

# Lifestrength Anions Band



Version 2.0

Chemwatch Safety Data Sheet (Conforms to Regulations (EC) No 1907 / 2006, (EC) No 1272 / 2008 (CLP))

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CHEMWATCH REVIEW SDS

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## SAFETY DATA SHEET

### SECTION 1: Identification of the substance / preparation and of the company / undertaking

#### 1.1. Product Identifier

**Product name:** Lifestrength Anions Band  
**Chemical product name:** No data available  
**Synonyms:** "Silicon Anion Band"  
**Proper shipping name:** No data available  
**Chemical formula:** No data available  
**Other means of identification:** No data available  
**Index number:** No data available  
**ID number:** No data available  
**CAS number:** No data available  
**REACH registration number:** No data available  
**EC number:** Not Available

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

**Relevant identified uses:** Personal  
**Uses advised against:** No data available

#### 1.3. Details of the supplier of the safety data sheet

**Registered company name:** Kymco International China  
**Address:** Tiantou Industrial Zone, Hengli Town, Dongguan City, Guangdong 523478, China  
**Telephone:** +86 0769 83738444 (Office Hours: 8:00am - 6:00pm)  
**Fax:**  
**Email:** info@lifestrength.com  
**Website:**

#### 1.4. Emergency telephone numbers

**Association / Organisation:** National Poisons Information Service  
**Other emergency telephone numbers:** +44 0844 892 0111

### SECTION 2: Hazards identification

#### 2.1. Classification of the substance or mixture

**DSD classification:** In case of mixtures, classification has been prepared by following DPD (Directive 1999/45/EC) or CLP (Regulation (EC) No 1272/2008) regulations  
**DPD classification:** •None under normal operating conditions.  
**CLP classification:** According to CLP no hazard category has been assigned

#### 2.2. Label elements

CLP label elements

No data available

**Signal word:** No data available

**Hazard statement(s):**

Supplementary statement(s):	Code	Phrase
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**Precautionary statement(s):** No data available

#### DSD / DPD label elements

No data available

Relevant risk statements are found in section 2.1

**Indication(s) of danger:** No data available

**Safety advice:**

- None under normal operating conditions.

### 2.3. Other hazards

- No relevant data

## SECTION 3: Composition / information on ingredients

### 3.1. Substances

See `Composition on ingredients` in section 3.2

### 3.2. Mixtures

1. CAS No	2. EC No	3. Index No	4. REACH No	%[weight]	Name	Classification according to Directive 1999/45/EC [DPD]	Classification according to (EC) No 1272/2008 [CLP]
1. 68083-18-1	2.	2.	3.	55-75	dimethylsiloxane, methyl vinyl, vinyl group-terminated		According to CLP no hazard category has been assigned
4. No data available							
1. 14464-46-1	2. 238-455-4	2. 238-455-4	3. 238-455-4	22-42	cristobalite		According to CLP no hazard category has been assigned
4. No data available							
1. 70131-67-8	2.	2.	3.	1-5	dimethylsiloxane, hydroxy-terminated		According to CLP no hazard category has been assigned
4. No data available							

Identification of PBT / vPvB substances / mixtures: No data available

## SECTION 4: First aid measures

### 4.1. Description of first aid measures

**General:** No data available

**Ingestion:**

- Immediately give a glass of water.
- First aid is not generally required. If in doubt, contact a Poisons Information Centre or a doctor.

**Eye Contact:** If this product comes in contact with eyes:

- Wash out immediately with water.
- If irritation continues, seek medical attention.
- Removal of contact lenses after an eye injury should only be undertaken by skilled personnel.

**Skin Contact:**

If skin or hair contact occurs:

- Flush skin and hair with running water (and soap if available).

- Seek medical attention in event of irritation.
- Inhalation:**
- If fumes or combustion products are inhaled remove from contaminated area.
  - Other measures are usually unnecessary.

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

**Inhaled:** The material is not thought to produce adverse health effects or irritation of the respiratory tract (as classified by EC Directives using animal models). Nevertheless, good hygiene practice requires that exposure be kept to a minimum and that suitable control measures be used in an occupational setting.  
Not normally a hazard due to non-volatile nature of product

**Ingestion:** The material has **NOT** been classified by EC Directives or other classification systems as "harmful by ingestion". This is because of the lack of corroborating animal or human evidence. The material may still be damaging to the health of the individual, following ingestion, especially where pre-existing organ (e.g liver, kidney) damage is evident. Present definitions of harmful or toxic substances are generally based on doses producing mortality rather than those producing morbidity (disease, ill-health). Gastrointestinal tract discomfort may produce nausea and vomiting. In an occupational setting however, ingestion of insignificant quantities is not thought to be cause for concern.

