis) Inhalation (mg/m ³)	3.1	3.1	0.5% 1.55	1.55	3.1	3.1	0.5% 1.55	0.26 1.55

Sodium hypochlorite ⁽¹¹⁾: According to the Regulation (EEC) N. 793/93 on the Evaluation and control of the risks of existing substance, a risk Assessment for was performed for sodium hypochlorite and the following values were defined:

AEL (Admissible Exposure Level): 0.5 mg/kg bw, derived from NOAL = 50 mg/kg bw, that was established in a study on rats, treated with sodium hypochlorite dissolved in their drinking water for 104 weeks (Hasegawa, 1986), and a safety factor of 100.

ADI (Admissible Daily Intake): 0.5 mg/kg bw, derived from NOAL = 50 mg/kg bw, that was established in a study on rats, treated with sodium hypochlorite dissolved in their drinking water for 104 weeks (Hasegawa, 1986) and a safety factor of 100.

PNEC values (components): *NaOH*: Because the buffer capacity, the pH and the fluctuation of the pH are very specific for a certain ecosystem it is not considered useful to derive a PNEC. ⁽⁴⁾

Sodium hypochlorite ⁽¹¹⁾: According to the Regulation (EEC) N. 793/93 on the Evaluation and control of the risks of existing substance, a risk Assessment for Sodium hypochlorite was carried out and the following values were defined:

$PNEC_{aquatic} = 2.1 \mu gFAC/L : 50 = 0.042 \mu gFAC/L$

$PNEC_{sediments} = 0.033 \mu gFAC/kg$, derived from $PNEC_{aquatic}$ using the equilibrium partitioning method in accordance with the technical guideline.

$PNEC_{terrestrial} = 0.005 \mu gFAC/kg$ derived from $PNEC_{aquatic}$ using the equilibrium partitioning method in accordance with the technical guideline.

The measurement of substances at the workplace must be carried out with standardized methods or, failing that, with appropriate methods.

8.

2 Exposure controls

8. 2. 1. Appropriate engineering controls

According to the Regulation (EEC) N. 793/93 on the Evaluation and control of the risks of existing substance, a risk Assessment for *Sodium hypochlorite* was carried out and no significant risks were identified in the scenarios of professional uses, described in accordance with the technical guideline for human exposure. ⁽¹¹⁾

Appropriate risk management measures, that must be adopted at the workplace, have to be selected and applied, following the risks assessment carried out by the employer, in connection with his working activity. If the results of this evaluation show that the general and collective prevention measures are not sufficient to reduce the risk, and if you cannot prevent exposure to the mixture by other means, adequate personal protective equipments must be adopted, complying with the relevant technical national/international standards.

8.2.2. Individual protection measures, such as Personal Protective Equipment (PPE)

Respiratory protection: Respiratory protection is not required. Where risk assessment shows air-purifying respirators are appropriate, use masks with approved filter.
Use only devices approved by the Competent Authorities such as NIOSH (USA) and CEN (EU).

Skin protection: Protective clothing, rubber gloves.

Eye protection: Safety glasses.

Hand protection: Protective gloves.

Other protective systems: Personal protective equipment (PPE) useful for reducing individual exposure.

8.2.3. Environmental exposure controls

Avoid any release into the environment.

SECTION 9. PHYSICAL AND CHEMICAL PROPERTIES

9.1 Information on basic physical and chemical properties

	Value	Related to
Appearance:	Clear Liquid	
Odor:	Not available	
Color:	Pale to medium yellow	
pH:	11 - 12	Mixture
Flammability:	Not available	
Explosive properties:	Not available	
Oxidizing properties:	Not available	
Density:	Not available	
Solubility:	Not available	
Water Solubility:	Soluble	
Melting point/range:	Liquid, not applicable	

9.2 Other information

Partition coefficient octanol/water: *Sodium Hypochlorite*: 0.87 at pH = 7
Sodium Hydroxide: virtually zero ⁽¹¹⁾

SECTION 10. STABILITY AND REACTIVITY

10.1 Reactivity:	This mixture is considered not reactive under the normal conditions of the usage.
10.2 Chemical stability:	The product is stable until the expiration date shown on the box and on the labels when stored at 15 – 25°C.
10.3 Possibility of hazardous reactions:	Not foreseen.
10.4 Conditions to avoid:	Keep out from heat and light.
10.5 Incompatible materials:	Strong acids, reducing agents, ammonia, ethanol. Contact with acids liberates toxic gas.
10.6 Hazardous decomposition products:	Thermal decomposition or combustion may include toxic and hazardous fumes of Na ₂ O, HCl, Cl ₂ .

SECTION 11. TOXICOLOGICAL INFORMATION

The health effects of the product have not been thoroughly investigated. Data on toxicological effects of the hazardous ingredients are provided below.

11.1 Information on toxicological effects

Symptoms and effects for each route of exposure:

Dermal:	May cause skin irritation.
Ingestion:	May cause irritation to the gastrointestinal mucous membranes.
Inhalation:	May cause irritation to the mucous membranes and upper respiratory tract.
Contact with eyes:	May cause serious eye irritation

Toxicokinetic effects (Absorption, Distribution, Metabolism, Excretion):

Sodium Hypochlorite: The substance is absorbed via oral, dermal and inhalation routes. Pick level in plasma is reached within 2 hours after oral administration to the young animal. The elimination half-life is 44 hours. A study in rats shows that the substance is metabolized to chloride ions, which are distributed in descending order within 96 hours after exposure in plasma, whole blood, bone marrow, testes, kidneys and lungs. Only 51.2% of the dose is excreted 96 hours after exposure, 36.4% in the urine and 14.8% in the feces. After 120 hours, the elimination is not yet completed. ⁽⁹⁾

Sodium hydroxide: Alkalis penetrate skin slowly and act at the site of contact. Sodium is a normal constituent of the blood. Exposure to NaOH could potentially increase the pH of the blood. An excess of sodium is avoided through increased elimination which is directed by homeostatic mechanisms. The main excretion route of NaOH is via urine, small amounts were found in faeces, sweat, tears, nasal mucous, saliva, and vaginal and urethral discharges. NaOH is not expected to be systemically available in the body under normal handling and use conditions. ⁽³⁾⁽⁴⁾⁽⁵⁾

Acute toxicity	Value	m.u.	Effects	Related to
<u>Oral:</u>	LD ₀ (rat) > 10.5 g/kg (3.6% solution, as active chlorine); LD ₅₀ (rat) > 5.8 g/kg (12.5% solution, as active chlorine); LD ₅₀ (rat) = 8.91 g/kg (commercialized solution of sodium hypochlorite with unspecified concentration).			⁽¹¹⁾ Sodium Hypochlorite
<u>Dermal:</u>	LD ₅₀ > 2000 mg/kg (5.25% solution, as active chlorine)			⁽¹¹⁾ Sodium Hypochlorite
<u>Inhalation:</u>	LC ₀ > 10.5 mg/l/1 hour (commercial solution with unspecified concentration).			⁽¹⁰⁾ Sodium Hypochlorite
<u>Other data:</u>	<p><i>NaOH:</i> The existing animal and human data on acute toxicity show that NaOH has a local effect and that systemic effects are not to be expected. ⁽⁵⁾</p> <p><i>Sodium Hypochlorite:</i> The toxic effects on the humans depend on the solution concentration. The ingestion of small amounts of common solutions only cause light digestive problems. The concentrated solutions may cause irritation of the digesting tube with vomit, sometimes haemorrhagic. It may cause also necrosis, perforation and complications with shock and haemolysis. The inhalation may cause pulmonary edema. ⁽⁹⁾ The lowest published toxic dose (oral, woman) = 1000 mg/kg. ⁽¹⁰⁾</p>			

Corrosion/Irritation

Skin Corrosion/Irritation

NaOH is highly irritating and highly corrosive for the skin. ⁽⁴⁾

Sodium Hypochlorite: The overall evaluation of data on animal and human skin for concentrations < 5% which are typically marketed for consumer use leads to the conclusion that only mild irritating effects are caused at < 5% sodium hypochlorite. ⁽¹¹⁾ Splashes to the skin of concentrated *Sodium Hypochlorite* may cause severe burns. ⁽⁹⁾

Serious eye damage/ irritation

NaOH: even strongly diluted solutions still cause irritation and chemical burns. The available animal data on eye irritation revealed small differences in eye irritation levels. The non-irritant level was 0.2-1.0%, while the corrosive concentration was 1.2% or higher than 2%. There is a danger of blindness. ⁽⁵⁾

Sodium Hypochlorite: the contact to eyes of concentrated solutions may cause severe burns with important sequelae. ⁽⁹⁾ The evaluation of all available data on eye irritation including human exposure leads to the conclusion that in the event of an accidental exposure to concentrations of < 5 % sodium hypochlorite, the risk for pronounced irritant effects is low. ⁽¹¹⁾

Sensitization:

Skin sensitization:

NaOH is not considered to be a skin sensitizer. ⁽⁴⁾

Sodium Hypochlorite did not show any potential for sensitization in three separate guinea pig tests or in standard sensitization patch tests in healthy human volunteers. ⁽¹¹⁾

Respiratory sensitization:

Not available.

CMR effects

Germ cell mutagenicity:

NaOH: Both the in vitro and the in vivo genetic toxicity test indicate no evidence for a mutagenic activity. ⁽⁴⁾

Sodium Hypochlorite: In *in vitro* tests the substance showed mutagenic activity. An increase of chromosome aberration was observed in Chinese hamster cells, but not in human lymphocytes or fibroblasts. Negative results in *in vivo* studies in mouse bone marrow have been reported. ⁽⁹⁾⁽¹¹⁾

Reproductive toxicity:

NaOH is not expected to be systemically available in the body under normal handling and use conditions and for this reason it can be stated that the substance will not reach the foetus nor reach male and female reproductive organs. ⁽⁴⁾

Sodium Hypochlorite: based on limited data from studies on animals, treated with Sodium Hypochlorite in drinking water or from epidemiologic studies on humans, consuming chlorinated drinking water, the substance does not cause effects on fertility or development. ⁽¹¹⁾

Carcinogenesis:

Substances listed in the National Toxicology Program (NTP) Report on Carcinogens, in the International Agency for Research on Cancer (IARC) Monographs or found to be potential carcinogen by OSHA:

Substance	OSHA	IARC	NTP
The components of the mixture are not listed.			

NaOH: Following chemical burns due to alkalis, the incidence of the occurrence of esophageal tumors is increased by a factor between 1000 and 3000. However, the tumor formation is a consequence of massive tissue destruction and the regenerative processes which subsequently start and is not the result of a direct carcinogenic effect. If irritation is avoided, the formation of tumors is not to be expected. ⁽⁵⁾

Sodium Hypochlorite: In long term carcinogenicity studies, sodium hypochlorite administered in the drinking water to mice and rats did not show an increase of the tumors incidence. Sodium hypochlorite applied to the skin did not produce skin tumors in mice. In a multigenerational study (6 generations) in rats, sodium hypochlorite administered in the drinking water did not increase the incidence of tumours. ⁽¹¹⁾ The International Agency for Research on Cancer (IARC) has placed the substance in Group 3 (not classifiable as carcinogenic to humans), based on lacking of data in humans and insufficient evidences in animals. ⁽⁹⁾

STOT –single exposure

NaOH in the atmosphere causes irritation to the airways (in particular in the nose and throat). A concentration of 2 mg/m³ was reported to have produced distinct but not excessive irritation.

Sodium Hypochlorite: Sodium hypochlorite aerosols may be irritating to the respiratory tract. It is anticipated that exposure to domestic aerosols formulated with sodium hypochlorite solutions of less than 3.0% would not present a significant respiratory irritation hazard. ⁽¹¹⁾

STOT – repeated exposure

NaOH: In studies in workplaces, irritation to the eyes, nose and throat as well as skin was reported. Animal experimental results also indicate possible chronic damage to the airways. ⁽⁵⁾

Sodium Hypochlorite: prolonged use of the substance may cause dermatosis. ⁽⁹⁾ In studies on animals treated with NaOCl via oral route, a decrease of body weight was observed, but no systemic effects to specific target organs were reported; NOAEL for rats: about 14 mg/kg bw/day (on the basis of chlorine content). No systemic effects were seen following dermal exposure to 10000 mg/l sodium hypochlorite; a NOEL = 1% was chosen for dermal exposure. For the evaluation of the effects of repeated inhalation exposure to hypochlorite aerosols, it is proposed to use data from chlorine. The NOAEL for repeated exposure to chlorine gas is 0.5 ppm, as confirmed by studies in rhesus monkeys and human volunteers. ⁽¹¹⁾⁽¹²⁾

Aspiration hazards The aspiration hazard is not expected, taking into account the use of the mixture.

Other information: Not available.

Reasons for the lack of classification:

Where the mixture resulted in a non-classification, this may be due to the availability of data which does not impose a classification for that specific end-point, or due to lack of data, or due to availability of inconclusive data or data which are not sufficient to get a classification as for the criteria adopted in Regulations mentioned in this data sheet.

SECTION 12. ECOLOGICAL INFORMATION

The environmental effects of the product have not been thoroughly investigated. Data on toxicological effects of the hazardous ingredients are provided below.

12.

1	Toxicity	species, media, units, test duration and test conditions.	Related to
	Acute toxicity with fish:	LC50 <i>Gambusia affinis</i> = 125 mg/l/96 hours	⁽⁴⁾ NaOH
		Based on the weight of evidence, invertebrates show similar sensitivity or greater than fishes in acute ecotoxicity tests with sodium hypochlorite.	⁽¹³⁾ Sodium Hypochlorite
	Chronic toxicity with fish:	Upon prolonged exposure concentrations of 25-100 mg/l produced significant changes in the biology of the fish.	⁽⁴⁾ NaOH
	Acute toxicity with crustaceans:	LC50 <i>Ceriodaphnia cf dubia</i> = 40 mg/l/48 hours. The toxicity threshold concentration for <i>Daphnia magna</i> was reported to range from 40 to 240 mg/l.	⁽⁴⁾ NaOH
		EC50 <i>Daphnia magna</i> > 1 mg/l; tested on a mixture containing sodium hypochlorite (immobilization test of <i>Daphnia</i> , in accordance with OECD 202)	⁽¹³⁾ Sodium Hypochlorite 5% solution
	Chronic toxicity with crustaceans:	Not available	
	Acute toxicity with algae:	Standard tests for acute toxicity for algae are not considered technically feasible for sodium hypochlorite.	⁽¹³⁾ Sodium Hypochlorite
	Chronic toxicity with algae:	Not available	
	Toxicity data on soil micro- and macroorganisms:	EC50 <i>Photobacterium phosphoreum</i> = 22 mg/l/15 minutes	⁽⁴⁾ NaOH
	Toxicity data on birds, bees and plants:	Not available.	
12. 2	Persistency and degradability:	<i>NaOH</i> : It is highly soluble in water and dissociates to sodium and hydroxide ions, with the effect of increasing pH and alkalinity. Na ⁺ and OH ⁻ persist indefinitely in the environment with equilibrium between various forms of complexes and precipitates. ⁽⁷⁾	

Sodium Hypochlorite: ⁽¹⁴⁾

The **persistence in atmospheric compartment** is considered as negligible. At environmental pH (6.5 -8.5), sodium hypochlorite is dissociated into hypochlorous acid and hypochlorite anion (50:50). Only the fraction of hypochlorous acid is volatile. The Henry's Law constant, measured for hypochlorous acid, is 0.0097 Pa m³ mol⁻¹; this suggests that the concentration in air is very low. Therefore the atmospheric compartment is not considered as a significant exposure route.

