Revision: 28 June 2021

SAFETY DATA SHEET

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

1.1 Product identifier

- Product Name:	Polysorbate 80 - emulsifier - OVL11 / Polysorbaat 80 - emulgator - OVL11
- Chemical Name:	Sorbitan Monooleate, ethoxylated.
- CAS Number:	9005-65-6
- EC Number:	Polymer
- REACH Registration Number:	This product is a polymer under REACH
- Synonyms:	Poly(oxy-1,2-ethandiyl), sorbitan, mono-9-octadecenoate; polyoxyethylene sorbitan monooleate derivative; polyethylene glycol sorbitan oleate; ethyoxylated sorbitan monooleate; polyethylene glycol sorbitan monooleate; polyoxyethylene sorbitan monooleate; glycols, polyethylene, ether with sorbitan monoleate; sorbitan, mono 9octadecenoate, poly(oxy-1,2-ethanediyl), derivs., (Z)-; Armotan PMO-20 Atlox 1087 Capmul POE-O Crill 10, 11, S 10 Crillet 4; Drewmulse POE-SMO Durfax 80 Emsorb 6900; Glycosperse O-20, O-20 Veg, O-20X Hodag SVO 9 Liposorb O-20 MO 55F Monitan Montanox 80 Nikkol TO TO10 Olothorb Peganate O 20; Polysorban 80 Polysorbate 80 B.P.C., U.S.P Polysobate Protasorb O-20 Romulgin O Sorbimacrogol Oleate, 300, Sorbitol O 20 Sorbon T 80; Sorethytan (20) monoleate Sorlate SVO 9 TO 10 Tween 80 Tween 81; Tween 80 A Sigma P4780; Kolliphor PS80

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

- Use of the substance/mixture: Nonionic surfactant

1.3 Details of the supplier of the safety data sheet

- Name of Supplier: SoapQueen Europe
- Address of Supplier:
  Veilingdreef 20
  4614RX Bergen op Zoom
  Nederland

1.4 Emergency telephone number

- Emergency Telephone: TEL: 112

Nationaal Vergiftigingen Informatie Centrum (NVIC): 088 755 8000
EUROPE: +44 1235 239670
REST OF THE WORLD - +44 1865 407333 (English only)

SECTION 2: Hazards identification

2.1 Classification of the substance or mixture

- CLP: Non hazardous classification according to CLP (EC No 1272/2008)

2.2 Label elements

- Signal Word: None

2.2.1 Hazard statements

None assigned

2.2.2 Precautionary statements

None assigned

SECTION 2: Hazards identification (....)

2.3 Other hazards

- No other hazards

SECTION 3: Composition/information on ingredients

3.1 Substances

3.1.1 Sorbitan monooleate, ethoxylated

CAS Number:	9005-65-6
EC Number:	Polymer
Content (%):	>98
CLP classification:	Not Classified

3.2 Mixtures

- Not applicable

SECTION 4: First aid measures

4.1 Description of first aid measures

4.1.1 Contact with eyes

If this product comes in contact with the eyes: Wash out immediately with fresh running water. Ensure complete irrigation of the eye by keeping apart and away from eye and moving the eyelids by occassionally lifting the upper and lower lids. Seek medical attention without delay; if pain persists or recurs seek medical attention. Removal of contact lenses after an eye injury should be undertaken by skilled personnel.

4.1.2 Contact with skin

If skin contact occurs; Immediately remove all contaminated clothing, including footear. Flush skin and hair with running water (and soap if available). Seek medical attention in event of irritation.

4.1.3 Ingestion

If swallowed do NOT induce vomiting. If vomiting occurs, lean patient forward or place on left side (head-down position, if possible) to maintain open airway and prevent aspiration. Observe the patient carefully. Never give liquid to a person showing signs of being sleepy or with reduced awareness; i.e. becoming unconscious. Give water to rinse out mouth, then provide liquid slowly and as much as casualty can comfortably drink. Seek medical advice.

4.1.4 Inhalation

If fumes or combustion products are inhaled remove from contaminated area. Lay patient down. Keep warm and rested. Prostheses such as false teeth, which may block airway, should be removed, where possible, prior to initiating first aid procedures. Apply artificial respiration if not breathing, preferably with a demand value reesuscitator, bag-valve mask device, or pocket mask as trained. Perform CPR if necessary. Transport to hospital, or doctor, without delay.

4.2 Most important symptoms and effects, both acute and delayed

- See Section 11

4.3 Indication of any immediate medical attention and special treatment needed

- Treat symptomatically

SECTION 5: Firefighting measures

5.1 Extinguishing media

- Suitable extinguishing media:	Alcohol stable foam. Dry chemical powder. BCF (where regulations permit). Carbon dioxide. Water spray or log - Large fires only.
- Unsuitable extinguishing media:	None in particular

5.2 Special hazards arising from the substance or mixture

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

5.3 Advice for firefighters

Fire fighting:
Alert Fire Brigade and tell them location and nature of hazard. Wear full body protection clothing with breathing apparatus. Prevent, by any means available, spillage from entering drains of water courses. Use water delivered as a fine spray to control fire and cool adjacent area. Avoid spraying water onto liquid pools. DO NOT approach containers suspected to be hot.
Cool fire exposed containerd with water spray from a protected location. If safe to do so, remove containers from path or fire.

Fire/explosion hazard:
Combustible. Slight fire hazard when exposed to heat or flame. Heating may cause expansion or decomposition leading to violent rupture of containers. On combustion, may emit toxic fumes of carbon monoxide (CO). May emit acrid smoke. Mists containing combustible materials may be explosive. Combustion products include; Carbon dioxide (CO_2), other pyrolysis products typical of burning organic material. May emit poisonous fumes. May emit corrosive fumes.

SECTION 6: Accidental release measures

6.1 Personal precautions, protective equipment and emergency procedures

- See Section 8

6.2 Environmental precautions

See section 12

6.3 Methods and material for containment and cleaning up

Minor spills:
Slippery when spilt, Remove all ignition sources. Clean up all spills immediately. Avoid breathing vapours and contact with skin and eyes. Control personal contact with the substance, by using protective equipment. Contain and absorb spill with sand, earth, inert material or vermiculite. Wipe up. Place in suitable, labelled container for waste disposal.