Not normally a hazard due to the physical form of product. The material is a physical irritant to the gastro-intestinal tract

**Skin Contact:** The material is not thought to produce adverse health effects or skin irritation following contact (as classified by EC Directives using animal models). Nevertheless, good hygiene practice requires that exposure be kept to a minimum and that suitable gloves be used in an occupational setting.  
Open cuts, abraded or irritated skin should not be exposed to this material

**Eye:** Although the material is not thought to be an irritant (as classified by EC Directives), direct contact with the eye may cause transient discomfort characterised by tearing or conjunctival redness (as with windburn). Slight abrasive damage may also result. The material may produce foreign body irritation in certain individuals.

**Chronic:** Long-term exposure to the product is not thought to produce chronic effects adverse to health (as classified by EC Directives using animal models); nevertheless exposure by all routes should be minimised as a matter of course.

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

Treat symptomatically.

### SECTION 5: Fire-fighting measures

#### 5.1. Extinguishing media

- Foam.
- Dry chemical powder.
- BCF (where regulations permit).
- Carbon dioxide.
- Water spray or fog - Large fires only.

#### 5.2. Special hazards arising from the substrate or mixture

**Fire Incompatibility:**

- Avoid contamination with oxidising agents i.e. nitrates, oxidising acids, chlorine bleaches, pool chlorine etc. as ignition may result

#### 5.3. Advice for fire-fighters

**Fire Fighting:**

- Alert Fire Brigade and tell them location and nature of hazard.
- Wear breathing apparatus plus protective gloves.
- Prevent, by any means available, spillage from entering drains or water courses.
- Use water delivered as a fine spray to control fire and cool adjacent area.
- **DO NOT** approach containers suspected to be hot.
- Cool fire exposed containers with water spray from a protected location.
- If safe to do so, remove containers from path of fire.
- Equipment should be thoroughly decontaminated after use.

#### Fire/Explosion Hazard:

- High temperature decomposition products include silicon dioxide, small amounts of formaldehyde, formic acid, acetic acid and traces of silicon polymers.
  - These gases may ignite and, depending on circumstances, may cause the resin/polymer to ignite.
  - An outer skin of silica may also form. Extinguishing of fire, beneath the skin, may be difficult.
- Combustible solid which burns but propagates flame with difficulty; it is estimated that most organic dusts are combustible (circa 70%) - according to the circumstances under which the combustion process occurs, such materials may cause fires and / or dust explosions.
  - Avoid generating dust, particularly clouds of dust in a confined or unventilated space as dusts may form an explosive mixture with air, and any source of ignition, i.e. flame or spark, will cause fire or explosion. Dust clouds generated by the fine grinding of the solid are a particular hazard; accumulations of fine dust (420 micron or less) may burn rapidly and fiercely if ignited - particles exceeding this limit will generally not form flammable dust clouds.; once initiated, however, larger particles up to 1400 microns diameter will contribute to the propagation of an explosion.
  - In the same way as gases and vapours, dusts in the form of a cloud are only ignitable over a range of concentrations; in principle, the concepts of lower explosive limit (LEL) and upper explosive limit (UEL).are applicable to dust clouds but only the LEL is of practical use; - this is because of the inherent difficulty of achieving homogeneous dust clouds at

- high temperatures (for dusts the LEL is often called the "Minimum Explosible Concentration", MEC)
- A dust explosion may release of large quantities of gaseous products; this in turn creates a subsequent pressure rise of explosive force capable of damaging plant and buildings and injuring people.
  - Usually the initial or primary explosion takes place in a confined space such as plant or machinery, and can be of sufficient force to damage or rupture the plant. If the shock wave from the primary explosion enters the surrounding area, it will disturb any settled dust layers, forming a second dust cloud, and often initiate a much larger secondary explosion. All large scale explosions have resulted from chain reactions of this type.
  - Dry dust can be charged electrostatically by turbulence, pneumatic transport, pouring, in exhaust ducts and during transport.
  - Build-up of electrostatic charge may be prevented by bonding and grounding.
  - Powder handling equipment such as dust collectors, dryers and mills may require additional protection measures such as explosion venting.
  - All movable parts coming in contact with this material should have a speed of less than 1-meter/sec
  - A sudden release of statically charged materials from storage or process equipment, particularly at elevated temperatures and/ or pressure, may result in ignition especially in the absence of an apparent ignition source
  - One important effect of the particulate nature of powders is that the surface area and surface structure (and often moisture content) can vary widely from sample to sample, depending of how the powder was manufactured and handled; this means that it is virtually impossible to use flammability data published in the literature for dusts (in contrast to that published for gases and vapours).
  - Autoignition temperatures are often quoted for dust clouds (minimum ignition temperature (MIT)) and dust layers (layer ignition temperature (LIT)); LIT generally falls as the thickness of the layer increases.

