# AK10 Liquid Carbon Cut Auto Klene Solutions

Chemwatch: **5250-75** Version No: **5.1.1.1** 

Safety Data Sheet according to WHS and ADG requirements

Chemwatch Hazard Alert Code: 2

Issue Date: 01/11/2019 Print Date: 01/02/2021 S.GHS.AUS.EN

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

Product Identifier		
Product name	AK10 Liquid Carbon Cut	
Chemical Name	Not Applicable	
Synonyms	Not Available	
Chemical formula	Not Applicable	
Other means of identification	Not Available	

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

Relevant identified uses	Use according to manufacturer's directions.
--------------------------	---

# Details of the supplier of the safety data sheet

Registered company name	Auto Klene Solutions	
Address	1/83 Merrindale Drive Croydon VIC 3136 Australia	
Telephone	3 8761 1900	
Fax	+61 3 8761 1955	
Website	http://www.autoklene.com/msds/	
Email	Not Available	

## Emergency telephone number

Association / Organisation	Auto Klene Solutions	
Emergency telephone numbers	131 126 (Poisons Information Centre)	
Other emergency telephone numbers	0800 764 766 (New Zealand Poisons Information Centre)	

# **SECTION 2 Hazards identification**

## Classification of the substance or mixture

# HAZARDOUS CHEMICAL. NON-DANGEROUS GOODS. According to the WHS Regulations and the ADG Code.

# ChemWatch Hazard Ratings

	Min	Max	
Flammability	1		
Toxicity	1	1	0 = Minimum
Body Contact	2		1 = Low
Reactivity	0		2 = Moderate 3 = High 4 = Extreme
Chronic	0		

Poisons Schedule	Not Applicable	
Classification <sup>[1]</sup>	Skin Corrosion/Irritation Category 2, Eye Irritation Category 2A, Specific target organ toxicity - single exposure Category 3 (respiratory tract irritation)	
Legend:	1. Classified by Chernwatch; 2. Classification drawn from HCIS; 3. Classification drawn from Regulation (EU) No 1272/2008 - Annex VI	

Label elements



Signal word

Warning

# Hazard statement(s)

H315	Causes skin irritation.
H319	Causes serious eye irritation.

May cause respiratory irritation.

Precautionary	etatomont(e)	Drovontion

H335

roodulonary olatonion (o) roomion		
P271	Use only outdoors or in a well-ventilated area.	
P261	Avoid breathing mist/vapours/spray.	
P280 Wear protective gloves/protective clothing/eye protection/face protection.		

# Precautionary statement(s) Response

P321	Specific treatment (see advice on this label).	
P362	Take off contaminated clothing and wash before reuse.	
P305+P351+P338	IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing.	
P312	Call a POISON CENTER or doctor/physician if you feel unwell.	
P337+P313	If eye irritation persists: Get medical advice/attention.	
P302+P352	IF ON SKIN: Wash with plenty of water.	
P304+P340	IF INHALED: Remove victim to fresh air and keep at rest in a position comfortable for breathing.	

# Precautionary statement(s) Storage

• • • • •	<u> </u>	
P405	P405 Store locked up.	
P403+P233	Store in a well-ventilated place. Keep container tightly closed.	

# Precautionary statement(s) Disposal

P501 Dispo

Dispose of contents/container to authorised hazardous or special waste collection point in accordance with any local regulation.