The **persistence in soil** is considered as very low (Koc, calculated by QSAR = 0.57).

The **persistence in aquatic compartment** is evaluated as poor, in view of the rapid degradation of the substance. Hypochlorite degrades very rapidly (about 300 seconds) in the presence of organic matrixes. ⁽¹⁴⁾

Photo-oxidation, photolysis: Sodium hypochlorite is sensitive to light; sunlight decreases the half-life of a solution containing 10-15% of free chlorine by 3-4 times.

Degradability: ready degradability in fresh water and sea water: not applicable; sodium hypochlorite is an inorganic substance. Degradability of metabolites: not significant; sodium hypochlorite is degraded into chlorine.

- | | | |
|----------|---|---|
| 12.
3 | Bioaccumulation potential: | Considering its high water solubility, <i>NaOH</i> is not expected to bio concentrate in organisms. |
| 12.
4 | Mobility in soil: | <i>NaOH</i> is very soluble and mobile in water. In soil, mobility depends directly on the importance of the liquid phase of the soil and the possibility to form metal hydroxo-complexes with metal solid species. ⁽³⁾ |
| 12.
5 | Results of PBT and vPvB assessment | Chemical Safety Report and PBT assessment: not performed.
On the basis of the information available in the literature about Sodium Hypochlorite, the substance does not fulfil PBT and vPvB criteria. It is not persistent and not bio accumulative. ⁽¹⁵⁾ |
| 12.
6 | Other toxic effects: | The effect of <i>NaOH</i> on the organisms depends on the buffer capacity of the aquatic or terrestrial ecosystem. ⁽⁴⁾ |

SECTION 13. DISPOSAL CONSIDERATION

National laws on disposal must be considered, local and UE requirements for wastes recycling must be respected.

13.1 Waste treatment methods

Used waste product, surplus product or spillage products shall be disposed of in accordance with national, state and local laws.

SECTION 14. TRANSPORT INFORMATION

Not classified in accordance with ADR/RID, IMDG, IATA and DOT regulations.

SECTION 15. REGULATORY INFORMATION

15.1 Safety, health and environmental regulations/legislation specific for the substance or mixture

EU Regulations

- Council Directive 89/391/EEC of 12 June 1989 on the introduction of measures to encourage improvements in the safety and health of workers at work (Official Journal L 183 , 29/06/1989 P. 0001 – 0008) and following amendment and National reinforcements.
- Council Directive 89/686/EEC of 21 December 1989 on the approximation of the laws of the Member States relating to the personal protective equipment.
- Council Directive 98/24/EC of 7 April 1998 on the protection of the health and safety of workers from the risks related to chemical agents at work (fourteenth individual Directive within the meaning of Article 16(1) of Directive 89/391/EEC) Official Journal L 131 , 05/05/1998 P. 0011 – 0023.
- Council Directive 98/79/EC of the European Parliament and of the Council of 27 October 1998 on in vitro diagnostic medical devices.
- Commission Regulation (EU) 2015/830 of 28 May 2015 amending Regulation (EC) No 1907/2006 of the European Parliament and of the Council on the Registration, Evaluation, Authorization and Restriction of Chemicals (REACH).
- Regulation (EC) No 1272/2008 of the European Parliament and of the Council of 16 December on classification, labelling and packaging of substances and mixtures 2008 (and subsequent amendments and supplements).

Restriction of use: none

Substance(s) under authorization: none

US Federal Regulations:

State	Components listed	Note
Massachusetts	Sodium hydroxide	-
	Sodium hypochlorite	-
New York	Sodium hydroxide	-
	Sodium hypochlorite	-
New Jersey	Sodium hydroxide	Corrosive
	Sodium hypochlorite	Corrosive
Pennsylvania	Sodium hydroxide	E - Substance is on the Environmental Hazard List
	Sodium hypochlorite	E - Substance is on the Environmental Hazard List

California Prop. 65

Ingredient name	Cancer	Reproductive	NSRL or MADL (µg/day)
No component listed			
Clean Water Act (CWA) 307	No component listed		
Clean Air Act Section 112(b) Hazardous Air Pollutants (HAPs)	No component listed		
Clean Air Act Section 602 Class I Substances	No component listed		
Clean Air Act Section 602 Class II Substances	No component listed		
DEA List I Chemicals (Precursor Chemicals)	No component listed		
DEA List II Chemicals (Essential Chemicals)	No component listed		

EPA List of Lists

Regulatory Name	CAS No./SARA/ 313 Category Code ^I	SARA/ EPCRA 302 EHS TPQ ^{II}	SARA/ EPCRA 304 EHS RQ ^{III}	CERCLA RQ ^{IV}	SARA/EPCRA 313 TRI ^V	RCRA Code ^{VI}	CAA 112(r) RMP TQ ^{VII}
Sodium Hydroxide	1310-73-2	-	-	1,000	-	-	-
Sodium hypochlorite	7681-52-9	-	-	100	-	-	-

^ISARA/313 Category Code: Emergency Planning and Community Right-to Know Act Section 313 Category Code

^{II}SARA/EPCRA 302 EHS TPQ: Extremely Hazardous Substance Threshold Planning Quantity (Emergency Planning and Community Right-to Know Act Section 302 Category Code)

^{III}SARA/EPCRA 304 EHS RQ: Extremely Hazardous Substance Reportable Quantity (Emergency Planning and Community Right-to Know Act Section 304 Category Code)

^{IV}CERCLA RQ: Reportable Quantity (Comprehensive Environmental Response, Compensation, and Liability Act)

^VSARA/EPCRA 313 TRI: Toxics Release Inventory (Emergency Planning and Community Right-to Know Act Section 313 Category Code)

^{VI}RCRA Code: Resource Conservation and Recovery Act Code

^{VII}CAA 112(r) RMP TQ: Risk Management Plan Threshold Quantity (Clean Air Act Section 112(r))

United States Inventory (TSCA 8b): All components are listed or exempted.

Canada Domestic Substances List (DSL): All components are listed.

- 15.2 Chemical safety assessment:** A chemical safety assessment has not been carried out for the mixture by the supplier. According to the Regulation (EEC) N. 793/93 on the Evaluation and control of the risks of existing substance, a risk Assessment for *Sodium hypochlorite* was carried out and no significant risks were identified in the scenarios of professional uses, described in accordance with the technical guideline for human exposure.⁽¹¹⁾

SECTION 16. OTHER INFORMATION

- Revisions:**
- Edition n. 01, dated 04/15/2011.
 - Revision n. 01, dated 07/18/2012.
 - Revision n. 02, dated 09/09/2015.
 - Revision n. 03, dated 09/29/2015. Main changes are in sections 15.1 and 16, updating information per the most recent version of REACH.
- Acronyms:**
- ACGIH: American Conference of Governmental Industrial Hygienists
 - AIHA: American Industrial Hygiene Association
 - ADR: Agreement concerning the carriage of dangerous goods by Road
 - BCF: Bioaccumulative factor
 - BEI : Biological Exposure Indices
 - CAS: Chemical Abstract Service (division of the American Chemical Society)
 - CLP: Classification, Labeling and Packaging
 - DNEL: Derived No-Effect Levels

EC50: the effect concentration associated with 50% response.
 EINECS: European Inventory of Existing Commercial Substances
 EPA: US Environmental Protection Agency
 IARC: International Agency for Research on Cancer
 IATA: International Air Transport Association Code
 IMDG: International Maritime Dangerous Goods Code
 LC50: Lethal Concentration to 50 % of a test population
 LD50: Lethal Dose to 50% of a test population (Median Lethal Dose)
 LOEL: Lowest Observed Effect Level
 MADL: Maximum Allowable Daily (or Dose) Level
 NOAEL: No Observed Adverse Effect Level
 NOEC: no observed effect concentration, means the test concentration immediately below the lowest tested concentration with statistically significant adverse effect.
 NSRL: National Science Research Laboratory
 NTP: National Toxicology Program
 OEL: Occupational Exposure Limit
 OSHA: Occupational Safety and Health Administration
 PPE : Personal protective Equipment
 PBT: Persistent, Bio accumulative and Toxic substances
 PNEC: Predicted No Effect Concentration
 RID: Regulation concerning the International carriage of Dangerous goods by rail
 TLV/TWA: Threshold Limit Value/Threshold Weighted Average
 vPvB: very Persistent, very Bio accumulative
 WEEL: Workplace Environmental Exposure Level (air concentration of agents in a healthy worker's breathing zone)

Information related to the Regulation EC/1272/2008:

Hazard statement(s):
 H319: Causes serious eye irritation.
 H314: Causes severe skin burns and eye damage.
 H315: Causes skin irritation.
 H400: Very toxic to aquatic life.
 EUH031: Contact with acids liberates toxic gas.

Information on workers training: Follow National requirements to ensure protection of human health and the environment.

Classification and procedure used to derive the classification for mixtures according to Regulation (EC) 1272/2008, according to Hazard Communication Standard, 29 CFR 1910.1200 (HCS), and according to HPR (WHMIS 2015) :

<i>Classification:</i>	<i>Classification procedure</i>
Not classified	

The contained information in this SDS are in accordance with Annex II of the COMMISSION REGULATION (EU) No 1907/2006 (REACH) and its subsequent amendments, in accordance with Hazard Communication Standard (HCS), 29 CFR 1910.1200 (HazCom 2012) as recommended by US OSHA, and in accordance with Hazardous Product Regulation HPR (WHMIS 2015) as recommended by Health Canada (HC).

Bibliographic references:

- (1) GESTIS International Limit Values, available on http://limitvalue.ifa.dguv.de/WebForm_ueliste.aspx
- (2) ACGIH, TLVs and BEIs based on the Documentation of the Threshold Limit Values for Chemical Substances and Physical Agents & Biological Exposure Indices, 2012
- (3) IUCLID data set for Sodium hydroxide, 18-feb-2000.
- (4) Sodium hydroxide, SIDS Initial Assessment Report For SIAM 14 Paris, 26-28 March 2002
- (5) Sodium hydroxide, IFA, GESTIS Substance database , ZVG n. 1270
- (6) Sodium hydroxide, ECHA, Registration dossier, available at http://echa.europa.eu/it/information-on-chemicals/registered-substances?p_id=registeredsubstances_WAR_regsubsportlet®isteredsubstances_WAR_regsubsportlet_name=sc=®isteredsubstances_WAR_regsubsportlet_ec-number-sc=1310-73-2®isteredsubstances_WAR_regsubsportlet_cas-number-sc=1310-73-2®isteredsubstances_WAR_regsubsportlet_sc=true®isteredsubstances_WAR_regsubsportlet_do-search=
- (7) Environmental and Health Assessment of Substances in Household Detergents and Cosmetic Detergent Products, available at <http://eng.mst.dk/>
- (8) www.osha.gov, Safety and Health Topics: Sodium Hydroxide
- (9) <http://modellids.iss.it/bitstream/123456789/1260/1/127.pdf>, Scheda di Dati di Sicurezza secondo l'Allegato II del Regolamento 1907/2006 (REACH), Ipoclorito di sodio, soluzione...%

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- (10) NIOSH The Registry of Toxic Effects of Chemical Substances, RTECS:NH3486300, Hypochlorous acid, sodium salt
- (11) European Union Risk Assessment Report, SODIUM HYPOCHLORITE, Final report, November 2007
- (12) GESTIS Substance database, Sodium hypochlorite, solution ... percent Cl active, ZVG No: 1410
- (13) A.I.S.E, Environmental classification of sodium hypochlorite containing bleach products.
- (14) Evaluation Report on Sodium Hypochlorite (CAS 7681-52-9) for inclusion of the Active Substance in Annex I to Directive 98/8/EC – Bozza Marzo 2010
- (15) Eurochlor registration group, Sodium Hypochloride, Final Assessment 2007

Issuing Date 05-Nov-2015

Revision Date 05-Nov-2015

Revision Number B

1. IDENTIFICATION OF THE SUBSTANCE/PREPARATION AND THE COMPANY/UNDERTAKING

GHS product identifier

Product Name Ecoworks™ Cleaning Agent

Other means of identification

SSYS Part Number 400619-0001

Synonyms Alkaline cleaning agent

Recommended use of the chemical and restrictions on use

Recommended Use Additive manufacturing

Uses advised against No information available

Supplier's details

Supplier Address

Stratasys Inc
7665 Commerce Way
Eden Prairie, MN
55344
TEL: 1(952) 937 3000

Emergency telephone number

Emergency Telephone Number 1(952) 937 3000
+49 722 97772281 - Global - English language response
+1 978 495 5580 - USA - Multi lingual response

2. HAZARDS IDENTIFICATION

Classification

This chemical is considered hazardous according to the OSHA Hazard Communication Standard 2012 (29 CFR 1910.1200).

Acute Oral Toxicity	Category 4
Serious Eye Damage/Eye Irritation	Category 2

GHS Label elements, including precautionary statements

Emergency Overview

Signal Word

Warning

Hazard Statements

- Harmful if swallowed
- Causes serious eye irritation

**Appearance** White.**Physical State** Solid (powder).**Odor** None.**Precautionary Statements****Prevention**

- Wash face, hands and any exposed skin thoroughly after handling.
- Do not eat, drink or smoke when using this product.
- Wear eye/face protection.

General Advice

- None

Eyes

- IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing.
- If eye irritation persists: Get medical advice/attention.

Ingestion

- IF SWALLOWED: Call a POISON CENTER or doctor/physician if you feel unwell.
- Rinse mouth.

Storage

- None

Disposal

- Dispose of contents/container to an approved waste disposal plant.

Hazard Not Otherwise Classified (HNOC)

Not applicable.

Other information

Toxic to aquatic life.

16.25% of the mixture consists of ingredient(s) of unknown toxicity.