Major spills:
Chemical class: alcohols and glycols, For release onto land: recommeneded sorbents listed in order of priority.
LAND SPILL - SMALL
Cross-linked polymer - particulate: 1 - Shovel/Shovel (R,W,SS)
Cross-linked polymer - pillow: 1 Throw/Pitchfork (R,DGC,RT)
Sorbent clay - particulate: 2 Shovel/Shovel (R,I,P)
Wood fiber - pillow: 3 Throw/pitchfork (R,P,DGC,RT)
Treated wood fiber - pillow: 3 Throw/pitchfork (DGC,RT)
Foamed glass - pillow: 4 Throw/pitchfork (R,P,DGC, RT)
LAND SPILL - MEDIUM
cross-linked polymer - particulate: 1 blower/skiploader (R,W, SS)
polypropylene - particulate: 2 blower/skiploader (W, SS, DGC)
sorbent clay - particulate: 2 blower/skiploader (R, I, W, P, DGC)
polypropylene - mat: 3 throw/skiploader (DGC, RT)
expanded mineral - particulate: 3 blower/skiploader (R, I, W, P, DGC)
polyurethane - mat: 4 throw/skiploader (DGC, RT)

Legend

SECTION 6: Accidental release measures (....)

DGC: Not effective where ground cover is dense
R; Not reusable
I: Not incinerable
P: Effectiveness reduced when rainy
RT:Not effective where terrain is rugged
SS: Not for use within environmentally sensitive sites
W: Effectiveness reduced when windy
Reference: Sorbents for Liquid Hazardous Substance Cleanup and Control;
R.W Melvold et al: Pollution Technology Review No. 150: Noyes Data Corporation 1988

Slippery when spilt. Moderate hazard. Clear area of personnel and move upwind. 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. No smoking, naked lights or ignition sources. Increase ventilation. Stop leak if safe to do so. Contain spill with sand, earth or vermiculite. Collect solid residues and seal in labelled drums for disposal. Wash area and prevent runoff into drains. If contamination of drains or waterways occur, advice emergency services.

6.4 Reference to other sections

- See section 8 for information on appropriate personal protective equipment

SECTION 7: Handling and storage

7.1 Precautions for safe handling

DO NOT allow clothing wet with material to stay in contact with skin. Overheating of ethoxylates/alkoxylates in air should be avoided. When some ethoxylates are heated vigorously in the presence of air or oxygen, at temperatures exceeding 160°C, they may undergo exothermic oxidtive degeneration resulting in self-heating and autoignition. Nitrogen blanketing will minimise the potential for ethoxylate oxidation. Prolonged storage in the presence of air or oxygen may cause product degradation. Oxidation is not expected when stored under a nitrogen atmosphere. Insert gas blanket and breathing system needed to maintain colour stability. Use dry inert gas having at least -40°C dew point. Trace quantities of ethylene oxide may be present in the material. Although these may accumulate in the headspace of storage and transport vessels, concentrations are not expected to exceed levels which might produce a flammability or worker exposure hazard. Avoid all personal contact, including inhalation. Wear protective clothing when risk of exposure occurs. Use in well-ventilated area. Prevent concentration in hollows and sumps. DO NOT enter confined spaces until atmosphere has been checked. Avoid smoking, naked lights or ignition sources. 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 seperately. Use good occupational work practices. Observe manufacturer's storage and handling recommendations contained within this MSDS. Atmosphere should be regularly checked against established exposure standards to ensure safe working conditions.

Ethoxylates/alkoxylates react slowly with air or oxygen and may generate potentially sensitising intermediates (haptens)..
Storage under heated conditions in the presence of air or oxygen increases reaction rate. For example, after storing at 95°F/35°C for 30 days in the presence of air, there is measurable oxidation of the ethoxylate. Lower temperatures will allow for longer storage time and higher temperatures and will shorten the storage time if stored under an air or oxygen atmospher. Store in original containers. Keep containers securely sealed. No smoking, naked lights or ignition sources. Store in a cool, dry, well-ventilated area. Store away from incompatible materials and foodstuff containers. Protect containers against physical damage an check regularly for leaks. Observe manufacturer's storage and handling recommendations contained within this MSDS.

7.2 Conditions for safe storage, including any incompatibilities

Suitable container:
For ethoxylates suitable containers include carbon steel coated with baked phenolic. Any moisture may cause rusting of carbon steel. If product is moisture free, uncoated carbon steel tanks may be used. Glass container is suitable for laboratory quantities metal can or drum packaging as recommended by manufacturing. Check all containers are clearly labelled and free on leaks.

Storage incompatibility:
Acetic acid: vapours forms explosive mixtures with air (above 39°C) react violently with bases such as carbonates and hydroxides (giving off large quantities of heat), oxidisers, organic amines, alkanolamines, alkylene oxides, epichlorohydin, acetic anhydride, 2-aminoethanol, ammonia, ammonium nitrate, bromine pentafluoride, chlorosulfonic acid, chromic acid, chromium trioxide,

SECTION 7: Handling and storage (....)

ethylenediamine, ethyleneimine, hydrogen peroxide, isocyanates, oleum, perchloric acid, permanganates, phosphorus, isocyanates, phosphorus trichloride, sodium peroxide, xylene attacks cast iron, stainless steel and other metals, forming flammable hydrogen gas attacks many forms of rubber, plastics and coatings.
Formaldehyde:
Is a strong reducing agent may polymerise in air unless properly inhibited (usually with methanol up to 15%) and stored at controlled temperatures will polymerise with active organic material such as phenol reacts violently with strong oxidisers, hydrogen peroxid, potassium permanganate, acrylonitrile, caustics (Sodium hydroxide, yeilding formic acid and flammable hydrogen), magnesium carbonate, nitromethane, nitrogen oxides (especially at elevated temperatures), peroxyformic acid, peroxyformic acid is incompatible with strong acids (hydrchloric acid forms carcinogenic bis(chloromethyl)ether*), amines, ammonia, aniline, bisulfides, gelatinm iodine, megnesite, phenol, some monomers, tannins, salts of copper, iron, silver.
Acid catalysis can produce impurities: methylal, methyl formate.
Aqueous solutions of formaldehyde: slowly oxidise in air to formic acid attack carbon stee.
Concentrated solutions containing formaldehyde are: Unstable, both oxidising slowly to form formic acid and polymerising; in dilute aqueous solutions formaldehyde appears as monomeric hydrate (methylene glycol) - the more concentrated the solution the more polyoxymethylene glycol occurs as oligomers and polymers (methanol and amine-containing compounds inhibit polymer formulation) readily subject to polymerisation, at room temperature, in the presence of air and moisture, to form paraformaldhyde (8-100 units of formaldehyde), a solid mixture of linear polyoxymethylene glycols containing 90-99% formaldehyde; a cyclic trimer, trioxane (CH203), may also form flammable and/or toxic gases are generated by the combination of aldehydes with azo, diazo compounds, dithiocarbamates, nitrides and strong reducing agents.
The empirical equation may be used to determine the concentration of bis(chloromethyl)ether (BCME) formed by reaction with HCI: log (BCME)ppb = -2.25 + 0.67 * log(HCHO) ppm + 0.77 * log(HCI)ppm
Assume values for formaldehyde, in air, of 1 ppm and for HCI of 5 ppm, resulting BCME concentration, in air, would be 0.02ppb. Avoid reaction with oxidising agents.