## **SECTION 3 Composition / information on ingredients**

# Substances

See section below for composition of Mixtures

## Mixtures

CAS No	%[weight]	Name
1344-28-1.	10-30	aluminium oxide
8042-47-5	<10	white mineral oil (petroleum)
56-81-5	<10	glycerol
64742-47-8	<10	distillates, petroleum, light, hydrotreated
8001-79-4	<1	castor oil
102-71-6	<1	triethanolamine
7732-18-5	>50	water

## **SECTION 4 First aid measures**

Eye Contact	<ul> <li>If this product comes in contact with the eyes:</li> <li>Wash out immediately with fresh running water.</li> <li>Ensure complete irrigation of the eye by keeping eyelids apart and away from eye and moving the eyelids by occasionally lifting the upper and lower lids.</li> <li>Seek medical attention without delay; if pain persists or recurs seek medical attention.</li> <li>Removal of contact lenses after an eye injury should only be undertaken by skilled personnel.</li> </ul>
Skin Contact	<ul> <li>If skin contact occurs:</li> <li>Immediately remove all contaminated clothing, including footwear.</li> <li>Flush skin and hair with running water (and soap if available).</li> <li>Seek medical attention in event of irritation.</li> </ul>
Inhalation	<ul> <li>If fumes or combustion products are inhaled remove from contaminated area.</li> <li>Lay patient down. Keep warm and rested.</li> <li>Prostheses such as false teeth, which may block airway, should be removed, where possible, prior to initiating first aid procedures.</li> <li>Apply artificial respiration if not breathing, preferably with a demand valve resuscitator, bag-valve mask device, or pocket mask as trained. Perform CPR if necessary.</li> <li>Transport to hospital, or doctor, without delay.</li> </ul>
Ingestion	<ul> <li>If swallowed do NOT induce vomiting.</li> <li>If vomiting occurs, lean patient forward or place on left side (head-down position, if possible) to maintain open airway and prevent aspiration</li> <li>Observe the patient carefully.</li> <li>Never give liquid to a person showing signs of being sleepy or with reduced awareness; i.e. becoming unconscious.</li> <li>Give water to rinse out mouth, then provide liquid slowly and as much as casualty can comfortably drink.</li> <li>Seek medical advice.</li> </ul>

# Indication of any immediate medical attention and special treatment needed

Treat symptomatically.

- Manifestation of aluminium toxicity include hypercalcaemia, anaemia, Vitamin D refractory osteodystrophy and a progressive encephalopathy (mixed dysarthria-apraxia of speech, asterixis, tremulousness, myoclonus, dementia, focal seizures). Bone pain, pathological fractures and proximal myopathy can occur.
- Symptoms usually develop insidiously over months to years (in chronic renal failure patients) unless dietary aluminium loads are excessive.
  Serum aluminium levels above 60 ug/ml indicate increased absorption. Potential toxicity occurs above 100 ug/ml and clinical symptoms are present when levels exceed 200

#### ug/ml.

Deferoxamine has been used to treat dialysis encephalopathy and osteomalacia. CaNa2EDTA is less effective in chelating aluminium. [Ellenhorn and Barceloux: Medical Toxicology]

# **SECTION 5 Firefighting measures**

# Extinguishing media

The product contains a substantial proportion of water, therefore there are no restrictions on the type of extinguishing media which may be used. Choice of extinguishing media should take into account surrounding areas.

Though the material is non-combustible, evaporation of water from the mixture, caused by the heat of nearby fire, may produce floating layers of combustible substances. In such an event consider:

- foam.
- dry chemical powder.
- carbon dioxide.

# Special hazards arising from the substrate or mixture

Fire Incompatibility	ibility None known.			
Advice for firefighters				
Fire Fighting	<ul> <li>Alert Fire Brigade and tell them location and nature of hazard.</li> <li>Wear breathing apparatus plus protective gloves.</li> <li>Prevent, by any means available, spillage from entering drains or water courses.</li> <li>Use water delivered as a fine spray to control fire and cool adjacent area.</li> <li>DO NOT approach containers suspected to be hot.</li> <li>Cool fire exposed containers with water spray from a protected location.</li> <li>If safe to do so, remove containers from path of fire.</li> </ul>			
	<ul> <li>Combustible.</li> <li>Slight fire hazard when exposed to heat or flame.</li> </ul>			

- Heating may cause expansion or decomposition leading to violent rupture of containers. - -----