3. COMPOSITION/INFORMATION ON INGREDIENTS

Synonyms

Alkaline cleaning agent

Chemical Name	CAS-No	Weight %	Trade secret
Sodium percarbonate	15630-89-4	45-55	*
Sodium carbonate	497-19-8	15-25	*
Tetrasodium N,N-bis(carboxylatomethyl)-L-glutamate	51981-21-6	10-20	*
Citric acid	77-92-9	10-20	*

*The exact percentage (concentration) of composition has been withheld as a trade secret.

4. FIRST AID MEASURES

Description of necessary first-aid measures

Eye Contact	Rinse immediately with plenty of water, also under the eyelids, for at least 15 minutes. If symptoms persist, call a physician.
Skin Contact	Wash skin with soap and water. If skin irritation persists, call a physician.
Inhalation	Move to fresh air. If symptoms persist, call a physician.
Ingestion	Drink plenty of water. Do NOT induce vomiting. Never give anything by mouth to an unconscious person. Consult a physician if necessary.

Most important symptoms/effects, acute and delayed

Most Important Symptoms/Effects Eye irritation/reactions.

Indication of immediate medical attention and special treatment needed, if necessary

Notes to Physician Treat symptomatically.

5. FIRE-FIGHTING MEASURES

Suitable Extinguishing Media

Water spray. Dry powder. Foam. Carbon dioxide (CO₂).

Unsuitable Extinguishing Media No information available.

Specific Hazards Arising from the Chemical

Burning produces obnoxious and toxic fumes. Carbon monoxide. Carbon dioxide (CO₂). Nitrogen oxides (NO_x)

Explosion Data

Sensitivity to Mechanical Impact

None.

Sensitivity to Static Discharge

None.

Protective Equipment and Precautions for Firefighters

As in any fire, wear self-contained breathing apparatus pressure-demand, MSHA/NIOSH (approved or equivalent) and full protective gear.

6. ACCIDENTAL RELEASE MEASURES

Personal precautions, protective equipment and emergency procedures

Personal Precautions Avoid contact with skin, eyes and clothing. Use personal protective equipment. Ensure adequate ventilation. Avoid dust formation. Avoid inhalation of dust. High risk of slipping due to leakage/spillage of product.

Environmental Precautions

Environmental Precautions Avoid release to the environment. See Section 12 for additional Ecological Information.

Methods and materials for containment and cleaning up

Methods for Containment Prevent further leakage or spillage if safe to do so.

Methods for Cleaning Up Sweep up and shovel into suitable containers for disposal.

7. HANDLING AND STORAGE

Precautions for safe handling

Handling	Handle in accordance with good industrial hygiene and safety practice. Avoid contact with skin, eyes and clothing. Wear personal protective equipment. Avoid dust formation. Avoid breathing dust. Ensure adequate ventilation. Do not eat, drink or smoke when using this product. Do not take internally. Wash thoroughly after handling.
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Conditions for safe storage, including any incompatibilities

Storage	Keep tightly closed in a dry and cool place. Keep away from direct sunlight. Keep away from heat. Store away from incompatible materials. See Section 10 for Incompatibles.
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Incompatible Products	Strong oxidizing agents. Strong reducing agents.
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8. EXPOSURE CONTROLS / PERSONAL PROTECTION**Control parameters**

Exposure Guidelines	This product does not contain any hazardous materials with occupational exposure limits established by the region specific regulatory bodies.
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Appropriate engineering controls

Engineering Measures	Showers Eyewash stations Ventilation systems
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Individual protection measures, such as personal protective equipment

Eye/Face Protection	Tightly fitting safety goggles.
Skin and Body Protection	Protective gloves.
Respiratory Protection	No protective equipment is needed under normal use conditions. If exposure limits are exceeded or irritation is experienced, NIOSH/MSHA approved respiratory protection should be worn.

Hygiene Measures	Handle in accordance with good industrial hygiene and safety practice.
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9. PHYSICAL AND CHEMICAL PROPERTIES**Information on basic physical and chemical properties**

Physical State	Solid (powder).	Appearance	White.
Odor	None.	Odor Threshold	No information available.

<u>Property</u>	<u>Values</u>	<u>Remarks/ - Method</u>
pH	No data available	None known
Melting Point/Range	No data available	None known
Boiling Point/Boiling Range	No data available	None known
Flash Point	No data available	None known
Evaporation rate	No data available	None known
Flammability (solid, gas)	No data available	None known
Flammability Limits in Air		
upper flammability limit	No data available	
lower flammability limit	No data available	
Vapor Pressure	No data available	None known
Vapor Density	No data available	None known
Specific Gravity	No data available	None known
Water Solubility	No data available	None known
Solubility in other solvents	No data available	None known
Partition coefficient: n-octanol/water	No data available	None known
Autoignition Temperature	No data available	None known
Decomposition Temperature	No data available	None known
Viscosity	No data available	None known

Flammable Properties	Not flammable
Explosive Properties	No data available
Oxidizing Properties	No data available

Other information

VOC Content (%)	No data available
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10. STABILITY AND REACTIVITY**Reactivity**

No data available.

Chemical stability

Stable under recommended storage conditions.

Possibility of hazardous reactions

None under normal processing.

Hazardous Polymerization

Hazardous polymerization does not occur.

Conditions to avoid

Incompatible products.

Incompatible materials

Strong oxidizing agents. Strong reducing agents.

Hazardous decomposition products

Nitrogen oxides (NO_x). Carbon monoxide (CO). Carbon dioxide (CO₂). Ammonia.

11. TOXICOLOGICAL INFORMATION**Information on likely routes of exposure****Product Information****Inhalation**

Product dust may cause irritation of respiratory tract.

Eye Contact

Dust contact with the eyes can lead to mechanical irritation.

Skin Contact

Contact with dust can cause mechanical irritation or drying of the skin.

Ingestion

Harmful if swallowed.

Chemical Name	LD50 Oral	LD50 Dermal	LC50 Inhalation
Sodium percarbonate	= 1034 mg/kg (Rat)	-	-
Sodium carbonate	= 4090 mg/kg (Rat)	-	-
Citric acid	3000 mg/kg (Rat)	-	-

Symptoms related to the physical, chemical and toxicological characteristics

Symptoms	No information available.
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Delayed and immediate effects and also chronic effects from short and long term exposure

Sensitization No information available.
Mutagenic Effects No information available.
Carcinogenicity Contains no ingredients above reportable quantities listed as a carcinogen.

Reproductive Toxicity No information available.
STOT - single exposure No information available.
STOT - repeated exposure No information available.
Target Organ Effects Eyes. Skin. Respiratory system.
Aspiration Hazard No information available.

Numerical measures of toxicity - Product

Acute Toxicity 16.25% of the mixture consists of ingredient(s) of unknown toxicity.

The following values are calculated based on chapter 3.1 of the GHS document:

LD50 Oral 1454 mg/kg; Acute toxicity estimate

12. ECOLOGICAL INFORMATION**Ecotoxicity**

Toxic to aquatic life.

Chemical Name	Toxicity to Algae	Toxicity to Fish	Toxicity to Microorganisms	Daphnia Magna (Water Flea)
Sodium percarbonate 15630-89-4	EC50 240 h: = 70 mg/L (Chlorella emersonii)	LC50 96 h: = 70.7 mg/L static (Pimephales promelas)		EC50 48 h: = 4.9 mg/L (Daphnia pulex)
Sodium carbonate 497-19-8	EC50 120 h: = 242 mg/L (Nitzschia)	LC50 96 h: = 300 mg/L static (Lepomis macrochirus) LC50 96 h: 310 - 1220 mg/L static (Pimephales promelas)		EC50 48 h: = 265 mg/L (Daphnia magna)
Citric acid 77-92-9		LC50 96 h: = 1516 mg/L static (Lepomis macrochirus)		EC50 72 h: = 120 mg/L (Daphnia magna)

Persistence and Degradability No information available.

Bioaccumulation No information available.

Chemical Name	Log Pow
Citric acid	-1.72

Other Adverse Effects

No information available.

13. DISPOSAL CONSIDERATIONS

Waste Disposal Methods Dispose of in accordance with federal, state, and local regulations

Contaminated Packaging Do not re-use empty containers.

14. TRANSPORT INFORMATION

DOT Not regulated

15. REGULATORY INFORMATION

International Inventories

TSCA Complies
DSL Complies

Legend

TSCA - United States Toxic Substances Control Act Section 8(b) Inventory

DSL/NDL - Canadian Domestic Substances List/Non-Domestic Substances List

U.S. Federal Regulations

Section 313 of Title III of the Superfund Amendments and Reauthorization Act of 1986 (SARA). This product does not contain any chemicals which are subject to the reporting requirements of the Act and Title 40 of the Code of Federal Regulations, Part 372.

SARA 311/312 Hazard Categories

Acute Health Hazard	Yes
Chronic Health Hazard	No
Fire Hazard	No
Sudden Release of Pressure Hazard	No
Reactive Hazard	No

Clean Water Act

This product does not contain any substances regulated as pollutants pursuant to the Clean Water Act (40 CFR 122.21 and 40 CFR 122.42).

CERCLA

This material, as supplied, contains one or more substances regulated as a hazardous substance under the Comprehensive Environmental Response Compensation and Liability Act (CERCLA) (40 CFR 302):

Chemical Name	Hazardous Substances RQs	Extremely Hazardous Substances RQs	RQ
Citric acid	-	-	RQ Section number 180.950

U.S. State Regulations

California Proposition 65

This product does not contain any Proposition 65 chemicals.

U.S. State Right-to-Know Regulations

This product does not contain any substances regulated by state right-to-know regulations.

U.S. EPA Label Information

EPA Pesticide Registration Number Not applicable

16. OTHER INFORMATION

<u>NFPA</u>	Health Hazard	2	Flammability	0	Instability	0	Physical and Chemical Hazards	-
<u>HMIS</u>	Health Hazard	2	Flammability	0	Physical Hazard	0	Personal Protection	X

Prepared By	Product Stewardship 23 British American Blvd. Latham, NY 12110 1-800-572-6501
Issuing Date	05-Nov-2015
Revision Date	05-Nov-2015
Revision Note	Initial Release.

General Disclaimer

The information provided on this SDS is correct to the best of our knowledge, information and belief at the date of its publication. The information given is designed only as a guide for safe handling, use, processing, storage, transportation, disposal and release and is not to be considered as a warranty or quality specification. The information relates only to the specific material designated and may not be valid for such material used in combination with any other material or in any process, unless specified in the text.

End of Safety Data Sheet

ACR39769

Ethanol, absolute

SECTION 1. IDENTIFICATION OF THE SUBSTANCE/MIXTURE AND OF THE COMPANY/UNDERTAKING

产品说明:
Product Description: **乙醇**
Ethanol, absolute

Cat No. : **397690000; 397691000; 397690010; 397690025**
Synonyms Ethyl alcohol; Absolute ethanol
CAS No 64-17-5
Molecular Formula C₂ H₆ O

Supplier **UK entity/business name**
Fisher Scientific UK
Bishop Meadow Road,
Loughborough, Leicestershire LE11 5RG, United Kingdom
General info; Tel: +44 (0)1509 231166

EU entity/business name
Acros Organics BVBA
Janssen Pharmaceuticaaan 3a, 2440 Geel, Belgium
General Info; Tel: +32-14-57 52 11 (info@acros.com)
Technical Support; Tel +32-14-56 56 00 (acros.techsupport@thermofisher.com)

Emergency Telephone Number For information **US** call: 001-800-ACROS-01 / **Europe** call: +32 14 57 52 11
Emergency Number **US**:001-201-796-7100 / **Europe**: +32 14 57 52 99
CHEMTREC Tel. No.**US**:001-800-424-9300 / **Europe**:001-703-527-3887

E-mail address begel.sdsdesk@thermofisher.com

Recommended Use Laboratory chemicals.
Uses advised against No Information available

SECTION 2. HAZARD IDENTIFICATION

Physical State
Liquid

Appearance
Clear, Colorless

Odor
Alcohol

Emergency Overview

Highly flammable liquid and vapor. Causes serious eye irritation. Hygroscopic.

Classification of the substance or mixture

Flammable liquids.	Category 2
Serious Eye Damage/Eye Irritation	Category 2

Label Elements



Signal Word

Danger

Hazard Statements

H225 - Highly flammable liquid and vapor

H319 - Causes serious eye irritation

Precautionary Statements**Prevention**

P210 - Keep away from heat/sparks/open flames/hot surfaces. - No smoking

P240 - Ground/bond container and receiving equipment

P241 - Use explosion-proof electrical/ ventilating/ lighting equipment

P242 - Use non-sparking tools

P243 - Take precautionary measures against static discharge

P260 - Do not breathe dust/fume/gas/mist/vapors/spray

P264 - Wash face, hands and any exposed skin thoroughly after handling

P271 - Use only outdoors or in a well-ventilated area

P280 - Wear eye protection/ face protection

Response

P303 + P361 + P353 - IF ON SKIN (or hair): Remove/Take off immediately all contaminated clothing. Rinse skin with water/shower

P304 + P340 - IF INHALED: Remove person to fresh air and keep comfortable for breathing

P305 + P351 + P338 - IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing

P308 + P313 - IF exposed or concerned: Get medical advice/attention

P370 + P378 - In case of fire: Use dry sand, dry chemical or alcohol-resistant foam for extinction

Storage

P403 + P233 - Store in a well-ventilated place. Keep container tightly closed

Disposal

P501 - Dispose of contents/ container to an approved waste disposal plant

Physical and Chemical Hazards

Vapors may cause flash fire or explosion. Highly flammable. Hygroscopic.

Health Hazards

Causes serious eye irritation.

Environmental hazards

Contains no substances known to be hazardous to the environment or not degradable in waste water treatment plants. Will likely be mobile in the environment due to its volatility. The product contains volatile organic compounds (VOC) which will evaporate easily from all surfaces.

Other Hazards**SECTION 3. COMPOSITION/INFORMATION ON INGREDIENTS**

Component	CAS No	Weight %
Ethyl alcohol	64-17-5	99-100

SECTION 4. FIRST AID MEASURES**General Advice**

If symptoms persist, call a physician.

Eye Contact

Rinse immediately with plenty of water, also under the eyelids, for at least 15 minutes. Get medical attention.

Skin Contact

Wash off immediately with plenty of water for at least 15 minutes. If skin irritation persists, call a physician.

Inhalation

Remove to fresh air. If not breathing, give artificial respiration. Get medical attention if symptoms occur.

Ingestion

Clean mouth with water and drink afterwards plenty of water.

Most important symptoms and effects

Difficulty in breathing. Symptoms of overexposure may be headache, dizziness, tiredness, nausea and vomiting.

Self-Protection of the First Aider

Ensure that medical personnel are aware of the material(s) involved, take precautions to protect themselves and prevent spread of contamination.

Notes to Physician

Treat symptomatically. Symptoms may be delayed.