7.3 Specific end use(s)

- See Section 1

SECTION 8: Exposure controls/personal protection

8.1 Control parameters

8.1.1 DNEL/DMEL

No data available

8.1.2 PNEC

No data available

8.1.3 Occupational Exposure Limits (OEL)

Germany Recommended Exposure Limits - MAK Values (English)
1,4-dioxane TWA: 20 ppm/ 73 mg/m3. STEL: I (2) ppm

EU Consolidate List o Indicative Occupational Exposure Limit Values (IOELV's)
1,4-dioxane TWA: 20 ppm/ 73 mg/m3

Germany TRGS 900 - Limit Values for the Workplace Atmosphere (German)
1,4-dioxane TWA: 20 ppm/ 73 mg/m3

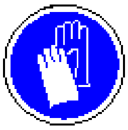
European Union Directive (EU) 2017/2398 amending Directive 2004/37/EC on the protection of workers from the risks related to exposure to carcinogens or mutagens at work.
Ethylene oxide TWA: 1 ppm/1.8 mg/m3
(Notation (9) Substantial contribution to the total body burden via dermal exposure possible).

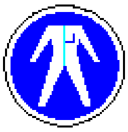
MATERIAL DATA

SECTION 8: Exposure controls/personal protection (....)

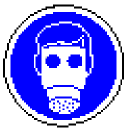
For 1,4-dioxane; 1 ppm (30 minutes) - Potential Occupational Carcinogen
Odour Threshold Value: 0.80 - 172 ppm (detection), 1.8 - 278 ppm (recognition)
Because findings if both liver and lung tumours occur at high dietary levels of dioxane (approximately 10000 ppm) and are not seen at inhalation exposures slightly above 100 ppm for 2 years, dioxane is classed by ACGIH as an animal carcinogen of such a low potential as to be of little significance as an occupational carcinogen at the recommended TLV-TWA. This is not the view of NIOSH who recommends a 1 ppm ceiling with the belief that the derivation of a safe exposure limit in not now available. The TLV-TWA has been derived from data on the hepatotoxic and nephrotoxic effects in workers and has been set the valu to one-tenth of that which is required to produce a significant increase in the occurence of cancer in animal experience indicates that such controls may not be practicable where the solvent is in use.
Odour Safety Factor (OSF)
OSF=0.83 ("1,4-dioxane)
For formaldehyde:
Odour Threshold Value for formaldehyde: 0.98 ppm (recognition)
NOTE: Detector tubes for formaldehyde, measuring in excess of 0.2 ppm are available commercially.
Formaldehyde vapour exposure:
Primary irritation is dependant on duration of exposure and individual susceptibility.
The following are typical symtpoms encountered at various eposure levels.
0.1 ppm - Lower level of mucous eye, nose and throat irritation.
0.8 ppm - Typical threshold of perception
1-2 ppm - Typical threshold of irritation.
2-3 ppm - Irritation of eyes, nose and throat.
4-5 ppm - Increased irritation, tearing, headache, pungent odour.
10-20 ppm - Profuse tearing, severe burning, coughing
50 ppm - Serious bronchial and alveolar damage.
100 ppm - Formaldehyde induced chemical pneumonia and death.
Despite the intent of the TLV Ceiling recommendation it is believed that 0.3 ppm will not protect that portion of the workforce (up to 20%) reported to be responsive to low ambient concentrations. Because of the dose-related carcinogenic activity for rat and mouse inhalation of formaldehyde, the report of macromolecular adducts in the upper and lower respiratory tracts of nonhuman primates following inhalation of formaldehyde, the human case reports of upper respiratory tract maligant melanoma associated with formaldehyde inhalation and the suggestive epidemiologic data on human cancer risk, the TLV Committee recommends that workplace formaldehyde air concentrations be reduced to the lowest possible levels that can be achieved using engineering controls.
Odour Safety Factor (OSF)
OSF = 0.36 (FORMALDEHYDE)
Odour Threshold Value for acetaldehyde: 0.067 ppm (detection)
NOTE: Detection tubes for acetaldehyde, measuring in excess of 5 ppm, are commercially available.
Exposure at or below the recommended TLV is thought to prevent excessive eye irritation and potential injury to the respiratory tract. The US EPA has assigned an upper limit unit risk estimate of 4 x 10 (exp-3) per ppm inhaled and relative potency for tumour formation of 1/250 of that for formaldehyde. The US EPA also reported that for chronic exposure at 2 ppm with limited daily exposure at 10-40 ppm, the estimated risk of a tumourigenic response are 10 (exp-4) to 10(exp-5).
for ethylene oxide:
Odour Threshold Value: 257-690 ppm (detection), 493 ppm (recognition)
NOTE: Detector tubes for ethylene oxide, measuring in excess of 1 ppm, are available commercially.
Exposure at or below the TLV-TWA is thought reduce the potential oncogenic risk and the risk from potential, non-neoplastic adverse effects on lungs, liver, kidneys, endocrine system, blood forming elements and the central nervous system. OSHA recognised that ethylene oxide exposures at 1 ppm still might produce significant health risks. A quantitative risk assessment shows an excess cancer mortality risk of 12 to 23 deaths per 10,000 workers at this level. It must be stated that risk assessment models are fraught with much uncertainty.
Odour Safety Factor(OSF)
OSF=0.0023 (ETHYLENE OXIDE)

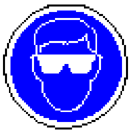
8.2 Exposure controls


Gloves


Suit


Boots


Respirator


Goggles

Appropriate engineering controls:

SECTION 8: Exposure controls/personal protection (....)