	On compustion, may emit toxic tumes of carbon monoxide (CO).
	May emit acrid smoke.
	Mists containing combustible materials may be explosive.
Fire/Explosion Hazard	Combustion products include:
	carbon dioxide (CO2)
	acrolein
	hydrogen chloride
	phosgene
	hydrogen fluoride
	other pyrolysis products typical of burning organic material.
HAZCHEM	Not Applicable

# **SECTION 6 Accidental release measures**

# Personal precautions, protective equipment and emergency procedures

See section 8

# **Environmental precautions**

See section 12

# Methods and material for containment and cleaning up

Minor Spills	<ul> <li>Remove all ignition sources.</li> <li>Clean up all spills immediately.</li> <li>Avoid breathing vapours and contact with skin and eyes.</li> <li>Control personal contact with the substance, by using protective equipment.</li> <li>Contain and absorb spill with sand, earth, inert material or vermiculite.</li> <li>Wipe up.</li> <li>Place in a suitable, labelled container for waste disposal.</li> </ul>
Major Spills	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 course. No smoking, naked lights or ignition sources. Increase ventilation.

Personal Protective Equipment advice is contained in Section 8 of the SDS.

# **SECTION 7 Handling and storage**

Precautions for safe handling			
Safe handling	<ul> <li>DO NOT allow clothing wet with material to stay in contact with skin</li> <li>Avoid all personal contact, including inhalation.</li> <li>Wear protective clothing when risk of exposure occurs.</li> <li>Use in a well-ventilated area.</li> <li>Prevent concentration in hollows and sumps.</li> <li>DO NOT enter confined spaces until atmosphere has been checked.</li> <li>DO NOT allow material to contact humans, exposed food or food utensils.</li> <li>Avoid contact with incompatible materials.</li> </ul>		

Other information	<ul> <li>Store in original containers.</li> <li>Keep containers securely sealed.</li> <li>No smoking, naked lights or ignition sources.</li> <li>Store in a cool, dry, well-ventilated area.</li> <li>Store away from incompatible materials and foodstuff containers.</li> </ul>
	<ul> <li>Protect containers against physical damage and check regularly for leaks.</li> </ul>
	Observe manufacturer's storage and handling recommendations contained within this SDS.

# Conditions for safe storage, including any incompatibilities

Suitable container	<ul> <li>Metal can or drum</li> <li>Packaging as recommended by manufacturer.</li> <li>Check all containers are clearly labelled and free from leaks.</li> </ul>
Storage incompatibility	Avoid reaction with oxidising agents

# SECTION 8 Exposure controls / personal protection

# **Control parameters**

# Occupational Exposure Limits (OEL)

Source	Ingredient	Material name	TWA	STEL	Peak	Notes
Australia Exposure Standards	aluminium oxide	Aluminium oxide	10 mg/m3	Not Available	Not Available	(a) This value is for inhalable dust containing no asbestos and < 1% crystalline silica.
Australia Exposure Standards	white mineral oil (petroleum)	Oil mist, refined mineral	5 mg/m3	Not Available	Not Available	Not Available
Australia Exposure Standards	glycerol	Glycerin mist	10 mg/m3	Not Available	Not Available	<ul> <li>(a) This value is for inhalable dust containing no asbestos and &lt; 1% crystalline silica.</li> </ul>
Australia Exposure Standards	distillates, petroleum, light, hydrotreated	Oil mist, refined mineral	5 mg/m3	Not Available	Not Available	Not Available
Australia Exposure Standards	triethanolamine	Triethanolamine	5 mg/m3	Not Available	Not Available	Not Available