SECTION 5. FIRE-FIGHTING MEASURES**Suitable Extinguishing Media**

Water spray, carbon dioxide (CO₂), dry chemical, alcohol-resistant foam. Water mist may be used to cool closed containers.

Extinguishing media which must not be used for safety reasons

Do not use a solid water stream as it may scatter and spread fire.

Specific Hazards Arising from the Chemical

Flammable. Risk of ignition. Vapors may form explosive mixtures with air. Vapors may travel to source of ignition and flash back. Containers may explode when heated. Vapors may form explosive mixtures with air.

Protective Equipment and Precautions for Firefighters

As in any fire, wear self-contained breathing apparatus pressure-demand, MSHA/NIOSH (approved or equivalent) and full protective gear.

SECTION 6. ACCIDENTAL RELEASE MEASURES**Personal Precautions**

Use personal protective equipment as required. Ensure adequate ventilation. Remove all sources of ignition. Take precautionary measures against static discharges.

Environmental Precautions

Should not be released into the environment. Do not flush into surface water or sanitary sewer system.

Methods for Containment and Clean Up

Soak up with inert absorbent material. Keep in suitable, closed containers for disposal. Remove all sources of ignition. Use spark-proof tools and explosion-proof equipment.

Refer to protective measures listed in Sections 8 and 13.

SECTION 7. HANDLING AND STORAGE**Handling**

Wear personal protective equipment/face protection. Do not get in eyes, on skin, or on clothing. Ensure adequate ventilation. Avoid ingestion and inhalation. Keep away from open flames, hot surfaces and sources of ignition. Use only non-sparking tools. To avoid

ignition of vapors by static electricity discharge, all metal parts of the equipment must be grounded. Take precautionary measures against static discharges.

Storage

Keep containers tightly closed in a dry, cool and well-ventilated place. Keep away from open flames, hot surfaces and sources of ignition. Flammables area. Keep away from heat, sparks and flame.

Specific Use(s)

Use in laboratories

SECTION 8. EXPOSURE CONTROLS/PERSONAL PROTECTION

Control Parameters

Component	China	Taiwan	Hong Kong	The United Kingdom
Ethyl alcohol	-	TWA: 1000 ppm TWA: 1880 mg/m ³	TWA: 1000 ppm TWA: 1880 mg/m ³	TWA: 1000 ppm TWA; 1920 mg/m ³ TWA WEL - STEL: 3000 ppm STEL; 5760 mg/m ³ STEL

Component	ACGIH TLV	OSHA PEL	NIOSH IDLH	European Union
Ethyl alcohol	STEL: 1000 ppm	(Vacated) TWA: 1000 ppm (Vacated) TWA: 1900 mg/m ³ TWA: 1000 ppm TWA: 1900 mg/m ³	IDLH: 3300 ppm TWA: 1000 ppm TWA: 1900 mg/m ³	

Monitoring methods

BS EN 14042:2003 Title Identifier: Workplace atmospheres. Guide for the application and use of procedures for the assessment of exposure to chemical and biological agents. MDHS70 General methods for sampling airborne gases and vapours MDHS 88 Volatile organic compounds in air. Laboratory method using diffusive samplers, solvent desorption and gas chromatography MDHS 96 Volatile organic compounds in air - Laboratory method using pumped solid sorbent tubes, solvent desorption and gas chromatography

Exposure Controls

Engineering Measures

Ensure adequate ventilation, especially in confined areas. Use explosion-proof electrical/ventilating/lighting equipment. Ensure that eyewash stations and safety showers are close to the workstation location. Wherever possible, engineering control measures such as the isolation or enclosure of the process, the introduction of process or equipment changes to minimise release or contact, and the use of properly designed ventilation systems, should be adopted to control hazardous materials at source.

Personal protective equipment

Eye Protection Goggles (European standard - EN 166)

Hand Protection Protective gloves

Glove material	Breakthrough time	Glove thickness	EU standard	Glove comments
Butyl rubber	> 480 minutes	0.38 mm - 0.56 mm	Level 6	As tested under EN374-3 Determination of Resistance to Permeation by Chemicals
Neoprene	> 480 minutes	0.45 mm	EN 374	
PVC	< 60 minutes	0.18 mm		
Viton (R)	> 480 minutes	0.7 mm		

Inspect gloves before use.

Please observe the instructions regarding permeability and breakthrough time which are provided by the supplier of the gloves. (Refer to manufacturer/supplier for information)

Ensure gloves are suitable for the task: Chemical compatibility, Dexterity, Operational conditions, User susceptibility, e.g. sensitisation effects, also take into consideration the specific local conditions under which the product is used, such as the danger of cuts, abrasion.

Remove gloves with care avoiding skin contamination.

Skin and body protection Long sleeved clothing

Respiratory Protection When workers are facing concentrations above the exposure limit they must use appropriate certified respirators.

Large scale/emergency use Use a NIOSH/MSHA or European Standard EN 136 approved respirator if exposure limits are exceeded or if irritation or other symptoms are experienced
Recommended Filter type: Organic gases and vapours filter Type A Brown conforming to EN14387

Small scale/Laboratory use Maintain adequate ventilation

Hygiene Measures Handle in accordance with good industrial hygiene and safety practice.

Environmental exposure controls Prevent product from entering drains. Do not allow material to contaminate ground water system.

SECTION 9. PHYSICAL AND CHEMICAL PROPERTIES

Appearance	Clear, Colorless	
Physical State	Liquid	
Odor	Alcohol	
Odor Threshold	No data available	
pH	7 @ 20°C	10g/l aq.sol
Melting Point/Range	-114 °C / -173.2 °F	
Softening Point	No data available	
Boiling Point/Range	78 °C / 172.4 °F	
Flash Point	12 °C / 53.6 °F	Method - No information available
Evaporation Rate	No data available	
Flammability (solid,gas)	Not applicable	Liquid
Explosion Limits	Lower 3.3 vol % Upper 19 vol %	
Vapor Pressure	No data available	
Vapor Density	No data available	(Air = 1.0)
Specific Gravity / Density	0.785 g/cm ³ @20°C	
Bulk Density	Not applicable	Liquid
Water Solubility	Miscible	
Solubility in other solvents	No information available	
Partition Coefficient (n-octanol/water)		
Component	log Pow	
Ethyl alcohol	-0.32	
Autoignition Temperature	363 °C / 685.4 °F	
Decomposition Temperature	No data available	
Viscosity	No data available	
Explosive Properties		Vapors may form explosive mixtures with air
Oxidizing Properties	No information available	
Molecular Formula	C ₂ H ₆ O	
Molecular Weight	46.07	
VOC Content(%)	100% (Organic Carbon (by mass) = 52.1 %) (EC/1999/13)	

SECTION 10. STABILITY AND REACTIVITY

Stability Hygroscopic.

Hazardous Reactions None under normal processing.

Hazardous Polymerization Hazardous polymerization does not occur.

Conditions to Avoid Incompatible products. Heat, flames and sparks. Keep away from open flames, hot

surfaces and sources of ignition.

Materials to avoid Strong oxidizing agents. Strong acids. Acid anhydrides. Acid chlorides.**Hazardous Decomposition Products** Carbon monoxide (CO). Carbon dioxide (CO₂).**SECTION 11. TOXICOLOGICAL INFORMATION****Product Information****(a) acute toxicity;**

Component	LD50 Oral	LD50 Dermal	LC50 Inhalation
Ethyl alcohol	LD50 = 10470 mg/kg OECD 401 (Rat) 3450 mg/kg (Mouse)		LC50 = 117-125 mg/l (4h) OECD 403 (rat) 20000 ppm/10H (rat)

(b) skin corrosion/irritation; Based on available data, the classification criteria are not met**(c) serious eye damage/irritation;** Category 2**(d) respiratory or skin sensitization;****Respiratory**
Skin

Based on available data, the classification criteria are not met

Based on available data, the classification criteria are not met

Component	Test method	Test species	Study result
Ethyl alcohol 64-17-5 (99-100)	Mouse Ear Swelling Test (MEST)	mouse	non-sensitising
	OECD Test Guideline 429 Local Lymph Node Assay	mouse	non-sensitising

(e) germ cell mutagenicity; Based on available data, the classification criteria are not met

Component	Test method	Test species	Study result
Ethyl alcohol 64-17-5 (99-100)	AMES test OECD Test Guideline 471	in vitro Bacteria	negative
	Gene cell mutation OECD Test Guideline 476	in vitro Mammalian	negative

(f) carcinogenicity; Based on available data, the classification criteria are not met

There are no known carcinogenic chemicals in this product

(g) reproductive toxicity; Based on available data, the classification criteria are not met

Component	Test method	Test species / Duration	Study result
Ethyl alcohol 64-17-5 (99-100)	OECD Test Guideline 416	Oral / mouse 2 Generation	NOAEL = 13.8 g/kg/day
	OECD Test Guideline 414	Inhalation / Rat	NOAEC = 16000 ppm

(h) STOT-single exposure; Based on available data, the classification criteria are not met**(i) STOT-repeated exposure;** Based on available data, the classification criteria are not met**Target Organs**

None known.

SAFETY DATA SHEET**Ethanol, absolute****(j) aspiration hazard;** Based on available data, the classification criteria are not met**Symptoms / effects, both acute and delayed** Symptoms of overexposure may be headache, dizziness, tiredness, nausea and vomiting.**SECTION 12. ECOLOGICAL INFORMATION****Ecotoxicity effects** Do not empty into drains.

Component	Freshwater Fish	Water Flea	Freshwater Algae	Microtox
Ethyl alcohol	Fathead minnow (Pimephales promelas) LC50 = 14200 mg/l/96h	EC50 = 9268 mg/L/48h EC50 = 10800 mg/L/24h	EC50 (72h) = 275 mg/l (Chlorella vulgaris)	Photobacterium phosphoreum: EC50 = 34634 mg/L/30 min Photobacterium phosphoreum: EC50 = 35470 mg/L/5 min

Persistence and Degradability Readily biodegradable
Persistence Persistence is unlikely, based on information available.

Component	Degradability
Ethyl alcohol 64-17-5 (99-100)	OECD 301E = 94%

Bioaccumulative Potential Bioaccumulation is unlikely

Component	log Pow	Bioconcentration factor (BCF)
Ethyl alcohol	-0.32	No data available

Mobility in soil The product contains volatile organic compounds (VOC) which will evaporate easily from all surfaces. Will likely be mobile in the environment due to its volatility. Disperses rapidly in air.**Endocrine Disruptor Information** This product does not contain any known or suspected endocrine disruptors**Persistent Organic Pollutant** This product does not contain any known or suspected substance**Ozone Depletion Potential** This product does not contain any known or suspected substance**SECTION 13. DISPOSAL CONSIDERATIONS****Waste from Residues/Unused Products** Waste is classified as hazardous. Dispose of in accordance with the European Directives on waste and hazardous waste. Dispose of in accordance with local regulations.**Contaminated Packaging** Dispose of this container to hazardous or special waste collection point. Empty containers retain product residue, (liquid and/or vapor), and can be dangerous. Keep product and empty container away from heat and sources of ignition.**Other Information** Waste codes should be assigned by the user based on the application for which the product was used. Do not flush to sewer. Can be landfilled or incinerated, when in compliance with local regulations.**SECTION 14. TRANSPORT INFORMATION****Road and Rail Transport**

UN-No	UN1170
Proper Shipping Name	ETHANOL
Hazard Class	3
Packing Group	II

SAFETY DATA SHEET

Ethanol, absolute

IMDG/IMO

UN-No UN1170
 Proper Shipping Name ETHANOL
 Hazard Class 3
 Packing Group II

IATA

UN-No UN1170
 Proper Shipping Name ETHANOL
 Hazard Class 3
 Packing Group II

Special Precautions for User No special precautions required

SECTION 15. REGULATORY INFORMATION**International Inventories**

X = listed, China (IECSC), Europe (EINECS/ELINCS/NLP), U.S.A. (TSCA), Canada (DSL/NDL), Philippines (PICCS), Japan (ENCS), Japan (ISHL), Australia (AICS), Korea (KECL).

Component	The Inventory of Hazardous Chemicals (2015 Edition)	List of dangerous goods GB 12268 - 2012	TCSI	IECSC	EINECS	TSCA	DSL	PICCS	ENCS	ISHL	AICS	KECL
Ethyl alcohol	X	X	X	X	200-578-6	X	X	X	X	X	X	KE-13217

National Regulations**SECTION 16. OTHER INFORMATION**

Creation Date 24-Apr-2009
 Revision Date 17-Dec-2020
 Revision Summary Not applicable.

Training Advice

Chemical hazard awareness training, incorporating labelling, Safety Data Sheets (SDS), Personal Protective Equipment (PPE) and hygiene.

Use of personal protective equipment, covering appropriate selection, compatibility, breakthrough thresholds, care, maintenance, fit and standards.

First aid for chemical exposure, including the use of eye wash and safety showers.

Fire prevention and fighting, identifying hazards and risks, static electricity, explosive atmospheres posed by vapours and dusts.

Chemical incident response training.

Legend

CAS - Chemical Abstracts Service

EINECS/ELINCS - European Inventory of Existing Commercial Chemical Substances/EU List of Notified Chemical Substances

PICCS - Philippines Inventory of Chemicals and Chemical Substances

IECSC - Chinese Inventory of Existing Chemical Substances

KECL - Korean Existing and Evaluated Chemical Substances

TSCA - United States Toxic Substances Control Act Section 8(b) Inventory

DSL/NDL - Canadian Domestic Substances List/Non-Domestic Substances List

ENCS - Japanese Existing and New Chemical Substances

AICS - Australian Inventory of Chemical Substances

NZIoC - New Zealand Inventory of Chemicals

WEL - Workplace Exposure Limit

ACGIH - American Conference of Governmental Industrial Hygienists

DNEL - Derived No Effect Level

RPE - Respiratory Protective Equipment

LC50 - Lethal Concentration 50%

NOEC - No Observed Effect Concentration

PBT - Persistent, Bioaccumulative, Toxic

TWA - Time Weighted Average

IARC - International Agency for Research on Cancer

Predicted No Effect Concentration (PNEC)

LD50 - Lethal Dose 50%

EC50 - Effective Concentration 50%

POW - Partition coefficient Octanol:Water

vPvB - very Persistent, very Bioaccumulative

ADR - European Agreement Concerning the International Carriage of Dangerous Goods by Road

IMO/IMDG - International Maritime Organization/International Maritime Dangerous Goods Code

OECD - Organisation for Economic Co-operation and Development

BCF - Bioconcentration factor

ICAO/IATA - International Civil Aviation Organization/International Air Transport Association

MARPOL - International Convention for the Prevention of Pollution from Ships

ATE - Acute Toxicity Estimate

VOC (volatile organic compound)

Key literature references and sources for data

<https://echa.europa.eu/information-on-chemicals>

Suppliers safety data sheet, Chemadvisor - LOLI, Merck index, RTECS

Disclaimer

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End of Safety Data Sheet

Section 1. Identification

Product name : SCW356 SCALE INHIBITOR
Product code : SCW356

Relevant identified uses of the substance or mixture and uses advised against

Identified uses : Scale Inhibitor.