Engineering controls are used to remove a hazard or place a barrier between the worker and the hazard. Well-designed engineering controls can be highly effective in protecting workers and will typically be independent of worker interactions to provide this high level of protection. The basic types of engineering controls are: Process controls which involve changing the way a job activity or process is done to reduce the risk. Enclosure and/or isolation of emission source which keeps a selected hazard "physically" away from the worker and ventilation that strategically "adds" and "removes" air in the work environment.

Ventilation can remove or dilute an air contaminant if designed properly. The design of a ventilation system must match the particular process and chemical or contaminant in use. Employers may need to use multiple types of controls to prevent employee overexposure.

Local exhaust ventilation usually required. If risk of overexposure exists, wear approved respirator.

Correct fit is essential to obtain adequate protection. Supplied-air type respirator may be required in special circumstances.

Correct fit is essential to ensure adequate protection. An approved self contained breathing apparatus (SCBA) may be required in some situations. Provide adequate ventilation in warehouse or closed storage area. Air contaminants generated in the workplace possess varying "escape" velocities which, in turn, determine the "capture velocities" of fresh circulating air required to effectively remove the contaminant.

Type of Contaminant:

Solvent, vapours, degreaing etc. evapourating fom tank (in still air).

Air speed:

0.25 - 0.5 m/s (50-100 f/min).

0.5 - 1 m/s (100-200 f/min).

1 - 2.5 m/s (200-500 f/min).

2.5 - 10 m/s (500-2000 f/min).

aerosols, fumes from pouring operations, intermittent container filling, low speed conveyer transfers,
welding, spray drift, plating acid fumes, pickling (released at low velocity into zone of active generation)
direct spray, spray painting in shallow booths, drum filling, conveyer loading, crusher dusts, gas discharge
(active generation into zone of rapid air motion)
grinding, abrasive blasting, tumbling, high speed wheel generated dusts (released at high initial velocity
into zone of very high rapid air motion).

Within each range the appropriate value depends on:

Lower end of the range

1: Room air currents minimal or favourable to capture.

2: Contaminants of low toxicity or of nuisance value only.

3: Intermittent, low production.

4: Large hood or large air mass in motion.

Upper end of the range:

1: Disturbing room air currents

2: Contaminants of high toxicity

3: High production, heavy use.

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 1-2 m/s (200-400 f/min) for extraction of solvents generated in a tank 2 meters 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.

Personal protection:

Eye and face protection:

Safety glasses with ide shields. Chemical goggles. Contact lenses may pose a special hazard; soft contact lenses may absorb and concentration irritants. A written policy document, describing the wearing of lenses 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], [AS/NZS 1336 or national equivalent].

Skin protection:

See Hand protection below.

SECTION 8: Exposure controls/personal protection (....)

Hand/feet protection:
Wear chemical protective gloves, e.g. PVC. Wear safety footwear or safety gumboots, e.g. Rubber
The selection of suitable gloves does not only depend on the material, but also on further marks of quality which vary from manufacturer to manufacturer. Where the chemical is a preparation of several substances, the resistance of the glove material can not be calculated in advance and has therefore to be checked prior to the application.The exact break through time for substances has to be obtained from the manufacturer of the protective gloves and.has to be observed when making a final choice. Personal hygiene is a key element of effective hand care. 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. Suitability and durability of glove type is dependent on usage.
Important factors in the selection of gloves include:
- Frequency and duration of contact,
- Chemical resistance of glove material,
- Glove thickness and Dexterity.

Select gloes tested to a relevant standard (e.g. Europe EN 374, US F739, AS/NZS 2161.1 or national equivalent).
- 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, AS/NZS 2161.10.1 or national equivalent) 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, AS/NZS 2161.10.1 or national equivalent) is recommended.
- Some glove polymer types are less affected by movement and this should be taken into account when considering gloves for long-term use.
- Contaminated gloves should be replaced.

As defined in ASTM F-739-96 in any application, gloves are rated as:
- Excellent when breakthrough time > 480 min
- Good when breakthrough time > 20 min
- Fair when breakthrough time < 20 min
- Poor when glove material degrades

For general applications, gloves with a thickness typically greater than 0.35 mm, are recommended.
It should be emphasised that glove thickness is not necessarily a good predictor of glove resistance to a specific chemical, as the permeation efficiency of the glove will be dependent on the exact composition of the glove material. Therefore, glove selection should also be based on consideration of the task requirements and knowledge of breakthrough times. Glove thickness may also vary depending on the glove manufacturer, the glove type and the glove model. Therefore, the manufacturers' technical data should always be taken into account to ensure selection of the most appropriate glove for the task.
Note: Depending on the activity being conducted, gloves of varying thickness may be required for specific tasks. For example:
- Thinner gloves (down to 0.1 mm or less) may be required where a high degree of manual dexterity is needed. However, these gloves are only likely to give short duration protection and would normally be just for single use applications, then dispose of.
- Thicker gloves (up to 3 mm or more) may be required where there is a mechanical (as well as a chemical) risk i.e. where there is abrasion or puncture potenial.

Gloves must only be worn on clean hands. After using gloves, hands should be washes and dried thoroughly. Application of a non-perfumeed moisturiser is recommended.

Body protection:
Overalls. P.V.C. apron. Barrier cream. Skin Cleansing cream. Eye wash unit.

Glove Selection Index:
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:
SORBITAN MONOOLEATE, ETHOXYLATED

Material	CPI
Butyl	C
Natural Rubber	C
Natural+Neoprene	C
Neoprene	C
Neoprene/natural	C
Nitrile	C
PE	C
PE/EVAL/PE	C
PVA	C

SECTION 8: Exposure controls/personal protection (....)

PVC	C
Saranex-23	C
Teflon	C
Viton	C
Viton/Neoprene	C

* 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
NOTE: 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.