Combustion products include:  
 carbon monoxide (CO)  
 carbon dioxide (CO<sub>2</sub>)  
 other pyrolysis products typical of burning organic material

## SECTION 6: Accidental release measures

### 6.1. Personal Precautions, Protective Equipment and Emergency Procedures

#### Personal Protective Equipment:

Glasses:

Chemical goggles.

Gloves:

When handling larger quantities:

Respirator:

Particulate

#### Minor Spills:

- Clean up all spills immediately.
- Avoid contact with skin and eyes.
- Wear impervious gloves and safety glasses.
- Use dry clean up procedures and avoid generating dust.
- Vacuum up (consider explosion-proof machines designed to be grounded during storage and use).
- Do NOT use air hoses for cleaning
- Place spilled material in clean, dry, sealable, labelled container.

#### Major Spills:

- Clear area of personnel and move upwind.
- Alert Fire Brigade and tell them location and nature of hazard.
- Control personal contact by using protective equipment and dust respirator.
- Prevent spillage from entering drains, sewers or water courses.
- Avoid generating dust.
- Sweep, shovel up. Recover product wherever possible.
- Put residues in labelled plastic bags or other containers for disposal.
- If contamination of drains or waterways occurs, advise emergency services.

### 6.2. Environmental precautions

See section 12

### 6.3. Methods and material for containment and cleaning up

### 6.4. Reference to other sections

Personal Protective Equipment advice is contained in Section 8 of the MSDS

## SECTION 7: Handling and storage

### 7.1. Precautions for safe handling

#### Safe handling

- Limit all unnecessary personal contact.
- Wear protective clothing when risk of exposure occurs.
- Use in a well-ventilated area.
- Avoid contact with incompatible materials.
- When handling, **DO NOT eat, drink or smoke.**
- Keep containers securely sealed when not in use.
- Avoid physical damage to containers.
- Always wash hands with soap and water after handling.
- Work clothes should be laundered separately.

- Use good occupational work practice.
- Observe manufacturer's storing and handling recommendations.
- Atmosphere should be regularly checked against established exposure standards to ensure safe working conditions are maintained.

**Fire and explosion protection**

See section 5

**Other information**

- Store in original containers.
- Keep containers securely sealed.
- Store in a cool, dry, well-ventilated area.
- Store away from incompatible materials and foodstuff containers.
- Protect containers against physical damage and check regularly for leaks.
- Observe manufacturer's storing and handling recommendations.

**SAFE STORAGE WITH OTHER CLASSIFIED CHEMICALS**

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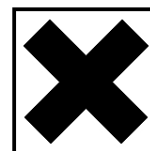
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+



X



+

+: May be stored together.

O: May be stored together with specific preventions.

X: Must not be stored together.

**7.2. Conditions for safe storage, including any incompatibilities****Suitable container:**

- Lined metal can, lined metal pail/ can.
- Plastic pail.
- Polyliner drum.
- Packing as recommended by manufacturer.
- Check all containers are clearly labelled and free from leaks.

**Storage incompatibility:** Avoid contamination of water, foodstuffs, feed or seed.

- Avoid reaction with oxidising agents

**Package Material Incompatibilities:**

No data available

**7.3. Specific end use(s)**

See section 1.2

**SECTION 8: Exposure controls / personal protection****8.1. Control parameters**

The following materials had no OELs on our records

- dimethylsiloxane, methyl vinyl, vinyl group-terminated: CAS:68083-18-1
- cristobalite: CAS:14464-46-1
- dimethylsiloxane, hydroxy-terminated: CAS:70131-67-8 CAS:63148-60-7

**EMERGENCY EXPOSURE LIMITS**

Material	Revised IDLH Value (mg/m <sup>3</sup> )	Revised IDLH Value (ppm)
cristobalite 32333	25	

No data available

**8.2. Exposure controls****8.2.1. Appropriate engineering controls**

- Local exhaust ventilation is required where solids are handled as powders or crystals; even when particulates are relatively large, a certain proportion will be powdered by mutual friction.
- Exhaust ventilation should be designed to prevent accumulation and recirculation of particulates in the workplace.
- If in spite of local exhaust an adverse concentration of the substance in air could occur, respiratory protection should be considered. Such protection might consist of:

(a): particle dust respirators, if necessary, combined with an absorption cartridge;

(b): filter respirators with absorption cartridge or canister of the right type;

(c): fresh-air hoods or masks

- Build-up of electrostatic charge on the dust particle, may be prevented by bonding and grounding.
- Powder handling equipment such as dust collectors, dryers and mills may require additional protection measures such as explosion venting.