Print date : 1/20/2023

Validation date : 1/20/2023


Version : 4.01

Supplier's details : Baker Petrolite LLC
 12645 W. Airport Blvd.
 Sugar Land, TX 77478
 For Product Information/SDSs Call: 800-231-3606
 (8:00 a.m. - 5:00 p.m. CST, Monday - Friday) 281-276-5400

Emergency telephone number (with hours of operation) : CHEMTREC: 800-424-9300 (U.S. 24 hour)
 Baker Petrolite: 800-231-3606
 (001)281-276-5400
 CHEMTREC Int'l 01-703-527-3887 (International 24 hour)

Section 2. Hazards identification

OSHA/HCS status : This material is considered hazardous by the OSHA Hazard Communication Standard (29 CFR 1910.1200).

Classification of the substance or mixture :  FLAMMABLE LIQUIDS - Category 3
 ACUTE TOXICITY (oral) - Category 4
 ACUTE TOXICITY (dermal) - Category 4
 ACUTE TOXICITY (inhalation) - Category 4
 SKIN IRRITATION - Category 2
 EYE IRRITATION - Category 2A
 RESPIRATORY SENSITIZATION - Category 1
 SKIN SENSITIZATION - Category 1
 SPECIFIC TARGET ORGAN TOXICITY (SINGLE EXPOSURE) - Category 1
 SPECIFIC TARGET ORGAN TOXICITY (SINGLE EXPOSURE) (Narcotic effects) - Category 3

GHS label elements

Hazard pictograms :



Signal word : Danger

Section 2. Hazards identification

Hazard statements	<ul style="list-style-type: none"> Flammable liquid and vapor. Harmful if swallowed, in contact with skin or if inhaled. Causes skin irritation. May cause an allergic skin reaction. Causes serious eye irritation. May cause allergy or asthma symptoms or breathing difficulties if inhaled. May cause drowsiness or dizziness. Causes damage to organs. (optic nerve)
Precautionary statements	
Prevention	<ul style="list-style-type: none"> Wear protective gloves: > 8 hours (breakthrough time): Nitrile or Neoprene gloves.. Wear protective clothing. Wear eye or face protection. Wear respiratory protection. Keep away from heat, hot surfaces, sparks, open flames and other ignition sources. No smoking. Use explosion-proof electrical, ventilating or lighting equipment. Use non-sparking tools. Take action to prevent static discharges. Use only outdoors or in a well-ventilated area. Do not breathe vapor. Do not eat, drink or smoke when using this product. Wash thoroughly after handling. Contaminated work clothing must not be allowed out of the workplace.
Response	<ul style="list-style-type: none"> If exposed: Call a POISON CENTER or doctor. IF INHALED: Remove person to fresh air and keep comfortable for breathing. Call a POISON CENTER or doctor if you feel unwell. If experiencing respiratory symptoms: Call a POISON CENTER or doctor. IF SWALLOWED: Call a POISON CENTER or doctor if you feel unwell. Rinse mouth. IF ON SKIN (or hair): Take off immediately all contaminated clothing. Rinse skin with water. Wash contaminated clothing before reuse. IF ON SKIN: Call a POISON CENTER or doctor if you feel unwell. Wash with plenty of water. If skin irritation or rash occurs: Get medical advice or attention. IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing. If eye irritation persists: Get medical advice or attention.
Storage	<ul style="list-style-type: none"> Store locked up. Store in a well-ventilated place. Keep container tightly closed. Keep cool.
Disposal	<ul style="list-style-type: none"> Dispose of contents and container in accordance with all local, regional, national and international regulations.
Supplemental label elements	<ul style="list-style-type: none"> Avoid contact with skin and clothing. Wash thoroughly after handling.
Hazards not otherwise classified	<ul style="list-style-type: none"> Prolonged or repeated contact may dry skin and cause irritation.

Section 3. Composition/information on ingredients

Substance/mixture : Mixture

Ingredient name	%	CAS number
Methanol	10 - 20	67-56-1
Organo phosphorus salt	10 - 20	Trade secret.
Sodium bisulfite (sodium hydrogensulfite, sulfurous monosodium salt)	0.1 - 1	7631-90-5

Any concentration shown as a range is to protect confidentiality or is due to batch variation.

There are no ingredients present which, within the current knowledge of the supplier and in the concentrations applicable, are classified and hence require reporting in this section.

There are no additional ingredients present which, within the current knowledge of the supplier and in the concentrations applicable, are classified and hence require reporting in this section.

Occupational exposure limits, if available, are listed in Section 8.

Additional information

Methanol is also known as Methyl alcohol; Wood spirit. Any concentration shown as a range is to protect confidentiality.

Section 4. First aid measures

Description of necessary first aid measures

- Eye contact** : Immediately flush eyes with plenty of water, occasionally lifting the upper and lower eyelids. Continue to rinse for at least 10 minutes. Check for and remove any contact lenses. Get medical attention. If necessary, call a poison center or physician.
- Inhalation** : Remove victim to fresh air and keep at rest in a position comfortable for breathing. If not breathing, if breathing is irregular or if respiratory arrest occurs, provide artificial respiration or oxygen by trained personnel. If unconscious, place in recovery position and get medical attention immediately. Maintain an open airway. In case of inhalation of decomposition products in a fire, symptoms may be delayed. The exposed person may need to be kept under medical surveillance for 48 hours. In the event of any complaints or symptoms, avoid further exposure.
- Skin contact** : Wash skin thoroughly with soap and water or use recognized skin cleanser. Remove contaminated clothing and shoes. Wash contaminated clothing thoroughly with water before removing it, or wear gloves. Continue to rinse for at least 10 minutes. Get medical attention. If necessary, call a poison center or physician. In the event of any complaints or symptoms, avoid further exposure. Wash clothing before reuse. Clean shoes thoroughly before reuse.
- Ingestion** : Wash out mouth with water. If material has been swallowed and the exposed person is conscious, give small quantities of water to drink. Do not induce vomiting unless directed to do so by medical personnel. If vomiting occurs, the head should be kept low so that vomit does not enter the lungs. Never give anything by mouth to an unconscious person. If unconscious, place in recovery position and get medical attention immediately. Maintain an open airway.

Most important symptoms/effects, acute and delayed

Potential acute health effects

- Eye contact** : Causes serious eye irritation.
- Inhalation** : Harmful if inhaled. Causes damage to organs following a single exposure if inhaled. Can cause central nervous system (CNS) depression. May cause drowsiness or dizziness. May cause allergy or asthma symptoms or breathing difficulties if inhaled.
- Skin contact** : Harmful in contact with skin. Causes damage to organs following a single exposure in contact with skin. Causes skin irritation. Defatting to the skin. May cause an allergic skin reaction.
- Ingestion** : Harmful if swallowed. Causes damage to organs following a single exposure if swallowed. Can cause central nervous system (CNS) depression.

Over-exposure signs/symptoms

- Eye contact** : Adverse symptoms may include the following: pain or irritation, watering, redness
- Inhalation** : Wheezing and breathing difficulties, asthma, nausea or vomiting, headache, drowsiness/ fatigue, dizziness/vertigo, unconsciousness
- Skin contact** : irritation, redness, dryness, cracking
- Ingestion** : No specific data.

Indication of immediate medical attention and special treatment needed, if necessary

- Notes to physician** : In case of inhalation of decomposition products in a fire, symptoms may be delayed. The exposed person may need to be kept under medical surveillance for 48 hours.
- Specific treatments** : No specific treatment.
- Protection of first-aiders** : No action shall be taken involving any personal risk or without suitable training. If it is suspected that fumes are still present, the rescuer should wear an appropriate mask or self-contained breathing apparatus. It may be dangerous to the person providing aid to give mouth-to-mouth resuscitation. Wash contaminated clothing thoroughly with water before removing it, or wear gloves.

Section 4. First aid measures

See toxicological information (Section 11)

Section 5. Fire-fighting measures

Extinguishing media

Suitable extinguishing media : Use dry chemical, CO₂, alcohol-resistant foam or water spray (fog).

Unsuitable extinguishing media : Do not use water jet.

Specific hazards arising from the chemical : Flammable liquid and vapor. Runoff to sewer may create fire or explosion hazard. In a fire or if heated, a pressure increase will occur and the container may burst, with the risk of a subsequent explosion. The vapor/gas is heavier than air and will spread along the ground. Vapors may accumulate in low or confined areas or travel a considerable distance to a source of ignition and flash back.

Hazardous thermal decomposition products : carbon dioxide, carbon monoxide, nitrogen oxides, phosphorus oxides, halogenated compounds, metal oxide/oxides

Special protective actions for fire-fighters : Promptly isolate the scene by removing all persons from the vicinity of the incident if there is a fire. No action shall be taken involving any personal risk or without suitable training. Move containers from fire area if this can be done without risk. Use water spray to keep fire-exposed containers cool.

Special protective equipment for fire-fighters : Fire-fighters should wear appropriate protective equipment and self-contained breathing apparatus (SCBA) with a full face-piece operated in positive pressure mode.

Section 6. Accidental release measures

Personal precautions, protective equipment and emergency procedures

For non-emergency personnel : No action shall be taken involving any personal risk or without suitable training. Evacuate surrounding areas. Keep unnecessary and unprotected personnel from entering. Do not touch or walk through spilled material. Shut off all ignition sources. No flares, smoking or flames in hazard area. Avoid breathing vapor or mist. Provide adequate ventilation. Wear appropriate respirator when ventilation is inadequate. Put on appropriate personal protective equipment.

For emergency responders : If specialized clothing is required to deal with the spillage, take note of any information in Section 8 on suitable and unsuitable materials. See also the information in "For non-emergency personnel".

Environmental precautions : Avoid dispersal of spilled material and runoff and contact with soil, waterways, drains and sewers. Inform the relevant authorities if the product has caused environmental pollution (sewers, waterways, soil or air).

Methods and materials for containment and cleaning up

Small spill : Stop leak if without risk. Move containers from spill area. Use spark-proof tools and explosion-proof equipment. Dilute with water and mop up if water-soluble. Alternatively, or if water-insoluble, absorb with an inert dry material and place in an appropriate waste disposal container. Dispose of via a licensed waste disposal contractor.

Large spill : Stop leak if without risk. Move containers from spill area. Use spark-proof tools and explosion-proof equipment. Approach release from upwind. Prevent entry into sewers, water courses, basements or confined areas. Wash spillages into an effluent treatment plant or proceed as follows. Contain and collect spillage with non-combustible, absorbent material e.g. sand, earth, vermiculite or diatomaceous earth and place in container for disposal according to local regulations (see Section 13). Dispose of via a licensed waste disposal contractor. Contaminated absorbent material may pose the same hazard as the spilled product. Note: see Section 1 for emergency contact

Section 6. Accidental release measures

information and Section 13 for waste disposal.

If RQ (Reportable Quantity) is exceeded, report to National Spill Response Office at 1-800-424-8802.

Section 7. Handling and storage

Precautions for safe handling

- Protective measures** : Put on appropriate personal protective equipment (see Section 8). Persons with a history of skin sensitization problems or asthma, allergies or chronic or recurrent respiratory disease should not be employed in any process in which this product is used. Do not get in eyes or on skin or clothing. Do not breathe vapor or mist. Do not ingest. Use only with adequate ventilation. Wear appropriate respirator when ventilation is inadequate. Do not enter storage areas and confined spaces unless adequately ventilated. Keep in the original container or an approved alternative made from a compatible material, kept tightly closed when not in use. Store and use away from heat, sparks, open flame or any other ignition source. Use explosion-proof electrical (ventilating, lighting and material handling) equipment. Use only non-sparking tools. Take precautionary measures against electrostatic discharges. Empty containers retain product residue and can be hazardous. Do not reuse container.
- Advice on general occupational hygiene** : Eating, drinking and smoking should be prohibited in areas where this material is handled, stored and processed. Workers should wash hands and face before eating, drinking and smoking. Remove contaminated clothing and protective equipment before entering eating areas. See also Section 8 for additional information on hygiene measures.
- Conditions for safe storage, including any incompatibilities** : Store in accordance with local regulations. Store in a segregated and approved area. Store in a dry, cool and well-ventilated area, away from incompatible materials (see Section 10). Store in original container, protected from direct sunlight. Store locked up. Eliminate all ignition sources. Separate from oxidizing materials. Keep container tightly closed and sealed until ready for use. Containers that have been opened must be carefully resealed and kept upright to prevent leakage. Do not store in unlabeled containers. Use appropriate containment to avoid environmental contamination. See Section 10 for incompatible materials before handling or use.

Section 8. Exposure controls/personal protection

Control parameters

Occupational exposure limits

Ingredient name	Exposure limits
Methanol	<p>ACGIH TLV (United States, 1/2022). Absorbed through skin.</p> <p>STEL: 328 mg/m³, 0 times per shift, 15 minutes. STEL: 250 ppm, 0 times per shift, 15 minutes. TWA: 262 mg/m³, 0 times per shift, 8 hours. TWA: 200 ppm, 0 times per shift, 8 hours.</p> <p>NIOSH REL (United States, 10/2020). Absorbed through skin.</p> <p>STEL: 325 mg/m³, 0 times per shift, 15 minutes. STEL: 250 ppm, 0 times per shift, 15 minutes. TWA: 260 mg/m³, 0 times per shift, 10 hours. TWA: 200 ppm, 0 times per shift, 10 hours.</p> <p>OSHA PEL (United States, 5/2018).</p> <p>TWA: 260 mg/m³, 0 times per shift, 8 hours. TWA: 200 ppm, 0 times per shift, 8 hours.</p> <p>OSHA PEL 1989 (United States, 3/1989). Absorbed through skin.</p> <p>STEL: 325 mg/m³, 0 times per shift, 15 minutes. STEL: 250 ppm, 0 times per shift, 15 minutes.</p>

Section 8. Exposure controls/personal protection

Organo phosphorus salt
Sodium bisulfite (sodium hydrogensulfite, sulfurous monosodium salt)

TWA: 260 mg/m³, 0 times per shift, 8 hours.
TWA: 200 ppm, 0 times per shift, 8 hours.

None.

ACGIH TLV (United States, 1/2022).

TWA: 5 mg/m³, 0 times per shift, 8 hours.

NIOSH REL (United States, 10/2020).

TWA: 5 mg/m³, 0 times per shift, 10 hours.

OSHA PEL 1989 (United States, 3/1989).