Respiratory protection
Type BAX-P Filter of sufficient capacity. (AS/NZS 1716 & 1715, EN 143:2000 & 149:2001, ANSI Z88 or national equivalent)
Selection of the Class and Type of respirator will depend upon the level of breathing zone contaminant and the chemical nature of the contaminant.
Protection Factors (defined as the ratio of contaminant outside and inside the mask) may also be important.
Required minimum protection factor:
up to 10
up to 50
up to 50
up to 100
up to 100
100+
Maximum gas/vapour concentration present in air p.p.m. (by volume)
1000
1000
5000
5000
10000
Half-face Respirator
BAX-AUS/Class1 P2
Airline*
Full-Face respirator
BAX-AUS/Class1
P2
BAX-2 P2
BAX-3 P2
Airline**
* - Continuous Flow ** - Continuous-flow or positive pressure demand
A(All classes) = Organic vapours, B AUS or B1 = Acid gasses, B2 = Acid gas or hydrogen cyanide(HCN), B3 = Acid gas or hydrogen cyanide(HCN), E = Sulfur dioxide(SO2), G = Agricultural chemicals, K = Ammonia(NH3), Hg = Mercury, NO = Oxides of nitrogen, MB = Methyl bromide, AX = Low boiling point organic compounds(below 65 degC)
· Cartridge respirators should never be used for emergency ingress or in areas of unknown vapour concentrations or oxygen content.
· The wearer must be warned to leave the contaminated area immediately on detecting any odours through the respirator. The odour may indicate that the mask is not functioning properly, that the vapour concentration is too high, or that the mask is not properly fitted. Because of these limitations, only restricted use of cartridge respirators is considered appropriate.
· Cartridge performance is affected by humidity. Cartridges should be changed after 2 hr of continuous use unless it is determined that the humidity is less than 75%, in which case, cartridges can be used for 4 hr. Used cartridges should be discarded daily, regardless of the length of time used.

8.3 Environmental exposure controls

- See Section 12

SECTION 9: Physical and chemical properties

9.1 Information on basic physical and chemical properties

- Appearance:	Oily Liquid
- Colour:	Yellow
- Odour:	Not available
- pH:	
- Melting point/Range:	Freezing point: - 20.56°C (Pour point)
- Boiling Point/Range:	>100°C
- Solubility in water:	Miscible
- Flash Point:	148°C
- Viscosity:	425 cPs at 25°C
- Relative Density:	1.080 (Water=1)
- Solubility(ies):	Soluble in isopropanol, ethanol. Insoluble in mineral and vegetable oils.

9.2 Other information

- No additional information.

SECTION 10: Stability and reactivity

10.1 Reactivity

See section 7.2

10.2 Chemical stability

Unstable in the presence of incompatible materials. Product is considered stable. Hazardous polymerisation will not occur.

10.3 Possibility of hazardous reactions

See section 7.2

10.4 Conditions to avoid

See section 7.2

10.5 Incompatible materials

See section 7.2

10.6 Hazardous decomposition products

See section 5.3

SECTION 11: Toxicological information

11.1 Information on toxicological effects

Chronic:
On the basis, primarily, of animal experiments, concern has been expressed that the material may produce carcinogenic or mutagenic effects; in respect of the available information, however, there presently exists inadequate data for making a satisfactory assessment. Long-term exposure to respiratory irritants may result in disease of the airways involving difficult breathing and related systemic problems. Exposure to the material may result in a possible risk of irreversible effects. The material may produce mutagenic effects in man. This concern is raised, generally, on the basis of appropriate studies using mammalian somatic cells in vivo. Such findings are often supported by positive results from in vitro mutagenicity studies. Limited evidence suggests that repeated or long-term occupational exposure may produce cumulative health effects involving organs or biochemical systems. Prolonged or repeated skin contact may cause degreasing with drying, cracking and dermatitis following.

SECTION 11: Toxicological information (....)

Sorbitan Monooleate, ethoxylated

Toxicity:
Oral (Mouse) LD50: 25000 mg/kg [2]

Irritation:
Eye (Rabbit): 150 mg - mild
Skin (Rabbit): slight

1. Value obtained from Europe ECHA Registered Substances - Acute toxicity
2.* Value obtained from manufacturer's SDS.
Unless otherwise specified data extracted from RTECS - Register of Toxic Effect of chemical Substances

11.1.1 Sorbitan Monooleate, ethoxylated

For Group D aliphatic esters:(sorbitan fatty esters)
Sorbitan fatty acid esters are mono-, di-, and triesters of fatty acids and sorbitol-derived hexitol anhydrides.
Sorbitan fatty acid esters were relatively nontoxic via ingestion in acute and long-term studies. They were generally minimal to mild skin irritants in animal studies, except that sorbitan isostearate applied to the skin was a moderate irritant in one rabbit study and when injected intradermally caused mild to severe irritation in guinea pigs. Sorbitan fatty acid esters did not sensitise guinea pigs. The fatty acid component, tested alone, typically caused only slight irritation and sensitisation, and was not photosensitising. Sorbitan fatty acid esters were not ocular irritants. Fatty acids are normal components of diet for which no data were available concerning reproductive or developmental toxicity, but Sorbitol had no adverse effects on the reproduction of CD rats during a multigeneration feeding study and was not a reproductive toxin at doses of 3000 to 7000 mg/kg/day for 2 years. Overall these esters and their corresponding fatty acids were not mutagenic, but sorbitan oleate was reported to reduce DNA repair following ultraviolet radiation exposure in human lymphocytes in culture. Sorbitan laurate and sorbitan trioleate were cocarcinogens in one mouse study, but sorbitan trioleate and sorbitan oleate were not tumour promoters in another study. In clinical tests, Sorbitan fatty acid esters were generally minimal to mild skin irritants and were nonsensitizing, but sorbitan sesquioleate did produce an allergic reaction in fewer than 1% of patients with suspected contact dermatitis and addition of sorbitan sesquioleate to the components of a fragrance mix used in patch testing increased both irritant and allergic reactions to the fragrance mix. Careful consideration was made of the data on the cocarcinogenesis of sorbitan laurate and sorbitan trioleate, but the high exposure levels, high frequency of exposure, and absence of a doseresponse led to the conclusion that there was not a cocarcinogenesis risk with the use of these ingredients in cosmetic
formulations. Accordingly, these ingredients were considered safe for use in cosmetic formulations under the present practices of use.
Final report on the safety assessment of sorbitan caprylate, sorbitan cocoate, sorbitan diisostearate, sorbitan dioleate, sorbitan distearate, sorbitan isostearate, sorbitan olivate, sorbitan sesquiisostearate, sorbitan sesquistearate, and sorbitan triisostearate Lanigan et al Int J. Toxicol 2002, pp 93-112. According to a classification scheme described by the American Chemistry Council' Aliphatic Esters Panel, Group D substances are esters of monoacids, mainly common fatty acids, and sorbitan (which is derived from sorbitol - a natural carbohydrate sweetener). The fatty acids include lauric, stearic, oleic acids and coca fatty acids (mainly lauric and myristic acids). The hydroxy group in the sorbitan represents the alcohol portion of the ester linkage. The Group D esters are carbohydrate-derived esters since the ester linkage is connected to the hydroxy group(s) of sorbitan. They may have single ester linkages (i.e., sorbitan monoester) or may have multiple ester linkages, as in the case of sorbitan sesquioleate and sorbitan trioleate. Multiple ester linkages with long-chain fatty acids increase lipophilicity and also tend to diminish water solubility. The sorbitan esters are non-ionic surfactant-active agents that typically find use as emulsifiers, stabilizers, and thickeners in foods, cosmetics and medical products.