Air contaminants generated in the workplace possess varying "escape" velocities which, in turn, determine the "capture velocities" of fresh circulating air required to efficiently remove the contaminant.

Type of Contaminant:	Air Speed:
direct spray, spray painting in shallow booths, drum filling, conveyer loading, crusher dusts, gas discharge (active generation into zone of rapid air motion)	1-2.5 m/s (200-500 f/min.)
grinding, abrasive blasting, tumbling, high speed wheel generated dusts (released at high initial velocity into zone of very high rapid air motion).	2.5-10 m/s (500-2000 f/min.)

Within each range the appropriate value depends on:

Lower end of the range	Upper end of the range
1: Room air currents minimal or favourable to capture	1: Disturbing room air currents
2: Contaminants of low toxicity or of nuisance value only	2: Contaminants of high toxicity
3: Intermittent, low production.	3: High production, heavy use
4: Large hood or large air mass in motion	4: Small hood-local control only

Simple theory shows that air velocity falls rapidly with distance away from the opening of a simple extraction pipe. Velocity generally decreases with the square of distance from the extraction point (in simple cases). Therefore the air speed at the extraction point should be adjusted, accordingly, after reference to distance from the contaminating source. The air velocity at the extraction fan, for example, should be a minimum of 4-10 m/s (800-2000 f/min) for extraction of crusher dusts generated 2 metres distant from the extraction point. Other mechanical considerations, producing performance deficits within the extraction apparatus, make it essential that theoretical air velocities are multiplied by factors of 10 or more when extraction systems are installed or used.

### 8.2.2. Personal protection

#### Eye and face protection:

- Safety glasses with side shields
- Chemical goggles.
- Contact lenses may pose a special hazard; soft contact lenses may absorb and concentrate irritants. A written policy

document, describing the wearing of lens or restrictions on use, should be created for each workplace or task. This should include a review of lens absorption and adsorption for the class of chemicals in use and an account of injury experience. Medical and first-aid personnel should be trained in their removal and suitable equipment should be readily available. In the event of chemical exposure, begin eye irrigation immediately and remove contact lens as soon as practicable. Lens should be removed at the first signs of eye redness or irritation - lens should be removed in a clean environment only after workers have washed hands thoroughly. [CDC NIOSH Current Intelligence Bulletin 59]

**Skin protection:** See Hand protection: below

**Hand protection:** Suitability and durability of glove type is dependent on usage. Important factors in the selection of gloves include: such as:

- frequency and duration of contact,
- chemical resistance of glove material,
- glove thickness and
- dexterity

Select gloves tested to a relevant standard (e.g. Europe EN 374, US F739).

- When prolonged or frequently repeated contact may occur, a glove with a protection class of 5 or higher (breakthrough time greater than 240 minutes according to EN 374) is recommended.
- When only brief contact is expected, a glove with a protection class of 3 or higher (breakthrough time greater than 60 minutes according to EN 374) is recommended.
- Contaminated gloves should be replaced.

Gloves must only be worn on clean hands. After using gloves, hands should be washed and dried thoroughly. Application of a non-perfumed moisturiser is recommended. Experience indicates that the following polymers are suitable as glove materials for protection against undissolved, dry solids, where abrasive particles are not present.

- polychloroprene
- nitrile rubber
- butyl rubber
- fluorocautchouc
- polyvinyl chloride

Gloves should be examined for wear and/ or degradation constantly.

**Body protection:** See Other protection: below

**Other protection:** No special equipment needed when handling small quantities.

**OTHERWISE:**

- Overalls.
- Barrier cream.
- Eyewash unit.

**Respiratory protection:** No data available

**Thermal hazards:** No data available

**Recommended material (s):** Glove selection is based on a modified presentation of the:

**"Forsberg Clothing Performance Index".**

The effect(s) of the following substance(s) are taken into account in the **computer-generated** selection:

Material	CPI
* CPI - Chemwatch Performance Index	
A: Best Selection	
B: Satisfactory; may degrade after 4 hours continuous immersion	
C: Poor to Dangerous Choice for other than short term immersion	
<b>NOTE:</b> As a series of factors will influence the actual performance of the glove, a final selection must be based on detailed observation. -	
* Where the glove is to be used on a short term, casual or infrequent basis, factors such as "feel" or convenience (e.g. disposability), may dictate a choice of gloves which might otherwise be unsuitable following long-term or frequent use. A qualified practitioner should be consulted.	