Emergency Limits					
Ingredient	Material name			TEEL-2	TEEL-3
aluminium oxide	Aluminum oxide; (Alumina)			170 mg/m3	990 mg/m3
white mineral oil (petroleum)		Mineral oil, heavy or light; (paraffin oil; Deobase, deodorized; heavy paraffinic; heavy naphthenic); distillates; includes 64741-53-3, 64741-88-4, 8042-47-5, 8012-95-1; 64742-54-7			8,900 mg/m3
glycerol	Glycerine (mist); (Glycerol; Glycerin)	Glycerine (mist); (Glycerol; Glycerin)			1,100 mg/m3
distillates, petroleum, light, hydrotreated	Mineral oil, heavy or light; (paraffin oil; Deobase, deodorized; heavy paraffinic; heavy naphthenic); distillates; includes 64741-53-3, 64741-88-4, 8042-47-5, 8012-95-1; 64742-54-7			1,500 mg/m3	8,900 mg/m3
triethanolamine	Triethanolamine; (Trihydroxytriethylamine)			240 mg/m3	1,500 mg/m3
Ingredient	Original IDLH	Revised IDLH			
aluminium oxide	Not Available	Not Available Not Available			
white mineral oil (petroleum)	2,500 mg/m3	2,500 mg/m3 Not Available			
glycerol	Not Available Not Available				
distillates, petroleum, light, hydrotreated	2,500 mg/m3	Not Available			
castor oil	Not Available Not Available				
triethanolamine	Not Available Not Available				
water	Not Available Not Available				
Occupational Exposure Bandi	ng				
Ingredient	Occupational Exposure Band Rating Occupational Exposure B		Band Limit		
castor oil	E ≤ 0.1 ppm				
Notes:	Occupational exposure banding is a process of assigning chemicals into specific categories or bands based on a chemical's potency and the				

Occupational exposure banding is a process of assigning chemicals into specific categories of bands based on a chemical's potency and the adverse health outcomes associated with exposure. The output of this process is an occupational exposure band (OEB), which corresponds to a range of exposure concentrations that are expected to protect worker health.

Exposure controls

Personal protection	
Eye and face protection	<ul> <li>Safety glasses with side shields.</li> <li>Chemical goggles.</li> <li>Contact lenses may pose a special hazard; soft contact lenses may absorb and concentrate 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.</li> </ul>
Skin protection	See Hand protection below
Hands/feet protection	<ul> <li>Wear chemical protective gloves, e.g. PVC.</li> <li>Wear safety footwear or safety gumboots, e.g. Rubber</li> <li>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.</li> <li>The exact break through time for substances has to be obtained from the manufacturer of the protective gloves and has to be observed when</li> </ul>

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 hed and dried thoroughly. Application of a non-perfumed moisturise

	washed and the thoroughly. Application of a non-pendined moistunser is recommended.
Body protection	See Other protection below
Other protection	<ul> <li>Overalls.</li> <li>P.V.C apron.</li> <li>Barrier cream.</li> <li>Skin cleansing cream.</li> <li>E Eve wash unit</li> </ul>

CPI

С С

С

С

С

С

С

С

С

#### Recommended material(s)

#### GLOVE SELECTION INDEX

Material

BUTYL

NEOPRENE

NITRILE

PVA

PVC

VITON

NATURAL RUBBER NATURAL+NEOPRENE

NEOPRENE/NATURAL

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 computergenerated selection: AK10 Liquid Carbon Cut

### **Respiratory protection**

Type AK-P Filter of sufficient capacity. (AS/NZS 1716 & 1715, EN 143:2000 & 149:2001, ANSI Z88 or national equivalent)

Where the concentration of gas/particulates in the breathing zone, approaches or exceeds the "Exposure Standard" (or ES), respiratory protection is required. Degree of protection varies with both face-piece and Class of filter; the nature of protection varies with Type of filter.

Required Minimum Protection Factor	Half-Face Respirator	Full-Face Respirator	Powered Air Respirator
up to 10 x ES	AK-AUS P2	-	AK-PAPR-AUS / Class 1 P2
up to 50 x ES	-	AK-AUS / Class 1 P2	-
up to 100 x ES	-	AK-2 P2	AK-PAPR-2 P2 ^

## ^ - Full-face

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)

\* 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.