Acute toxicity:
Sorbitan esters do not represent a toxicological concern since they are derived from naturally occurring materials and the parent esters are ultimately metabolised back to these same natural constituents: namely, sorbitan and common fatty acids, both of which have low orders of toxicity. The oral LD50 in rats ranged from >2.9 g/kg to > 39.8 g/kg. Numerous sorbitan esters have been studied by acute oral and dermal administration. Results from these studies support the general conclusion that sorbitan fatty acid esters have low orders of acute toxicity.
Repeated Dose Toxicity. A large number of subchronic oral and dermal studies and chronic oral feeding studies have been carried out for sorbitan monolaurate, sorbitan monostearate and sorbitan monooleate , For sorbitan monostearate, no adverse, effects were reported in rats fed 5% concentrations of the test substance in the diet for 6 weeks. The NOAEL was estimated to be 5% or approximately 2500 mg/kg/day. In 2-year feeding studies at 5, 10 and 20% in the diet rats tolerated sorbitan moonostearate with no adverse effects. However, at 20%, there was a small but significant decrease on growth rate in male rates. Hence, the NOAEL

was 10% in the diet or approximately 5000 mg/kg/day in rats, based on these findings. In a 80-week dietary study in mice, no adverse effects were observed for sorbitan monostearate at 2% concentration in the diet and the NOAEL was 2% or approximately 2600 mg/kg/day . Subchronic studies have also been carried out with sorbitan, fatty acids C6-10, tetraester (CAS 228573-47-5).. Oral gavage studies for 28 days at dose levels up to 1000 mg/kg /day resulted in no systemic toxicity. Therefore, the NOAEL was 1000 mg/kg/day for this tetraester. Since the sesquioleate and trioleate of sorbitan are merely multiple ester homologs of sorbitan monooleate, they would be expected to show similar effects, given their structural similarities and potential to be metabolised to the monooleate.

Sensitisation: Sorbitan fatty acid esters were generally minimal to mild skin irritants and were nonsensitising, but sorbitan sesquioleate did produce an allergic reaction in fewer than 1% of patients with suspected contact dermatitis and addition of sorbitan sesquioleate to the components of a fragrance mix used in patch testing increased both irritant and allergic reactions to the fragrance mix. Reproductive and developmental toxicity: Limited reproductive toxicity data have been reported for the sorbitan esters. In a 2-year feeding studies in rats with sorbitan monostearate, there were no effects on gestation and fertility at any dose level (0, 5, 10 and 20% in the diet) but survival of the newborn animals and maternal lactation were slightly diminished at the 20% level. Sorbitol was also studied indirectly as part of a mixture of hydrogenated starch hydrolysates(HSH) which contained about 7% sorbitol as part of the polyhydric alcohol mixture. The HSH mixture was investigated as part of a two-year ingestion study, a multigeneration reproduction study and a teratology study. At concentrations of 18% in drinking water (3000-7000 mg/kg/day), HSH did not produce reproductive or developmental effects . These results indicate that sorbitol does not cause reproductive/ developmental toxicity in animals. Given these findings and the low order of toxicity of natural fatty acids, it seems unlikely that sorbitan esters would present reproductive and developmental toxicity concerns.

Genotoxicity: Sorbitan monostearate (CAS 1338-41-6) was found to be negative in the Ames assay. In addition, the non-HPV substance, sorbitan fatty acid C6-10 tetraester (CAS 228573-47-5), did not cause any mutagenic effects in the Salmonella in vitro test. These substances bridge the low and high carbon range of most of the sorbitan esters and the chemistry of the sorbitan esters (i.e., sorbitan/ sorbitol, natural fatty acids) does not suggest the likelihood that the sorbitan esters are electrophilic or reactive in nature. Thus, it is not likely that the substances in Group D cause mutagenic effects. Sorbitan monostearate did not transform primary Syrian golden hamster embryo cells. As discussed above for point mutation, the chemistry of the sorbitan esters does not suggest the likelihood that these substances, or their constituent substructures (i.e., sorbitol, fatty acids) are reactive or electrophilic in nature.

Carcinogenicity: Overall these esters and their corresponding fatty acids were not mutagenic, but sorbitan oleate was reported to reduce DNA repair following ultraviolet radiation exposure in human lymphocytes in culture. sorbitan laurate and sorbitan trioleate were cocarcinogens in one mouse study, but sorbitan trioleate and sorbitan oleate were not tumour promoters in another study. The material may be irritating to the eye, with prolonged contact causing inflammation. Repeated or prolonged exposure to irritants may produce conjunctivitis. Polyoxyethylene sorbitan monooleate (TW80) is widely used as an emulsifier or solubilizer in a variety of foods, cosmetics and other commercial Products. In addition, TW80 in water has been used as a vehicle for the delivery of other chemical agents to pregnant laboratory animals by the oral route of administration (eg. by gavage or in the drinking water). Based upon the large population of pregnant women potentially exposed to TW80, and because of its use as a vehicle in laboratory animal studies, TW80 was evaluated for potential developmental toxicity. Timedmated Sprague-Dawley-derived (CD®) rats (25 per group) were exposed to 0, 500 or 5000 mg/kg/day of TW80. Aqueous solutions were delivered by gavage in a volume of 5 ml/kg of body weight on gestational days (gd) 6 through 15. At termination (gd 20), the uterus was removed and examined to determine pregnancy status, and to evaluate the number of resorptions, and dead or live foetuses. Dead or live foetuses were weighed, and live foetuses were examined for external, visceral and skeletal defects. All treated females survived to scheduled necropsy and 19-23 pregnancies per group were confirmed. No dose-related signs of toxicity were observed for individual animals during the in-life phase of the study or at
scheduled necropsy. Average maternal body weight (gd 0, 3, 6, 9, 12, 15, 18, or 20) did not differ among treatment groups, nor was there a treatment related change in maternal weight gain during treatment or gestation (absolute or corrected). There were no treatment-related effects upon the following maternal organ weights: gravid weight (absolute), kidney weight (absolute or relative), and heart weight (absolute or relative). Relative maternal liver weight (% body weight on gd 20 or % corrected body weight) was elevated in both TW80 groups and absolute liver weight was elevated at 500 mg/kg/day. Maternal food intake was comparable across groups during the pre- and post-treatment periods, but was decreased by 14% during the first 3 days of treatment at 5000 mg/kg/day relative to the vehicle control group. Maternal relative water intake was comparable among treatment groups throughout gestation. No differences among groups were noted for the number of corpora lutea per dam, the number of implantation sites per dam or the percent preimplantation loss per litter. No adverse effects were noted on the growth, viability or morphological development of the conceptuses. In conclusion, the maternal LOAEL was 500 mg/kg/day (based upon an increase in maternal relative liver weight). No definitive adverse effects of TW80 upon prenatal development were noted in this study. Thus, the developmental NOAEL was greater than 5000 mg/kg/day.