### 8.2.3. Environmental exposure controls

See section 12

## SECTION 9: Physical and chemical properties

### 9.1. Information on basic physical and chemical properties

<b>Appearance</b>	solid (not in a respirable form)
<b>Odour</b>	No data available
<b>Odour threshold</b>	No data available

<b>Physical Hazards</b>	<b>pH</b>	No data available
	<b>Melting point / freezing point</b>	No data available
	<b>Initial boiling point and boiling range</b>	No data available
	<b>Flash point</b>	No data available
	<b>Evaporation rate</b>	No data available
	<b>Flammability (solid, gas)</b>	No data available
	<b>Upper / lower flammability or exposure limits</b>	No data available
	<b>Vapour pressure</b>	No data available
	<b>Vapour density</b>	No data available
	<b>Relative density</b>	No data available
	<b>Solubility(ies)</b>	Immiscible
	<b>Partition coefficient: n-octanol / water</b>	No data available
	<b>Auto-ignition temperature</b>	No data available
	<b>Decomposition temperature</b>	No data available
	<b>Viscosity</b>	No data available
	<b>Explosive properties</b>	No data available
	<b>Oxidising properties</b>	No data available
	<b>Physical state</b>	Solid
	<b>Upper Explosive Limit</b>	No data available
	<b>Lower Explosive Limit</b>	No data available
	<b>Volatile Component (%vol)</b>	No data available
	<b>Gas group</b>	No data available
	<b>Molecular weight</b>	No data available
	<b>Viscosity</b>	No data available
	<b>pH (1% solution)</b>	No data available
<b>pH (as supplied)</b>	No data available	
<b>Specific Gravity (water=1)</b>	No data available	
<b>Evaporation Rate</b>	No data available	
<b>IUCLID Remarks</b>	No data available	
<b>Log Kow</b>	No data available	

## 9.2. Other safety information

No data available

## SECTION 10: Stability and reactivity

<b>10.1. Reactivity</b>	See section 7.2
<b>10.2. Chemical stability</b>	! Product is considered stable and hazardous polymerisation will not occur.
<b>10.3. Possibility of hazardous reactions</b>	See section 7.2
<b>10.4. Conditions to avoid</b>	See section 7.2
<b>10.5. Incompatible materials</b>	See section 7.2
<b>10.6. Hazardous decomposition products</b>	See section 5.3

## SECTION 11: Toxicological information

### 11.1. Information on toxicological effects

! unless otherwise specified data extracted from RTECS - Register of Toxic Effects of Chemical Substances.LIFESTRENGTH ANIONS BAND:! Not available. Refer to individual constituents.DIMETHYLSILOXANE, METHYL VINYL, VINYL GROUP-TERMINATED:

TOXICITY	IRRITATION
Oral (rat) LD50: >5000 mg/kg *	Nil Reported



\* [Mobay Chemical Corp]CRISTOBALITE:; WARNING: For inhalation exposure ONLY: This substance has been classified by the IARC as Group 1: CARCINOGENIC TO HUMANSThe International Agency for Research on Cancer (IARC) has classified occupational exposures to respirable (<5 um) crystalline silica as being carcinogenic to humans . This classification is based on what IARC considered sufficient evidence from epidemiological studies of humans for the carcinogenicity of inhaled silica in the forms of quartz and cristobalite. Crystalline silica is also known to cause silicosis, a non-cancerous lung disease.Inhalation (human) TClO: 16 mppcf\*/8H/17.9y-l \* Millions of particles per cubic footDIMETHYLSILOXANE, HYDROXY-TERMINATED:

## TOXICITY

Oral (rat) LD50: &gt;5000 mg/kg \*

Oral (rat) LD50: &gt;40000 mg/kg \*\*

Inhalation (rat) LC50: &gt;535 mg/l \*\*

## IRRITATION

Nil Reported

! For siloxanes:Effects which based on the reviewed literature do not seem to be problematic are acute toxicity, irritant effects, sensitization and genotoxicity.Some studies indicate that some of the siloxanes may have endocrine disrupting properties, and reproductive effects have caused concern about the possible effects of the siloxanes on humans and the environment.Only few siloxanes are described in the literature with regard to health effects, and it is therefore not possible to make broad conclusions and comparisons of the toxicity related to short-chained linear and cyclic siloxanes based on the present evaluation. Data are primarily found on the cyclic siloxanes D4 (octamethylcyclotetrasiloxane)and D5 (decamethylcyclopentasiloxane) and the short-linear HMDS (hexamethyldisiloxane).These three siloxanes have a relatively low order of acute toxicity by oral, dermal and inhalatory routes and do not require classification for this effect.They are not found to be irritating to skin or eyes and are also not found sensitizing by skin contact. Data on respiratory sensitization have not been identified.Subacute and subchronic toxicity studies show that the liver is the main target organ for D4 which also induces liver cell enzymes. This enzyme induction contributes to the elimination of the substance from the tissues. Primary target organ for D5 exposure by inhalation is the lung. D5 has an enzyme induction profile similar to that of D4. Subacute and subchronic inhalation of HMDS affect in particular the lungs and kidneys in rats.None of the investigated siloxanes show any signs of genotoxic effects in vitro or in vivo. Preliminary results indicate that D5 has a potential carcinogenic effect.D4 is considered to impair fertility in rats by inhalation and is classified as a substance toxic to reproduction in category 3 with the risk phrase R62 ('Possible risk of impaired fertility').The results of a study to screen for oestrogen activity indicate that D4 has very weak oestrogenic and antioestrogenic activity and is a partial agonist (enhances the effect of the estrogen). It is not uncommon for compounds that are weaklyoestrogenic to also have antioestrogenic properties. Comparison of the oestrogenic potency of D4 relative to ethinyloestradiol (steroid hormone) indicates that D4 is 585,000 times less potent than ethinyloestradiol in the rat stain Sprague- Dawley and 3.7 million times less potent than ethinyloestradiol in the Fisher-344 rat strain. Because of the lack of effects on other endpoints designated to assess oestrogenicity, the oestrogenicity as mode of action for the D4 reproductive effects has been questioned. An indirect mode of action causing a delay of the LH (luteinising hormone) surge necessary for optimal timing of ovulation has been suggested as the mechanism.Based on the reviewed information, the critical effects of the siloxanes are impaired fertility (D4) and potential carcinogenic effects (uterine tumours in females). Furthermore there seem to be some effects on various organs followingrepeated exposures, the liver (D4), kidney (HMDS) and lung (D5 and HMDS) being the target organs.A possible oestrogenic effect contributing to the reproductive toxicity of D4 is debated. There seems however to be some indication that this toxicity may be caused by another mechanism than oestrogen activity.\* [Mobay Chemical Corp]\*\*[GE]

## SECTION 12: Ecological information

### 12.1. Toxicity

DIMETHYLSILOXANE, METHYL VINYL, VINYL GROUP-TERMINATED:

CRISTOBALITE:

For silica:

The literature on the fate of silica in the environment concerns dissolved silica in the aquatic environment, irrespective of its origin (man-made or natural), or structure (crystalline or amorphous). Indeed, once released and dissolved into the environment no distinction can be made between the initial forms of silica. At normal environmental pH, dissolved silica exists exclusively as monosilicic acid [Si(OH)<sub>4</sub>]. At pH 9.4 the solubility of amorphous silica is about 120 mg SiO<sub>2</sub>/l . Quartz has a solubility of only 6 mg/l, but its rate of dissolution is so slow at ordinary temperature and pressure that the solubility of amorphous silica represents the upper limit of dissolved silica concentration in natural waters. Moreover, silicic acid is the bioavailable form for aquatic organisms and it plays an important role in the biogeochemical cycle of Si, particularly in the oceans.

In the oceans, the transfer of dissolved silica from the marine hydrosphere to the biosphere initiates the global biological silicon cycle. Marine organisms such as diatoms, silicoflagellates and radiolarians build up their skeletons by taking up silicic acid from seawater. After these organisms die, the biogenic silica accumulated in them partly dissolves. The portion of the biogenic silica that does not dissolve settles and ultimately reaches the sediment. The transformation of opal (amorphous biogenic silica) deposits in sediments through diagenetic processes allows silica to re-enter the geological cycle. Silica is labile between the water and sediment interface.

#### Ecotoxicity:

Fish LC50 (96 h): Brachydanio rerio >10000 mg/l; zebra fish >10000 mg/l

Daphnia magna EC50 (24 h): >1000 mg/l; LC50 924 h): >10000 mg/l

**DO NOT discharge into sewer or waterways.**

DIMETHYLSILOXANE, HYDROXY-TERMINATED:

For siloxanes:

#### Environmental fate:

It is well accepted that polydimethylsiloxane fluids become permanent residents of sediment but should not exert adverse environmental effects.