# **SECTION 9** Physical and chemical properties

Information on basic physical and chemical properties					
Appearance	Off white, creamy thick liquid with a little odour; mixes with water. Viscosity: 6500-7500 cps (20degC)				
Physical state Liquid Relative density (Water = 1) 0.95-1.10					
Odour	Odour         Not Available         Partition coefficient n-octan / wat		Not Available		
Odour threshold			Not Available		
pH (as supplied)	8-9	Decomposition temperature	Not Available		
Melting point / freezing point (°C)	0	Viscosity (cSt)	Not Available		
Initial boiling point and boiling range (°C)	Not Available	Molecular weight (g/mol)	Not Applicable		
Flash point (°C)	>95	Taste	Not Available		

Evaporation rate	Not Available	Explosive properties	Not Available
Flammability	Not Applicable	Oxidising properties	Not Available
Upper Explosive Limit (%)	Not Available	Surface Tension (dyn/cm or mN/m)	Not Available
Lower Explosive Limit (%)	Not Available	Volatile Component (%vol)	Not Available
Vapour pressure (kPa)	Not Available	Gas group	Not Available
Solubility in water	Miscible	pH as a solution (1%)	Not Available
Vapour density (Air = 1)	Not Available	VOC g/L	Not Available

# **SECTION 10 Stability and reactivity**

Reactivity	ee section 7	
Chemical stability	<ul> <li>Unstable in the presence of incompatible materials.</li> <li>Product is considered stable.</li> <li>Hazardous polymerisation will not occur.</li> </ul>	
Possibility of hazardous reactions	See section 7	
Conditions to avoid	See section 7	
Incompatible materials	See section 7	
Hazardous decomposition products	See section 5	

# **SECTION 11 Toxicological information**

# Information on toxicological effects

Inhaled		t ns. The body's response to such irritation can cause further lung damage. d by the material during the course of normal handling, may be damaging to the health			
Ingestion	Accidental ingestion of the material may be damaging to the health of the individual. Ingestion may result in nausea, abdominal irritation, pain and vomiting				
Skin Contact	This material can cause inflammation of the skin on contact in some persons. The material may accentuate any pre-existing dermatitis condition Open cuts, abraded or irritated skin should not be exposed to this material Entry into the blood-stream, through, for example, cuts, abrasions 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.				
Eye	This material can cause eye irritation and damage in some	persons.			
Chronic	There has been some concern that this material can cause	ways disease, involving difficulty breathing and related whole-body problems. e cancer or mutations but there is not enough data to make an assessment. nd may cause some concern following repeated or long-term occupational exposure. I with the degenerative brain disease Alzheimer's Disease.			
	ΤΟΧΙΟΙΤΥ	IRRITATION			
AK10 Liquid Carbon Cut	Dermal (Rabbit) LD50: >2000 mg/kg <sup>[2]</sup>	Not Available			
	Oral (Rat) LD50: >5000 mg/kg <sup>[2]</sup>				
	ΤΟΧΙΟΙΤΥ	IRRITATION			
aluminium oxide	Oral(Rat) LD50; >2000 mg/kg <sup>[1]</sup>	Eye: no adverse effect observed (not irritating) <sup>[1]</sup>			
		Skin: no adverse effect observed (not irritating) <sup>[1]</sup>			
	ΤΟΧΙCITY	IRRITATION			
	Dermal (rabbit) LD50: >2000 mg/kg <sup>[1]</sup>	Eye: no adverse effect observed (not irritating) <sup>[1]</sup>			
white mineral oil (petroleum)	Oral(Rat) LD50; >5000 mg/kg <sup>[1]</sup>	Skin: adverse effect observed (irritating) <sup>[1]</sup>			
		Skin: no adverse effect observed (not irritating) <sup>[1]</sup>			
	ΤΟΧΙΟΙΤΥ	IRRITATION			
glycerol	dermal (guinea pig) LD50: 58.5 mg/kg <sup>[1]</sup>	Not Available			
	Oral(Rabbit) LD50; 0.027 mg/kg <sup>[2]</sup>				
	ΤΟΧΙΟΙΤΥ	IRRITATION			
distillates, petroleum, light,	Dermal (rabbit) LD50: >2000 mg/kg <sup>[2]</sup>	Eye: no adverse effect observed (not irritating) <sup>[1]</sup>			
hydrotreated	Inhalation(Rat) LC50; >5.2 mg/l4hrs <sup>[2]</sup>	Skin: adverse effect observed (irritating) <sup>[1]</sup>			
	Oral(Rat) LD50; >5000 mg/kg <sup>[2]</sup>				
	ΤΟΧΙCITY	IRRITATION			
castor oil	Oral(Rat) LD50; >4.60 mg/kg <sup>[1]</sup>	Eye (rabbit): 500 mg mild			