SECTION 11: Toxicological information (....)

11.2 Serious eye damage/irritation

Evidence exists, or practical experience predicts, that the material may cause eye irritation in a substantial number of individuals. Repeated or prolonged eye contact may cause inflammation (similar to windburn) characterised by a temporary redness of the conjunctiva (conjunctivitis); temporary impairment of vision and/or other transient eye damage/ulceration may occur. Some nonionic surfactants may produce a localised anaesthetic effect on the cornea; this may effectively eliminate the warning discomfort produced by other substances and lead to corneal injury. Irritant effects range from minimal to severe dependent on the nature of the surfactant, its concentration and the duration of contact. Pain and corneal damage represent the most severe manifestation of irritation.

11.3 Skin corrosion/irritation

The material produces mild skin irritation; evidence exists, or practical experience predicts, that the material either

- produces mild inflammation of the skin in a substantial number of individuals following direct contact, and/or
- produces significant, but mild, inflammation when applied to the healthy intact skin of animals (for up to four hours), such inflammation being present twenty-four hours or more after the end of the exposure period. Skin irritation may also be present after prolonged or repeated exposure; this may result in a form of contact dermatitis (nonallergic). The dermatitis is often characterised by skin redness (erythema) and swelling (oedema) which may progress to blistering (vesiculation), scaling and thickening of the epidermis. At the microscopic level there may be intercellular oedema of the spongy layer of the skin (spongiosis) and intracellular oedema of the epidermis. Skin contact is not thought to have harmful health effects (as classified under EC Directives); the material may still produce health damage following entry through wounds, lesions or abrasions. Repeated exposure may cause skin cracking, flaking or drying following normal handling and use. One of the mechanisms of skin irritation caused by surfactants is considered to be denaturation of the proteins of skin. It has also been established that there is a connection between the potential of surfactants to denature protein in vitro and their effect on the skin. Nonionic surfactants do not carry any net charge and, therefore, they can only form hydrophobic bonds with proteins. For this reason, proteins are not deactivated by nonionic surfactants, and proteins with poor solubility are not solubilized by nonionic

surfactants Open cuts, abraded or irritated skin should not be exposed to this material Entry into the blood-stream through, for example, cuts, abrasions, puncture wounds or lesions, may produce systemic injury with harmful effects. Examine the skin prior to the use of the material and ensure that any external damage is suitably protected.

11.4 Ingestion

Accidental ingestion of the material may be damaging to the health of the individual.
Nonionic surfactants may produce localised irritation of the oral or gastrointestinal mucosa and induce vomiting and mild diarrhoea.

11.5 Inhalation

Evidence shows, or practical experience predicts, that the material produces irritation of the respiratory system, in a substantial number of individuals, following inhalation. In contrast to most organs, the lung is able to respond to a chemical insult by first removing or neutralising the irritant and then repairing the damage. The repair process, which initially evolved to protect mammalian lungs from foreign matter and antigens, may however, produce further lung damage resulting in the impairment of gas exchange, the primary function of the lungs. Respiratory tract irritation often results in an inflammatory response involving the recruitment and activation of many cell types, mainly derived from the vascular system. Not normally a hazard due to non-volatile nature of product.

11.6 Carcinogenicity

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

11.7 Germ cell mutagenicity

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

11.8 Teratogenicity

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

SECTION 12: Ecological information

12.1 Toxicity

For Group D aliphatic esters:(sorbitan fatty esters).

SECTION 12: Ecological information (....)

Environmental fate:
The chain-length of the fatty acid in the sorbitan monoesters influences water solubility, boiling point and lipophilicity. The degree of esterification (monooleate versus trioleate) will also influence these properties. Hence, the water solubility of sorbitan monolaurate (C12 acid) (CAS 1338-39-2) is predicted to be much greater than that of sorbitan monostearate or sorbitan monooleate (C18 acids). The monooleate was predicted to have greater solubility in water than the corresponding sesquioleate or trioleate ester of sorbitan.

Biodegradation:
The biodegradation of sorbitan monolaurate, sorbitan monooleate and sorbitan, fatty acid C6-10 tetraester (CAS 228573-47-5), has been reported. These three sorbitan esters were biodegraded to the extent of 60-70% in 28-days, which indicate these materials undergo metabolism and degradation extensively in the aerobic environment. The sorbitan esters tested covered the range of carbon numbers (C18-C38) and included relatively water soluble (i.e., sorbitan monolaurate) as well as water-insoluble [i.e., sorbitan fatty acid C6-10 tetraester (CAS 228573-47-5)] members of the group. The high degree of biodegradation (70% in 28 days) for sorbitan tetraester (CAS 228573-47-5), in spite of its poor water solubility, indicates that enzymatic cleavage of the multiple ester linkage must be taking place in order to achieve the observed level of biodegradation. This would be consistent with the fact that fatty acids (e.g., oleic, stearic acid) arising from enzymatic ester bond cleavage of the sorbitan esters would be expected to be rapidly biodegraded. In addition, enzymatic ester cleavage of sorbitan trioleate and sesquioleate would lead to sorbitan monooleate, for which biodegradation data exist. Thus, there is sufficient information to “read-across” for the other sorbitan esters, based on the available data and the similarities in chemistry and metabolism.