Silicone fluids are very surface active because the flexible siloxane linkages permit alignment of the hydrophobic methyl substituents towards the non-polar phase, and of the polysiloxane backbone towards the polar phase. The polar medium is generally water, and a polar media to which polydimethylsiloxanes become attached may be textiles, sewage sludge, hair, algae, sediment etc. In aqueous environments, polydimethylsiloxanes are adsorbed onto sedimenting particles. Also, in the presence of nitrate ions, which exist at various concentrations in the environment, short chain siloxanes are photodegraded to the level of silicate within days

The stability of the siloxanes, desirable from a technical point of view, makes the siloxanes very persistent, and once released to the environment the siloxanes remain for many years.

The main source of releases of siloxanes to the air is volatile siloxanes used in cosmetics, wax, polishes, and to a minor extent in several other applications. the volatile siloxanes may account for a significant part of the siloxanes used for cosmetics.

Non-volatile silicone fluids used in cosmetics, wax, polishes, cleaning products and for textile applications (softeners) will to a large extent end up in wastewater and be directed to wastewater treatment plants.

The cyclic siloxanes and small-chain linear siloxanes are bioconcentrated (bioconcentration factors for long-chained siloxanes have not been assessed). The estimated bioconcentration factors (BCF) of the small siloxanes range from 340 for HMDS to 40,000 for a phenylated trisiloxane

(phenyl trimethicone). The small phenylated siloxanes seem to have very high BCF, and model estimates indicate that these substances are the most toxic for aquatic organisms.

#### **PBT profiler screening**

In order to make a first comparison between the substances as to persistence, bioaccumulation and toxicity, the substances were screened using the PBT profiler developed by U.S. EPA (U.S. EPA 2003). The profiler uses a procedure to predict persistence, bioaccumulation, and toxicity of organic chemicals on the basis of the chemical structure and physical parameters of the substances combined with experimental parameters for substance with a similar structure, using a QSAR approach.

The results for six members of the siloxane family predict the highest bioconcentration factors for the two phenyl siloxanes, one order of magnitudes higher than the values for the cyclic siloxanes and two orders of magnitudes higher than the values for the small linear methyl siloxanes. The predicted toxicity is as well significantly higher (lowest ChV values) for the phenyl siloxanes. The predicted half-life is nearly the same for all substances.

Using U.S. EPA's criteria, the screening indicates that all substances are of high concern as to environmental toxicity, and that the phenyl siloxanes are considered very bioaccumulative.

#### **Ecotoxicity:**

The environmental fate and effects of volatile methylsiloxanes (mainly cyclosiloxanes) and polydimethylsiloxane (PDMS) have been reported:

For octamethylcyclotrisiloxane:

Fish acute LC50 (14 day):: rainbow trout 10 ug/l; sheepshead minnow >6.3 ug/l

Daphnia magna acute EC50 (48 h): >15 ug/l; NOEC 15 ug/l

Mysid shrimp acute LC50 (96 h): >9.1 ug/l; NOEC 9.1 ug/l

For PDMS

Daphnia magna NOEC 572 mg/kg

Physical effects such as surface entrapment have been observed when testing aquatic invertebrates in clean laboratory water, but similar effects are not expected in natural environments where a large variety of other surfaces provide opportunities for deposition

## **12.2. Persistence and degradability**

No data available

## **12.3. Bioaccumulative potential**

No data available

## **12.4. Mobility in soil**

No data available

## **12.5. Results of PBT and vPvB assessment**

No data available

## **12.6. Other adverse effects**

No data available

## **SECTION 13: Disposal considerations**

### **13.1. Waste treatment methods**

#### **Product / Packaging disposal:**

- Recycle wherever possible.
- Consult manufacturer for recycling options or consult local or regional waste management authority for disposal if no suitable treatment or disposal facility can be identified.
- Dispose of by: burial in a land-fill specifically licenced to accept chemical and / or pharmaceutical wastes or Incineration in a licenced apparatus (after admixture with suitable combustible material)
- Decontaminate empty containers. Observe all label safeguards until containers are cleaned and destroyed.