#### Skin (human): 50 mg/48h mild Skin (rabbit): 100 mg/24h SEVERE TOXICITY IRRITATION dermal (rat) LD50: >0.002 mg/kg<sup>[2]</sup> Eye (rabbit): 0.1 ml -Oral(Rat) LD50; 0.007 mg/kg<sup>[2]</sup> Eye (rabbit): 10 mg - mild Eye (rabbit): 5.62 mg - SEVERE triethanolamine minor conjunctival irritation no irritation \* Skin (human): 15 mg/3d (int)-mild Skin (rabbit): 4 h occluded Skin (rabbit): 560 mg/24 hr- mild ΤΟΧΙΟΙΤΥ IRRITATION water Oral(Rat) LD50; >90 mg/kg<sup>[2]</sup> Not Available 1. Value obtained from Europe ECHA Registered Substances - Acute toxicity 2.\* Value obtained from manufacturer's SDS. Unless otherwise Legend: specified data extracted from RTECS - Register of Toxic Effect of chemical Substances The materials included in the Lubricating Base Oils category are related from both process and physical-chemical perspectives; The potential toxicity of a specific distillate base oil is inversely related to the severity or extent of processing the oil has undergone, since: The adverse effects of these materials are associated with undesirable components, and The levels of the undesirable components are inversely related to the degree of processing; Distillate base oils receiving the same degree or extent of processing will have similar toxicities; The potential toxicity of residual base oils is independent of the degree of processing the oil receives. The reproductive and developmental toxicity of the distillate base oils is inversely related to the degree of processing. Unrefined & mildly refined distillate base oils contain the highest levels of undesirable components, have the largest variation of hydrocarbon molecules and have shown the highest potential cancer-causing and mutation-causing activities. Highly and severely refined distillate base oils are produced from unrefined and mildly refined oils by removing or transforming undesirable components. In comparison to unrefined and mildly refined base oils, the highly and severely refined distillate base oils have a smaller range of hydrocarbon molecules and have demonstrated very low mammalian toxicity. Testing of residual oils for mutation-causing and cancer-causing potential has shown negative results, supporting the WHITE MINERAL OIL belief that these materials lack biologically active components or the components are largely non-bioavailable due to their molecular size (PETROLEUM) Toxicity testing has consistently shown that lubricating base oils have low acute toxicities. Numerous tests have shown that a lubricating base oil's mutagenic and carcinogenic potential correlates with its 3-7 ring polycyclic aromatic compound (PAC) content, and the level of DMSO extractables (e.g. IP346 assay), both characteristics that are directly related to the degree/conditions of processing. For highly and severely refined distillate base oils: In animal studies, the acute, oral, semilethal dose is >5g/kg body weight and the semilethal dose by skin contact is >2g/kg body weight. The semilethal concentration for inhalation is 2.18 to >4 mg/L. The materials have varied from "non-irritating" to "moderately irritating" when tested for skin and eye irritation. Testing for sensitisation has been negative. The effects of repeated exposure vary by species; in animals, effects to the testes and lung have been observed, as well as the formation of granulomas. In animals, these substances have not been found to cause reproductive toxicity or significant increases in birth defects. They are also not considered to cause cancer, mutations or chromosome aberrations Oral (rat) TCLo: 92000 mg/kg/92D-Cont. Generally the toxicity and irritation is of low order. White oils and highly/solvent refined oils