TWA: 5 mg/m³, 0 times per shift, 8 hours.

Consult local authorities for acceptable exposure limits.

If OSHA permissible exposure levels are shown above they are the OSHA 1989 levels or are from subsequent OSHA regulatory actions. Although the 1989 levels have been vacated the 11th Circuit Court of Appeals, Baker Hughes recommends that these lower exposure levels be observed as reasonable worker protection.

Appropriate engineering controls : Use only with adequate ventilation. Use process enclosures, local exhaust ventilation or other engineering controls to keep worker exposure to airborne contaminants below any recommended or statutory limits. The engineering controls also need to keep gas, vapor or dust concentrations below any lower explosive limits. Use explosion-proof ventilation equipment.

Individual protection measures

Hygiene measures : Wash hands, forearms and face thoroughly after handling chemical products, before eating, smoking and using the lavatory and at the end of the working period. Appropriate techniques should be used to remove potentially contaminated clothing. Contaminated work clothing should not be allowed out of the workplace. Wash contaminated clothing before reusing. Ensure that eyewash stations and safety showers are close to the workstation location.

Eye/face protection : Wear chemical safety goggles. When transferring material wear face-shield in addition to chemical safety goggles.

Hand protection : Chemical-resistant gloves: Nitrile or Neoprene gloves.

Skin protection : Wear long sleeves to prevent repeated or prolonged skin contact.

Respiratory protection : If a risk assessment indicates it is necessary, use a properly fitted supplied air respirator complying with an approved standard. Respirator selection must be based on known or anticipated exposure levels, the hazards of the product and the safe working limits of the selected respirator.

Section 9. Physical and chemical properties

The conditions of measurement of all properties are at standard temperature and pressure unless otherwise indicated.

Appearance

Physical state : Liquid. [Clear.]

Color : Colorless to yellow.

Odor : Sweet. [Slight]

Odor threshold : Not available.

pH : 4.7

: 5% in water

Melting point/freezing point : Not available.

Initial Boiling Point : Not available.

Boiling point, initial boiling point, and boiling range : Not available.


Flash point : Closed cup: 32.2°C (90°F) [SFCC]

Burning time : Not applicable.

Section 9. Physical and chemical properties

Burning rate	: Not applicable.
Evaporation rate	: Not available.
Flammability	: Highly flammable in the presence of the following materials or conditions: open flames, sparks and static discharge and heat.
Lower and upper explosion limit/flammability limit	: Not available.
Vapor pressure	: 45.2 kPa (338.7 mm Hg, 6.55 psi)(Reid at 130 F, 54.4 C)
Relative vapor density	: >1 [Air = 1]
Relative density	: 1.108 (15.6°C)
Density	: 9.23 (lbs/gal)
Solubility in water	: Soluble
Partition coefficient: n-octanol/water	: Not applicable.
Auto-ignition temperature	: Not available.
Decomposition temperature	: Not available.
Viscosity	: Dynamic (23.9°C): 5 cP
VOC	: Not available.
Pour Point	: -42.8°C (-45°F)
<u>Particle characteristics</u>	
Median particle size	: Not applicable.

Section 10. Stability and reactivity

Reactivity	: No specific test data related to reactivity available for this product or its ingredients.
Chemical stability	: The product is stable.
Possibility of hazardous reactions	: Under normal conditions of storage and use, hazardous reactions will not occur.
Conditions to avoid	: Avoid all possible sources of ignition (spark or flame). Do not pressurize, cut, weld, braze, solder, drill, grind or expose containers to heat or sources of ignition. Do not allow vapor to accumulate in low or confined areas.
Incompatible materials	:  Reactive or incompatible with the following materials: oxidizing materials and reducing materials. Methanol is incompatible and may react with chromium trioxide, acetyl bromide, alkyl aluminum solutions, beryllium hydride, boron trichloride, nitric acid, cyanuric chloride, dichloromethane, diethylzinc, metals (granulated forms of aluminum and magnesium – including aluminum and zinc salts), phosphorus III oxide, and potassium tert-butoxide.
Hazardous decomposition products	: Under normal conditions of storage and use, hazardous decomposition products should not be produced.

Section 11. Toxicological information

Information on toxicological effects

Acute toxicity

Product/ingredient name	Result	Species	Dose	Exposure
Methanol Sodium bisulfite (sodium hydrogensulfite, sulfurous monosodium salt)	LC50 Inhalation Gas.	Rat	145000 ppm	1 hours
	LC50 Inhalation Gas.	Rat	64000 ppm	4 hours
	LD50 Dermal	Rabbit	15800 mg/kg	-
	LD50 Oral	Human	500 mg/kg	-
	LD50 Oral	Rat	5600 mg/kg	-
	LD50 Oral	Rat	1131 mg/kg	-
	LD50 Oral	Rat	1131 mg/kg	-

Irritation/Corrosion

No available toxicity data.

Sensitization

No available toxicity data.

Mutagenicity

No available toxicity data.

Carcinogenicity

Classification

Product/ingredient name	OSHA	IARC	NTP
Sodium bisulfite (sodium hydrogensulfite, sulfurous monosodium salt)	-	3	-

Reproductive toxicity

No available toxicity data.

Teratogenicity

No available toxicity data.

Specific target organ toxicity (single exposure)

Name	Category	Route of exposure	Target organs
SCW356 SCALE INHIBITOR	Category 3	-	Narcotic effects
Methanol	Category 1	oral	optic nerve
Organo phosphorus salt	Category 3	-	Respiratory tract irritation
Sodium bisulfite (sodium hydrogensulfite, sulfurous monosodium salt)	Category 3	-	Respiratory tract irritation

Specific target organ toxicity (repeated exposure)

Not applicable.

Aspiration hazard

Not available.

Information on the likely routes of exposure : Routes of entry anticipated: Oral, Dermal, Inhalation.

Potential acute health effects

Eye contact : Causes serious eye irritation.

Section 11. Toxicological information

- Inhalation** : Harmful if inhaled. Causes damage to organs following a single exposure if inhaled. Can cause central nervous system (CNS) depression. May cause drowsiness or dizziness. May cause allergy or asthma symptoms or breathing difficulties if inhaled.
- Skin contact** : Harmful in contact with skin. Causes damage to organs following a single exposure in contact with skin. Causes skin irritation. Defatting to the skin. May cause an allergic skin reaction.
- Ingestion** : Harmful if swallowed. Causes damage to organs following a single exposure if swallowed. Can cause central nervous system (CNS) depression.

Symptoms related to the physical, chemical and toxicological characteristics

- Eye contact** : Adverse symptoms may include the following: pain or irritation, watering, redness
- Inhalation** : Wheezing and breathing difficulties, asthma, nausea or vomiting, headache, drowsiness/fatigue, dizziness/vertigo, unconsciousness
- Skin contact** : irritation, redness, dryness, cracking
- Ingestion** : No specific data.

Delayed and immediate effects and also chronic effects from short and long term exposure

Short term exposure

- Potential immediate effects** : Not available.
- Potential delayed effects** : Not available.

Long term exposure

- Potential immediate effects** : Not available.
- Potential delayed effects** : Not available.

Potential chronic health effects

- General** : Prolonged or repeated contact can defat the skin and lead to irritation, cracking and/or dermatitis. Once sensitized, a severe allergic reaction may occur when subsequently exposed to very low levels.
- Carcinogenicity** : No known significant effects or critical hazards.
- Mutagenicity** : No known significant effects or critical hazards.
- Reproductive toxicity** : No known significant effects or critical hazards.

Numerical measures of toxicity

Acute toxicity estimates

Product/ingredient name	Oral (mg/kg)	Dermal (mg/kg)	Inhalation (gases) (ppm)	Inhalation (vapors) (mg/l)	Inhalation (dusts and mists) (mg/l)
SCW356 SCALE INHIBITOR	503.3	1509.8	Not available.	15.1	Not available.
Methanol	100	300	64000	3	Not available.
Sodium bisulfite (sodium hydrogensulfite, sulfurous monosodium salt)	1131	Not available.	Not available.	Not available.	Not available.

Section 12. Ecological information

Toxicity

Product/ingredient name	Result	Species	Exposure
SCW356 SCALE INHIBITOR	Acute EC50 >1000 mg/l	Algae	72 hours
	Acute LC50 >1000 mg/l	Daphnia	48 hours
	Acute LC50 >1000 mg/l	Fish	96 hours
Methanol	Acute EC50 16.912 mg/l Marine water	Algae - Ulva pertusa	96 hours
	Acute EC50 10000000 µg/l Fresh water	Daphnia - Daphnia magna	48 hours
	Acute LC50 2500000 µg/l Marine water	Crustaceans - Crangon crangon	48 hours
	Acute LC50 100 mg/l Fresh water	Fish - Pimephales promelas	96 hours
Sodium bisulfite (sodium hydrogensulfite, sulfurous monosodium salt)	Chronic NOEC 9.96 mg/l Marine water	Algae - Ulva pertusa	96 hours
	Acute EC50 140 mg/l Fresh water	Daphnia - Daphnia magna - Neonate	48 hours
	Acute LC50 1.94 ppm Fresh water	Crustaceans - Ceriodaphnia dubia	48 hours
	Acute LC50 26.2 ppm Fresh water	Fish - Pimephales promelas	96 hours

Persistence and degradability

Not available.

Bioaccumulative potential

Product/ingredient name	LogP _{ow}	BCF	Potential
Methanol	-0.77	<10	low

Mobility in soil

Soil/water partition coefficient (K_{oc}) : Not available.

Other adverse effects : No known significant effects or critical hazards.









Section 13. Disposal considerations

Disposal methods : Dispose of surplus and non-recyclable products via a licensed waste disposal contractor. Waste packaging should be recycled. Incineration or landfill should only be considered when recycling is not feasible. This material and its container must be disposed of in a safe way. Care should be taken when handling emptied containers that have not been cleaned or rinsed out. Vapor from product residues may create a highly flammable or explosive atmosphere inside the container. Do not cut, weld or grind used containers unless they have been cleaned thoroughly internally. Avoid dispersal of spilled material and runoff and contact with soil, waterways, drains and sewers.

Section 14. Transport information

	DOT Classification	TDG Classification	IMDG	IATA
UN number	UN1992	UN1992	UN1992	UN1992
UN proper shipping name	FLAMMABLE LIQUID, TOXIC, N.O.S. (Contains: Methanol)	FLAMMABLE LIQUID, TOXIC, N.O.S. (Contains: Methanol)	FLAMMABLE LIQUID, TOXIC, N.O.S. (Contains: Methanol)	FLAMMABLE LIQUID, TOXIC, N.O.S. (Contains: Methanol)

Section 14. Transport information

Transport hazard class(es)	3 (6.1)  	3 (6.1)  	3 (6.1)  	3 (6.1)  
Packing group	III	III	III	III
Environmental hazards	No.	No.	No.	No.

Additional information

- DOT Classification** : **Reportable quantity** 25163.6 lbs / 11424.3 kg [2723.8 gal / 10310.7 L]. Package sizes shipped in quantities less than the product reportable quantity are not subject to the RQ (reportable quantity) transportation requirements.
- TDG Classification** : Product classified as per the following sections of the Transportation of Dangerous Goods Regulations: 2.18-2.19 (Class 3), 2.26-2.36 (Class 6).
- IMDG** : **Emergency schedules** F-E S-D
- Special precautions for user** : **Transport within user's premises:** always transport in closed containers that are upright and secure. Ensure that persons transporting the product know what to do in the event of an accident or spillage.



Transport in bulk according to IMO instruments : Not available.

DOT Reportable Quantity Methanol, 2726 gal of this product.


Marine pollutant Not available.

North-America NAERG : 131

Section 15. Regulatory information


- U.S. Federal regulations** : **TSCA 12(b) one-time export:** No products were found.
TSCA 12(b) annual export notification: No products were found.
 **United States inventory (TSCA 8b):** All components are active or exempted.
Clean Water Act (CWA) 307: No products were found.
 **Clean Water Act (CWA) 311:** Sodium bisulfite, solution

United States - Clean Air Act Section 112(b) Hazardous Air Pollutants (HAPs) :

List name	Status	Ingredient name	Name on list	Conc.
 United States - Clean Air Act Section 112(b) Hazardous Air Pollutants (HAPs)	Listed	Methanol	Methanol	10 - 20

SARA 302/304 : No products were found.


SARA 311/312

- Classification** :  **FLAMMABLE LIQUIDS** - Category 3
 ACUTE TOXICITY (oral) - Category 4
 ACUTE TOXICITY (dermal) - Category 4
 ACUTE TOXICITY (inhalation) - Category 4
 SKIN IRRITATION - Category 2
 EYE IRRITATION - Category 2A
 RESPIRATORY SENSITIZATION - Category 1
 SKIN SENSITIZATION - Category 1


Section 15. Regulatory information

SPECIFIC TARGET ORGAN TOXICITY (SINGLE EXPOSURE) - Category 1
 SPECIFIC TARGET ORGAN TOXICITY (SINGLE EXPOSURE) (Narcotic effects) -
 Category 3
 HNOC - Defatting irritant

SARA 313

	Product name	CAS number	%
Supplier notification	 Methanol	67-56-1	10 - 20

California Prop. 65

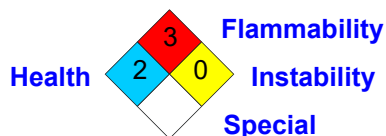
 **WARNING:** This product can expose you to methanol, which is known to the State of California to cause birth defects or other reproductive harm. For more information go to www.P65Warnings.ca.gov.

Canada

Canada (CEPA DSL): : All components are listed or exempted.

Section 16. Other information

National Fire Protection Association (U.S.A.)



History

Date of printing : 1/20/2023

Key to abbreviations

: ATE = Acute Toxicity Estimate
 BCF = Bioconcentration Factor
 GHS = Globally Harmonized System of Classification and Labelling of Chemicals
 IATA = International Air Transport Association
 IBC = Intermediate Bulk Container
 IMDG = International Maritime Dangerous Goods
 LogPow = logarithm of the octanol/water partition coefficient
 MARPOL = International Convention for the Prevention of Pollution From Ships, 1973 as modified by the Protocol of 1978. ("Marpol" = marine pollution)
 N/A = Not available
 SGG = Segregation Group
 UN = United Nations

 Indicates information that has changed from previously issued version.

Notice to reader

NOTE: The information on this SDS is based on data which is considered to be accurate. Baker Hughes, however, makes no guarantees or warranty, either expressed or implied of the accuracy or completeness of this information.

The conditions or methods of handling, storage, use and disposal of the product are beyond our control and may be beyond our knowledge. For this and other reasons, we do not assume responsibility and expressly disclaim liability for loss, damage or expense arising out of or in any way connected with the handling, storage, use or disposal of this product.