#### **Waste treatment options:**

**Sewage disposal options:** No relevant data

#### **Other disposal recommendations:**

## **SECTION 14: Transport information**

**Labels Required:** No data available

### **Land transport (ADR / RID / GGVSE)**

**14.1. UN number** None

**14.2. Proper shipping name** No data available

**14.3. Transport hazard class(es)**  
No data available

**14.4. Packing group** None

**14.5. Environmental hazard** No relevant data

**14.6. Special precautions for user**

Hazard identification (Kemler)	No data available
Classification Code	No data available
Hazard Label	No data available
Special provisions	No data available

### **Air transport (ICAO-IATA / DGR)**

<b>14.1. UN number</b>	None	<b>14.4. Packing group</b>	None
<b>14.2. Proper shipping name</b>	No data available	<b>14.5. Environmental hazard</b>	No relevant data
<b>14.3. Transport hazard class(es)</b>		<b>14.6. Special precautions for user</b>	Special provisions No data available
			Cargo Only Packing Instructions No data available
			Cargo Only Maximum Qty / Pack No data available
	ICAO/IATA Class: No data available		Passenger and Cargo Packing Instructions No data available
	ICAO / IATA Subrisk No data available		Passenger and Cargo Maximum Qty / Pack No data available
	ERG Code No data available		Passenger and Cargo Limited Quantity Packing Instructions No data available
			Passenger and Cargo Maximum Qty / Pack No data available

**Sea transport (IMDG-Code / GGVSee)**

<b>14.1. UN number</b>	None	<b>14.4. Packing group</b>	None
<b>14.2. UN proper shipping name</b>	No data available	<b>14.5. Environmental hazard</b>	No relevant data
<b>14.3. Transport hazard class(es)</b>	No data available	<b>14.6. Special precautions for user</b>	EMS Number No data available
	IMDG Subrisk No data available		Special provisions No data available
			Limited Quantities No data available

**14.7. Transport in bulk according to Annex II of MARPOL 73 / 78 and the IBC**

No data available

**SECTION 15: Regulatory information****15.1. Safety, health and environmental regulation / legislation specific for the substance or mixture****Regulations for ingredients****crystalite (CAS: 14464-46-1) is found on the following regulatory lists;**

"EU Directive 2002/72/EC Plastic materials and articles intended to come into contact with foodstuffs - Annex III Section A Incomplete list of additives fully harmonised at Community level", "European Chemicals Agency (ECHA) List of substances identified for registration in 2010", "European Union - European Inventory of Existing Commercial Chemical Substances (EINECS) (English)", "International Agency for Research on Cancer (IARC) - Agents Reviewed by the IARC Monographs", "OECD Representative List of High Production Volume (HPV) Chemicals"

**dimethylsiloxane, hydroxy-terminated (CAS: 70131-67-8, 63148-60-7) is found on the following regulatory lists;**

"OECD Representative List of High Production Volume (HPV) Chemicals"

**No data for Lifestrength Anions Band (CW: 1232886)**

No data for dimethylsiloxane, methyl vinyl, vinyl group-terminated (CAS: , 68083-18-1)

This safety data sheet is in compliance with the following EU legislation and its adaptations – as far as applicable - : 67/548/EEC, 1999/45/EC, 76/769/EEC, 98/24/EC, 92/85/EEC, 94/33/EC, 91/689/EEC, 1999/13/EC, as well as the following British legislation:

- The Control of Substances Hazardous to Health Regulations (COSHH) 2002
- COSHH Essentials
- The Management of Health and Safety at Work Regulations 1999

**15.2. Chemical Safety Assessment**

No data available

**Annex VI**

According to CLP no hazard category has been assigned

**RISK**

- None under normal operating conditions.

**SECTION 16: Other information****ANNEX 2: Indications of Danger****INGREDIENTS WITH MULTIPLE CAS NUMBERS**

Ingredient Name

dimethylsiloxane, hydroxy-terminated

CAS

70131-67-8, 63148-60-7

#### OTHER

- Classification of the preparation and its individual components has drawn on official and authoritative sources as well as independent review by the Chemwatch Classification committee using available literature references.

A list of reference resources used to assist the committee may be found at:

[www.chemwatch.net/references](http://www.chemwatch.net/references)

- The (M)SDS is a Hazard Communication tool and should be used to assist in the Risk Assessment. Many factors determine whether the reported Hazards are Risks in the workplace or other settings. Risks may be determined by reference to Exposures Scenarios. Scale of use, frequency of use and current or available engineering controls must be considered.

- For detailed advice on Personal Protective Equipment, refer to the following EU CEN Standards:

EN 16 Personal eye-protection

EN 340 Protective clothing

EN 374 Protective gloves against chemicals and micro-organisms

EN 13832 Footwear protecting against chemicals

EN 133 Respiratory protective devices

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No data available

**Annex to extended safety data sheet (eSDS) (REACH)**

**Exposure scenario**