Ecotoxicity:
Aquatic toxicity data have been reported for the sorbitan esters. Sorbitan monolaurate and sorbitan monooleate have been tested. In addition sorbitan fatty acid C6-10 tetraester (CAS 228573-47-5), has also been evaluated in fish, daphnia and algae. These findings indicate that the sorbitan esters are not acutely toxic to aquatic organisms. The available data covered the range of water-soluble (e.g., monolaurate) and waterinsoluble sorbitan esters (e.g., C6-C10 acid tetraester). Most of the sorbitan esters have limited water solubility and for this reason are not be likely to cause acute aquatic toxicity. In addition, metabolism of sorbitan sesquioleate and sorbitan trioleate will generate sorbitan monooleate, for which aquatic toxicity data exist. Thus, there is sufficient information to “read-across” for the other sorbitan esters, based on the available data and chemical similarities of sorbitan esters in general.

For surfactants:
Environmental fate: Octanol/water partition coefficients cannot easily be determined for surfactants because one part of the molecule is hydrophilic and the other part is hydrophobic. Consequently they tend to accumulate at the interface and are not extracted into one or other of the liquid phases. As a result surfactants are expected to transfer slowly, for example, from water into the flesh of fish. During this process, readily biodegradable surfactants are expected to be metabolised rapidly during the process of bioaccumulation. This was emphasised by the OECD Expert Group stating that chemicals are not to be considered to show bioaccumulation potential if they are readily biodegradable. Several anionic and nonionic surfactants have been investigated to evaluate their potential to bioconcentrate in fish. BCF values (BCF - bioconcentration factor) ranging from 1 to 350 were found. These are absolute maximum values, resulting from the radiolabelling technique used. In all these studies, substantial oxidative metabolism was found resulting in the highest radioactivity in the gall bladder. This indicates liver transformation of the parent compound and biliary excretion of the metabolised compounds, so that "real" bioconcentration is overstated. After correction it can be expected that "real" parent BCF values are one order of magnitude less than those indicated above, i.e. "real" BCF is <100. Therefore the usual data used for classification by EU directives to determine whether a substance is "Dangerous to the "Environment" has little bearing on whether the use of the surfactant is environmentally acceptable.

Ecotoxicity:
Surfactant should be considered to be toxic (EC50 and LC50 values of < 10 mg/L) to aquatic species under conditions that allow contact of the chemicals with the organisms. The water solubility of the chemicals does not impact the toxicity except as it relates to the ability to conduct tests appropriately to obtain exposure of the test species. The acute aquatic toxicity generally is considered to be related to the effects of the surfactant properties on the organism and not to direct chemical toxicity DO NOT discharge into sewer or waterways.
BOD (28 d): 32% (OECD 301 C)|COD 1.75 g O2/g (OECD 301 C)|DOC removal: 52% (OECD 301 C)|Biodegradability: 100% (OECD static test method)|Fish LC50 (96 h): rainbow trout 471 mg/l (static)|Pseudomonas putida IC0: gt;10000 mg/l|Mysidopsis bahia LC50 (96 h): 165 mg/l.

12.2 Persistence and degradability

Ingredient Persistance: Water/soil Persistance: Air

1,4-dioxane: HIGH (Half-life = 360 days) - LOW (Half-life = 3.38 days)
ethylene oxide: LOW (Half-life = 11.88 days) - HIGH (Half-life = 381.96 days)

SECTION 12: Ecological information (....)

12.3 Bioaccumulative potential

1,4-dioxane: LOW (BCF = 0.7)
ethylene oxide: LOW (BCF = 0.35)

12.4 Mobility in soil

1,4-dioxane: HIGH (KOC = 1)
ethylene oxide: HIGH (KOC = 1.435)

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

- Avoid release to the environment. Refer to special instructions/Safety data sheets
- Disposal should be in accordance with local, state or national legislation

Containers may still present a chemical hazard/ danger when empty. Return to supplier for reuse/ recycling if possible. Otherwise: If container can not be cleaned sufficiently well to ensure that residuals do not remain or if the container cannot be used to store the same product, then puncture containers, to prevent re-use, and bury at an authorised landfill.

Where possible retain label warnings and SDS and observe all notices pertaining to the product. Legislation addressing waste disposal requirements may differ by country, state and/ or territory. Each user must refer to laws operating in their area. In some areas, certain wastes must be tracked. A Hierarchy of Controls seems to be common - the user should investigate: Reduction Reuse Recycling Disposal (if all else fails) This material may be recycled if unused, or if it has not been contaminated so as to make it unsuitable for its intended use. If it has been contaminated, it may be possible to reclaim the product by filtration, distillation or some other means. Shelf life considerations should also be applied in making decisions of this type. Note that properties of a material may change in use, and recycling or reuse may not always be appropriate.

DO NOT allow wash water from cleaning or process equipment to enter drains. It may be necessary to collect all wash water for treatment before disposal. In all cases disposal to sewer may be subject to local laws and regulations and these should be considered first. Where in doubt contact the responsible authority. Recycle wherever possible or consult manufacturer for recycling options. Consult State Land Waste Authority for disposal. Bury or incinerate residue at an approved site.

Recycle containers if possible, or dispose of in an authorised landfill.

SECTION 14: Transport information

14.1 UN number or ID number

- UN No.: Not applicable

14.2 UN proper shipping name

- Proper Shipping Name: Not applicable

14.3 Transport hazard class(es)

- Hazard Class: Not applicable

14.4 Packing group

SECTION 14: Transport information (....)

- Packing Group: Not applicable

14.5 Environmental hazards

- Not applicable

14.6 Special precautions for user

- Not applicable

14.7 Transport in bulk according to Annex II of Marpol and the IBC Code

- Not applicable

SECTION 15: Regulatory information

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

SORBITAN MONOOLEATE, ETHOXYLATED(9005-65-6) IS FOUND ON THE FOLLOWING REGULATORY LISTS

European Customs Inventory of Chemical Substances ECICS (English)
European Union (EU) No-Longer Polymers List (NLP) (67/548/EEC)

15.2 Chemical safety assessment

For further information please look at the Chemical Safety Assessment and Exposure Scenarios prepared by your Supply Chain if available.

SECTION 16: Other information

The data contained in this safety data sheet are based on our current knowledge and experience and describe the product only with regard to safety requirements. The data do not describe the product's properties (product specification). Neither should any agreed property nor the suitability of the product for any specific purpose be deduced from the data contained in the safety data sheet. It is the responsibility of the recipient of the product to ensure any proprietary rights and existing laws and legislation are observed.

--- end of safety datasheet ---