This SDS was prepared and is to be used for this product. If the product is used as a component in another product, this SDS information may not be applicable.

Material Safety Data Sheet

BIOGUARD® SCALE INHIBITOR™

Version: 1.2

Revision Date: 09/02/2010

Print Date: 03/05/2014

SECTION 1. PRODUCT AND COMPANY IDENTIFICATION

Product name: *BIOGUARD® SCALE INHIBITOR™*

Company: Bio-Lab, Inc.
BioGuard
P.O. Box 300002
Lawrenceville, GA
30049-1002

Telephone: (800) 859-7946

Emergency telephone: CHEMTREC: (24 hours) 800-424-9300, 703-527-3887
Poison Control Center (Medical) :: (877) 800-5553
Chemtura Corporation Emergency Response: CHEMTURA : 800-292-5898

For additional emergency telephone numbers see section 16 of the Safety Data Sheet.

Prepared by: Product Safety Department
(US) +1 866-430-2775

+011-886-2-2712-5668 MSDSRequest@chemtura.com

SECTION 2. HAZARDS IDENTIFICATION

Emergency Overview

Danger

Form: liquid Colour: clear light yellow

Hazard Summary : Corrosive
Causes eye burns.
May cause skin irritation.
May be harmful if swallowed.
Avoid breathing vapors.
Do not get in eyes, on skin, or on clothing.

Potential Health Effects

Inhalation : May cause irritation of respiratory tract.

Skin : May cause skin irritation.

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Eyes : Causes eye burns.
Ingestion : May be harmful if swallowed.

SECTION 3. COMPOSITION/INFORMATION ON INGREDIENTS

Hazardous components

Component	CAS-No.	Weight percent
etidronic acid	2809-21-4	10 - 30 %
2-Butenedioic acid (2Z)-, homopolymer	26099-09-2	10 - 30 %

SECTION 4. FIRST AID MEASURES

First aid procedures

Inhalation : Remove to fresh air.
Obtain medical attention for any breathing difficulties.

Skin contact : Wash off with soap and plenty of water.
Get medical attention if irritation develops and persists.

Eye contact : Rinse immediately with plenty of water, also under the eyelids, for at least 15 minutes.
Remove contact lenses, if present, after 5 minutes, then continue rinsing eye.
Call a POISON CENTER or doctor/physician.

Ingestion : Immediately call a POISON CENTER or doctor/physician.
Have person sip a glass of water if able to swallow.
Do not induce vomiting unless told to do so by the poison control center or doctor.
Do not give anything by mouth to an unconscious person.

Notes to physician

Treatment : Probable mucosal damage may contraindicate the use of gastric lavage.

SECTION 5. FIRE-FIGHTING MEASURES

Flammable properties

Flash point : Remarks: Not Available

Fire fighting

Suitable extinguishing media : Dry chemical
Water

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Foam
Carbon dioxide (CO₂)
Keep containers and surroundings cool with water spray.

Further information : There are no unusual fire and explosion hazards known.

Protective equipment and precautions for firefighters

Special protective equipment for fire-fighters : In the event of fire, wear self-contained breathing apparatus.
Thoroughly decontaminate fire fighting equipment including all fire fighting wearing apparel after the incident.

SECTION 6. ACCIDENTAL RELEASE MEASURES

Methods for containment / Methods for cleaning up : Using appropriate protective clothing and safety equipment, contain spilled material.
Soak up with inert absorbent material.
Using clean dedicated equipment, sweep and scoop all spilled material, contaminated soil, and other contaminated material and place into clean dry containers for disposal.

Additional advice : Treat recovered material as described in the section "Disposal considerations".

SECTION 7. HANDLING AND STORAGE

Handling

Handling procedures : Avoid contact with skin, eyes and clothing.
Avoid breathing vapors.
Do not mix with other chemicals.
Wash hands thoroughly with soap and water after handling and before eating, drinking or using tobacco.
Do not handle until all safety precautions have been read and understood.

Storage

Requirements for storage areas and containers : Store in original container.
Keep tightly closed.
Keep out of reach of children.
Keep away from animals.

Other data : Stable under normal conditions.

SECTION 8. EXPOSURE CONTROLS/PERSONAL PROTECTION

Exposure Guidelines

Engineering measures

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Engineering measures : Use only with adequate ventilation.
Local exhaust
Ensure that eyewash stations and safety showers are close to the workstation location.

Personal protective equipment

Eye protection : Safety glasses with side-shields

Hand protection : Wear rubber gloves.

Skin and body protection : Remove and wash contaminated clothing before re-use.

Respiratory protection : In processes where mists or vapors may be generated, a NIOSH/MSHA approved respirator is advised in the absence of proper environmental controls.

Hygiene measures : Handle in accordance with good industrial hygiene and safety practice.
Wash hands thoroughly with soap and water after handling and before eating, drinking or using tobacco.

SECTION 9. PHYSICAL AND CHEMICAL PROPERTIES

Appearance

Form : liquid
Colour : clear
light yellow

Safety data

Flash point : Note: Not Available

pH : < 3

Freezing point : Note: Not Available

Boiling point/boiling range : Note: Not Available

Vapour pressure : Note: Not Available

Density : Note: 9.08 lb/gal

Water solubility : Note: completely miscible

Relative vapour density : Note: Not Available

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Version: 1.2

Revision Date: 09/02/2010

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SECTION 10. STABILITY AND REACTIVITY

- Conditions to avoid : Remarks: High temperatures.
Poor ventilation.
Contamination
- Materials to avoid : Remarks: Do not mix with other swimming pool/spa chemicals in their concentrated forms.
Oxidizing agents
- Hazardous decomposition products : Note: Carbon oxides
- Hazardous reactions : Hazardous polymerisation does not occur.

SECTION 11. TOXICOLOGICAL INFORMATION

- Acute oral toxicity
etidronic acid : LD50: > 2,000 mg/kg
Species: rat
- Acute dermal toxicity
etidronic acid : LD50: > 2,000 mg/kg
Species: rabbit
- Skin irritation
etidronic acid : Species: rabbit
Result: slight irritation
- Eye irritation : Remarks: Causes eye burns.
Do not get in eyes.

12. ECOLOGICAL INFORMATION

Further information on ecology

- Additional ecological information : Not expected to be acutely toxic to aquatic organisms.
Do not allow material to contaminate ground water system.
Do not flush into surface water or sanitary sewer system.

SECTION 13. DISPOSAL CONSIDERATIONS

- Further information : Dispose of waste material in compliance with all federal, state, and local regulations.
Do not re-use empty containers. Empty containers should be taken

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to an approved waste handling site for recycling or disposal.

SECTION 14. TRANSPORT INFORMATION

DOT

UN-Number : 1760
Description of the goods : Corrosive liquids, n.o.s.
(CONTAINS PHOSPHONIC ACID)
Class : 8
Packing group : III
ERG Code : 154

IATA

UN-Number : 1760
Description of the goods : Corrosive liquid, n.o.s.
(CONTAINS PHOSPHONIC ACID)
Class : 8
Packing group : III

IMDG

UN-Number : 1760
Description of the goods : CORROSIVE LIQUID, N.O.S.
(CONTAINS PHOSPHONIC ACID)
Class : 8
Packing group : III
EmS Letter 1 : F-A
EmS Letter 2 : S-B

Marine pollutant : no

Not recommended for shipment by air
Limited Quantity exemption possible
ORM-D Consumer Commodity exemption possible

SECTION 15. REGULATORY INFORMATION

SARA 311/312 Hazards : Acute Health Hazard

EPCRA - EMERGENCY PLANNING COMMUNITY RIGHT - TO - KNOW

Material Safety Data Sheet

BIOGUARD® SCALE INHIBITOR™

Version: 1.2

Revision Date: 09/02/2010

Print Date: 03/05/2014

SARA 302 Reportable :
Quantity

The components of this product are reported in the following inventories:
TSCA

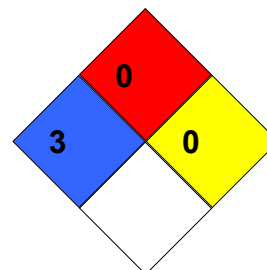
Note: Listed

SECTION 16. OTHER INFORMATION

Further information

HMIS Classification : Health hazard: 3
Flammability: 0
Physical hazards: 0
PPI: Ask supervisor or safety specialist for handling instructions

NFPA Classification : Health hazard: 3
Fire Hazard: 0
Reactivity Hazard: 0



Other Emergency Phone Number

<u>Latin America:</u>	Brazil	+52 113 711 91 44
	All other countries	+44 (0)208 762 8322
<u>Mexico:</u>		+52 555 004 87 63

The information provided in this Safety Data Sheet is correct to the best of our knowledge, information and belief at the date of its publication. The information given is designed only as a guidance for safe handling, use, processing, storage, transportation, disposal and release and is not to be considered a warranty or quality specification. The information relates only to the

Material Safety Data Sheet

BIOGUARD® SCALE INHIBITOR™

Version: 1.2

Revision Date: 09/02/2010

Print Date: 03/05/2014

specific material designated and may not be valid for such material used in combination with any other materials or in any process, unless specified in the text.



**24 Hour Emergency Telephone
3E Company (800) 451-8346**

NOTE: 3E Company emergency number to be used only in the event of chemical emergencies involving a spill, leak, fire, exposure or accident. For routine questions or application information, please call Mid-West Solutions 219-661-8230

MSDS Material Safety Data Sheet

CS-414 and CS-414S Scale and Corrosion Inhibitor

Revision Date: August 1, 2005

SECTION I - PRODUCT IDENTIFICATION

Product/Chemical Name: CS-414 and CS-414S Scale and Corrosion Inhibitor

Proper Shipping Name: NOT REGULATED BY DOT

Hazard Class: NON-HAZARDOUS (DOT)

Hazard ID#: N/A

Completed by and Phone Number: Donald Carr (219) 661-8230

SECTION II - HAZARDOUS COMPONENTS

Hazardous Ingredient Name	CAS Number	% By Weight	OSHA PEL	ACGIH TLV
EXPOSURE LIMITS HAVE NOT BEEN ESTABLISHED FOR ANY OF THE COMPONENTS IN THIS PRODUCT. SEE SECTION V FOR HEALTH HAZARD INFORMATION				

SECTION III - PHYSICAL DATA

Boiling Point (Degrees F): 215 °F

Evaporation Rate: AS WATER

Vapor Pressure (mm Hg): AS WATER

Vapor Density (Air= 1): AS WATER

Solubility In Water: SOLUBLE

Appearance and Odor: CLEAR AMBER LIQUID; BLAND ODOR.

Specific Gravity: 1.06 - 1.09

Percent Volatile: N/D

pH Neat: N/D

pH At 10%: 3.5-5.0

SECTION IV - FIRE AND EXPLOSION HAZARD DATA

Flash Point (Method Used): N/A

HMIS and NFPA: HEALTH: 1 FIRE: 0 REACTIVITY: 0

Reactivity: 0

Extinguishing Media: PRODUCT CONTAINS WATER. IF WATER IS REMOVED, USE CARBON DIOXIDE, DRY CHEMICAL OR FOAM

Special Fire Fighting Instructions: WEAR PROTECTIVE GEAR DURING FIRE FIGHTING

Unusual Fire and Explosion Hazards: NONE KNOWN

LEL: N/D

UEL: N/D

SECTION V - HEALTH HAZARD INFORMATION

Threshold Limit Value: EXPOSURE LIMITS HAVE NOT BEEN ESTABLISHED FOR ANY OF THE COMPONENTS IN THIS PRODUCT. SEE SECTION V FOR HEALTH HAZARD INFORMATION

Permissible Exposure Limit: EXPOSURE LIMITS HAVE NOT BEEN ESTABLISHED FOR ANY OF THE COMPONENTS IN THIS PRODUCT. SEE SECTION V FOR HEALTH HAZARD INFORMATION

MSDS Material Safety Data Sheet
CS-414 and CS-414S Scale and Corrosion Inhibitor

Revision Date: August 1, 2005

*****Acute Effects *****Inhalation: INHALATION OF MISTS MAY CAUSE IRRITATION OF THE UPPER RESPIRATORY TRACT.Skin: MAY CAUSE IRRITATION ON PROLONGED CONTACT.Eye: MAY CAUSE IRRITATION.Ingestion: MAY IRRITATE MOUTH, THROAT AND STOMACH.***** First Aid *****Inhalation: REMOVE TO A SOURCE OF FRESH AIR.Skin: WASH WITH SOAP AND WATER. REMOVE CONTAMINATED CLOTHING AND LAUNDRY BEFORE REUSING. CONSULT PHYSICIAN IF IRRITATION PERSISTS.Eye: FLUSH WITH WATER FOR 15 MINUTES. CONSULT PHYSICIAN.Ingestion: INDUCE VOMITING AND CONSULT PHYSICIAN.***** Medical Conditions Generally Aggravated By Exposure *****

PRE-EXISTING SKIN AND RESPIRATORY CONDITIONS MAY BE AGGRAVATED BY EXPOSURE.

SECTION VI - REACTIVITY DATAStability: STABLEIncompatibility (Materials to Avoid): STRONG OXIDIZERSHazardous Decomposition Products: THERMAL; OXIDES OF CARBONHazardous Polymerization: WILL NOT OCCUR**SECTION VII - SPILL OR LEAK PROCEDURES**Spill, Leak or Release: BLOCK ANY POTENTIAL ROUTES TO WATER SYSTEMS (E.G., SEWERS, STREAMS, LAKES, ETC.). RECOVER AS MUCH OF THE PURE PRODUCT AS POSSIBLE INTO POLY-DRUMS/CORROSION RESISTANT CONTAINERS. APPLY DRY ABSORBENT MATERIAL AND SWEEP UP THOROUGHLY TO ABSORB ANY MATERIAL THAT CAN NOT READILY BE RECOVERED AS PURE PRODUCT. LATER, DETERMINE IF THIS RECOVERED PRODUCT CAN BE USED FOR ITS INTENDED PURPOSE. ADDRESS CLEAN-UP OF CONTAMINATED ENVIRONMENTS.Waste Disposal: FOLLOW PERTINENT REGULATION FOR DISPOSAL. IT IS THE RESPONSIBILITY OF THE PRODUCT USER TO DETERMINE, AT THE TIME OF DISPOSAL, WHETHER A MATERIAL CONTAINING THE PRODUCT OR DERIVED FROM THE PRODUCT SHOULD BE CLASSIFIED AS A HAZARDOUS WASTE. (40 CFR 261.20-24)**SECTION VIII - SPECIAL PROTECTION INFORMATION**Respiratory Protection: REQUIRED IF THE EXPOSURE LIMITS IN SECTION II ARE EXCEEDED.Ventilation: GENERAL MECHANICAL VENTILATION IS ADEQUATE. LOCAL EXHAUST PREFERRED IN MISTING CONDITIONS.Protective Clothing/Equipment: RUBBER GLOVES. IMPERMEABLE APRON AND SHOES ARE RECOMMENDED.Eye Protection: ANSI APPROVED CHEMICAL WORKERS GOGGLES OR SAFETY GLASSES WITH SIDE SHIELDS.Other Protective Equipment: EYE-WASH AND SAFETY SHOWER.Comments: NEVER EAT, DRINK, OR SMOKE IN WORK AREAS. PRACTICE GOOD PERSONAL HYGIENE AFTER USING THIS MATERIAL.**SECTION IX - SPECIAL PRECAUTIONS**

MSDS Material Safety Data Sheet**CS-414 and CS-414S Scale and Corrosion Inhibitor**

Revision Date: August 1, 2005

Storage and Handling Conditions: AVOID STORAGE NEAR STRONG OXIDIZERS. USE WITH ADEQUATE VENTILATION. WASH THOROUGHLY AFTER HANDLING. KEEP CONTAINERS CLOSED WHEN NOT IN USE.

SECTION X - STATE LISTS

California Safe Drinking Water and Toxic Enforcement Act of 1986 (Proposition 65): THIS PRODUCT DOES NOT CONTAIN ANY COMPONENTS KNOWN TO THE STATE OF CALIFORNIA TO CAUSE CANCER OR REPRODUCTIVE TOXICITY ABOVE NO SIGNIFICANT RISK LEVELS.

Michigan Criticals Materials Register: WE HEREBY STATE THAT CS-414 AND CS-414S DO NOT CONTAIN ANY OF THE COMPONENTS LISTED IN THE ABOVE.

ADDITIONAL PRODUCT INFORMATION

*** Carcinogens as Defined By ***

NTP : NONE
IARC: NONE
OSHA: NONE

*** Environmental Information ***

SARA Title III(Superfund Amendments and Reauthorization Act)

THIS PRODUCT CONTAINS NO TOXIC CHEMICAL SUBJECT TO THE REPORTING REQUIREMENTS OF SECTION 313 OF TITLE III OF THE SUPERFUND AMENDMENTS AND REAUTHORIZATION ACT OF 1986 AND 40 CFR PART 372

CERCLA (Comprehensive Environmental Response, Compensation and Liability Act)

NONE.

RCRA (Resource Conservation and Recovery Act) Listed Hazardous Waste

NONE

FDA (Food and Drug Administration)

N/A

TSCA (Toxic Substances Control Act) Applicability

ALL COMPONENTS ARE LISTED ON THE TSCA INVENTORY.

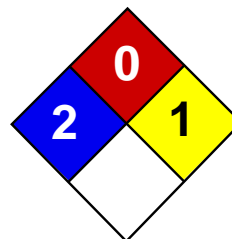
FIFRA (Federal Insecticide, Fungicide, and Rodenticide Act)

THIS PRODUCT IS NOT A REGISTERED PESTICIDE.

Other Information

The information presented herein has been compiled from sources considered to be dependable and is accurate to the best of our knowledge as of the date issued. However, since data, safety standards and government regulations are subject to change and the conditions of handling and use are beyond our control, Mid-West Solutions, Inc. makes no warranty, express or implied, regarding the accuracy of such data or its suitability for any purchaser's use or for any consequence of its use. The data in this MSDS relates only to the specific material designated here in and does not relate to use in combination with any other material or in any process. Safe handling and use remains the responsibility of the purchaser. Mid-West Solutions, Inc. assumes no responsibility for injury to the recipient or to third persons or for any damage to any property and the recipient assumes all such risks.

- End of MSDS -



Health	2
Fire	0
Reactivity	1
Personal Protection	E

Material Safety Data Sheet Sodium Carbonate

Section 1: Chemical Product and Company Identification

Product Name: Sodium carbonate

Catalog Codes: SLS3481, SLS1264, SLS4105, SLS1894, SLS3316

CAS#: 497-19-8

RTECS: VZ4050000

TSCA: TSCA 8(b) inventory: Sodium carbonate

CI#: Not available.

Synonym: Crystal Carbonate, Disodium Carbonate, Sal Soda, Soda Asha, Washing Soda

Chemical Name: Sodium Carbonate, Anhydrous

Chemical Formula: Na₂-C-O₃

CHEMTREC (24HR Emergency Telephone), call:
1-800-424-9300

International CHEMTREC, call: 1-703-527-3887

Section 2: Composition and Information on Ingredients

Composition:

Name	CAS #	% by Weight
Sodium carbonate	497-19-8	100

Toxicological Data on Ingredients: Sodium carbonate: ORAL (LD50): Acute: 4090 mg/kg [Rat]. 6600 mg/kg [Mouse]. DUST (LC50): Acute: 2300 mg/m² 2 hours [Rat]. 1200 mg/m² 2 hours [Mouse].

Section 3: Hazards Identification

Potential Acute Health Effects: Hazardous in case of skin contact (irritant), of eye contact (irritant), of ingestion, of inhalation (lung irritant).

Potential Chronic Health Effects:

Slightly hazardous in case of skin contact (sensitizer). CARCINOGENIC EFFECTS: Not available. MUTAGENIC EFFECTS: Not available. TERATOGENIC EFFECTS: Not available. DEVELOPMENTAL TOXICITY: Not available. The substance may be toxic to upper respiratory tract, skin, eyes. Repeated or prolonged exposure to the substance can produce target organs damage.

Section 4: First Aid Measures

Eye Contact:

Check for and remove any contact lenses. In case of contact, immediately flush eyes with plenty of water for at least 15 minutes. Cold water may be used. Get medical attention.

Skin Contact:

In case of contact, immediately flush skin with plenty of water. Cover the irritated skin with an emollient. Remove contaminated clothing and shoes. Cold water may be used. Wash clothing before reuse. Thoroughly clean shoes before reuse. Get medical attention.

Serious Skin Contact:

Wash with a disinfectant soap and cover the contaminated skin with an anti-bacterial cream. Seek immediate medical attention.

Inhalation:

If inhaled, remove to fresh air. If not breathing, give artificial respiration. If breathing is difficult, give oxygen. Get medical attention.

Serious Inhalation: Not available.

Ingestion:

Do NOT induce vomiting unless directed to do so by medical personnel. Never give anything by mouth to an unconscious person. Loosen tight clothing such as a collar, tie, belt or waistband. Get medical attention if symptoms appear.

Serious Ingestion: Not available.

Section 5: Fire and Explosion Data

Flammability of the Product: Non-flammable.

Auto-Ignition Temperature: Not applicable.

Flash Points: Not applicable.

Flammable Limits: Not applicable.

Products of Combustion: Emits Na₂O fumes when heated to decomposition.

Fire Hazards in Presence of Various Substances: Not applicable.

Explosion Hazards in Presence of Various Substances:

Risks of explosion of the product in presence of mechanical impact: Not available. Risks of explosion of the product in presence of static discharge: Not available.

Fire Fighting Media and Instructions: Not applicable.

Special Remarks on Fire Hazards:

Sodium carbonate can ignite and burn fiercely in contact with fluoride. Sodium Carbonate in contact with fluorine decomposed at ordinary temperature with incandescence.

Special Remarks on Explosion Hazards:

Reacts explosively with red-hot aluminum metal. Sodium carbonate + ammonia in arabic gum solution will explode.

Section 6: Accidental Release Measures

Small Spill:

Use appropriate tools to put the spilled solid in a convenient waste disposal container. If necessary: Neutralize the residue with a dilute solution of acetic acid. Finish cleaning by spreading water on the contaminated surface and dispose of according to local and regional authority requirements.

Large Spill:

Use a shovel to put the material into a convenient waste disposal container. Neutralize the residue with a dilute solution of acetic acid. Finish cleaning by spreading water on the contaminated surface and allow to evacuate through the sanitary system.

Section 7: Handling and Storage

Precautions:

Do not ingest. Do not breathe dust. Wear suitable protective clothing. In case of insufficient ventilation, wear suitable respiratory equipment. If ingested, seek medical advice immediately and show the container or the label. Avoid contact with skin and eyes. Keep away from incompatibles such as acids.

Storage:

Hygroscopic. Keep container tightly closed. Keep container in a cool, well-ventilated area. Do not store above 24°C (75.2°F).
Hygroscopic

Section 8: Exposure Controls/Personal Protection

Engineering Controls:

Use process enclosures, local exhaust ventilation, or other engineering controls to keep airborne levels below recommended exposure limits. If user operations generate dust, fume or mist, use ventilation to keep exposure to airborne contaminants below the exposure limit.

Personal Protection:

Splash goggles. Lab coat. Dust respirator. Be sure to use an approved/certified respirator or equivalent. Gloves.

Personal Protection in Case of a Large Spill:

Splash goggles. Full suit. Dust respirator. Boots. Gloves. A self contained breathing apparatus should be used to avoid inhalation of the product. Suggested protective clothing might not be sufficient; consult a specialist BEFORE handling this product.

Exposure Limits: Not available.

Section 9: Physical and Chemical Properties

Physical state and appearance: Solid. (Solid powder.)

Odor: Odorless.

Taste: Alkaline.

Molecular Weight: 105.99 g/mole

Color: White.

pH (1% soln/water): 11.5 [Basic.]

Boiling Point: Not available.

Melting Point: 851°C (1563.8°F)

Critical Temperature: Not available.

Specific Gravity: Density: 2.532 (Water = 1)

Vapor Pressure: Not applicable.

Vapor Density: Not available.

Volatility: Not available.

Odor Threshold: Not available.

Water/Oil Dist. Coeff.: Not available.

Ionicity (in Water): Not available.

Dispersion Properties: See solubility in water.

Solubility:

Soluble in hot water, glycerol. Partially soluble in cold water. Insoluble in acetone, alcohol.

Section 10: Stability and Reactivity Data

Stability: The product is stable.

Instability Temperature: Not available.

Conditions of Instability: Incompatible materials, moisture

Incompatibility with various substances:

Reactive with acids. Slightly reactive to moisture.

Corrosivity: Non-corrosive in presence of glass.

Special Remarks on Reactivity:

Hygroscopic. Combines with water with evolution of heat. Incompatible with phosphorus pentoxide, lithium, fluorine, fluoride, ammonia + silver nitrate, 2,4,6-trinitrotoluene, ammonia, acids, sodium sulfide + water, hydrogen peroxide, red hot aluminum metal, sodium sulfide, zinc, calcium hydroxide. Sodium Carbonate is decomposed by acids with effervescence. Reacts violently with F₂, Lithium, and 2,4,6-trinitrotoluene. Sodium begins to decompose at 400 C to evolve CO₂.

Special Remarks on Corrosivity: Hot concentrated solutions of sodium carbonate are mildly corrosive to steel.

Polymerization: Will not occur.

Section 11: Toxicological Information

Routes of Entry: Inhalation. Ingestion.

Toxicity to Animals:

WARNING: THE LC₅₀ VALUES HEREUNDER ARE ESTIMATED ON THE BASIS OF A 4-HOUR EXPOSURE. Acute oral toxicity (LD₅₀): 4090 mg/kg [Rat]. Acute toxicity of the dust (LC₅₀): 1200 mg/m³ 2 hours [Mouse].

Chronic Effects on Humans: May cause damage to the following organs: upper respiratory tract, skin, eyes.

Other Toxic Effects on Humans: Hazardous in case of skin contact (irritant), of ingestion, of inhalation (lung irritant).

Special Remarks on Toxicity to Animals: LDL (Lowest Published Lethal Dose) [Man] - Route: Oral; Dose: 714 mg/kg

Special Remarks on Chronic Effects on Humans: May cause adverse reproductive effects based on animal test data

Special Remarks on other Toxic Effects on Humans:

Acute Potential Health Effects: Skin: Causes skin irritation with possible burns depending on the concentration, site (abraded or intact skin), and duration of exposure. Eyes: Causes eye irritation and possible burns. Concentrated solutions may cause permanent corneal injury (permanent corneal opacity). Ingestion: Sodium carbonate ingestion may cause irritation of the digestive tract resulting in nausea, vomiting, diarrhea, thirst, abdominal pain depending on concentration and amount ingested. May also affect the cardiovascular system. Inhalation: Dust may cause respiratory tract and mucous membrane irritation with coughing and shortness of breath (dyspnea), pulmonary edema. Chronic Potential Health Effects: Chronic inhalation may result in decreased pulmonary function, nasal congestion, nosebleeds, perforation of the nasal septum. Other effects of chronic exposure are skin (dermatitis and ulceration), and gastrointestinal complaints. However, the effects of chronic exposure seem to be reversible if exposure is decreased.

Section 12: Ecological Information

Ecotoxicity: Not available.

BOD₅ and COD: Not available.

Products of Biodegradation:

Possibly hazardous short term degradation products are not likely. However, long term degradation products may arise.

Toxicity of the Products of Biodegradation: The products of degradation are less toxic than the product itself.

Special Remarks on the Products of Biodegradation: Not available.

Section 13: Disposal Considerations

Waste Disposal:

Waste must be disposed of in accordance with federal, state and local environmental control regulations.

Section 14: Transport Information

DOT Classification: Not a DOT controlled material (United States).

Identification: Not applicable.

Special Provisions for Transport: Not applicable.

Section 15: Other Regulatory Information

Federal and State Regulations: TSCA 8(b) inventory: Sodium carbonate

Other Regulations: EINECS: This product is on the European Inventory of Existing Commercial Chemical Substances.

Other Classifications:

WHMIS (Canada): CLASS D-2B: Material causing other toxic effects (TOXIC).

DSCL (EEC):

R36/37/38- Irritating to eyes, respiratory system and skin. S22- Do not breathe dust. S26- In case of contact with eyes, rinse immediately with plenty of water and seek medical advice.

HMIS (U.S.A.):

Health Hazard: 2

Fire Hazard: 0

Reactivity: 1

Personal Protection: E

National Fire Protection Association (U.S.A.):

Health: 2

Flammability: 0

Reactivity: 1

Specific hazard:

Protective Equipment:

Gloves. Lab coat. Dust respirator. Be sure to use an approved/certified respirator or equivalent. Wear appropriate respirator when ventilation is inadequate. Splash goggles.

Section 16: Other Information

References: Not available.

Other Special Considerations: Not available.

The information above is believed to be accurate and represents the best information currently available to us. However, we make no warranty of merchantability or any other warranty, express or implied, with respect to such information, and we assume no liability resulting from its use. Users should make their own investigations to determine the suitability of the information for their particular purposes. In no event shall ScienceLab.com be liable for any claims, losses, or damages of any third party or for lost profits or any special, indirect, incidental, consequential or exemplary damages, howsoever arising, even if ScienceLab.com has been advised of the possibility of such damages.