have not shown the long term risk of skin cancer that follows persistent skin contamination with some other mineral oils, due in all probability to refining that produces low content of both polyaromatics (PAH) and benz-alpha-pyrenes (BaP) At very high concentrations, evidence predicts that glycerol may cause tremor, irritation of the skin, eyes, digestive tract and airway. Otherwise it GLYCEROL is of low toxicity. There is no significant evidence to suggest that it causes cancer, genetic, reproductive or developmental toxicity. Animal studies indicate that normal, branched and cyclic paraffins are absorbed from the gastrointestinal tract and that the absorption of n-paraffins is inversely proportional to the carbon chain length, with little absorption above C30. With respect to the carbon chain lengths likely to be present in mineral oil, n-paraffins may be absorbed to a greater extent than iso- or cyclo-paraffins. The major classes of hydrocarbons are well absorbed into the gastrointestinal tract in various species. In many cases, the hydrophobic hydrocarbons are ingested in association with fats in the diet. Some hydrocarbons may appear unchanged as in the lipoprotein particles in the DISTILLATES. PETROLEUM. gut lymph, but most hydrocarbons partly separate from fats and undergo metabolism in the gut cell. The gut cell may play a major role in LIGHT. HYDROTREATED determining the proportion of hydrocarbon that becomes available to be deposited unchanged in peripheral tissues such as in the body fat stores or the liver. Kerosene may produce varying ranges of skin irritation, and a reversible eye irritation (if eyes are washed). Skin may be cracked or flaky and/or leathery, with crusts and/or hair loss. It may worsen skin cancers. There may also be loss of weight, discharge from the nose, excessive tiredness, and wheezing. The individual may be pale. There may be increase in the weight of body organs. There was no evidence of harm to pregnancy. For aliphatic fatty acids (and salts) Acute oral (gavage) toxicity: The acute oral LD50 values in rats for both were greater than >2000 mg/kg bw Clinical signs were generally associated with poor condition following administration of high doses (salivation, diarrhoea, staining, piloerection and lethargy). There were no adverse effects on body weight in any study In some studies, excess test substance and/or irritation in the gastrointestinal tract was observed at necropsy. Skin and eye irritation potential, with a few stated exceptions, is chain length dependent and decreases with increasing chain length According to several OECD test regimes the animal skin irritation studies indicate that the C6-10 aliphatic acids are severely irritating or corrosive, while the C12 aliphatic acid is irritating, and the C14-22 aliphatic acids generally are not irritating or mildly irritating Human skin irritation studies using more realistic exposures (30-minute,1-hour or 24-hours) indicate that the aliphatic acids have sufficient, good or very good skin compatibility CASTOR OIL Animal eye irritation studies indicate that among the aliphatic acids, the C8-12 aliphatic acids are irritating to the eye while the C14-22 aliphatic acids are not irritating. Eye irritation potential of the ammonium salts does not follow chain length dependence; the C18 ammonium salts are corrosive to the eyes. Dermal absorption: The in vitro penetration of C10, C12, C14, C16 and C18 fatty acids (as sodium salt solutions) through rat skin decreases with increasing chain length. At 86.73 ug C16/cm2 and 91.84 ug C18/cm2, about 0.23% and less than 0.1% of the C16 and C18 soap solutions is absorbed after 24 h exposure, respectively. Sensitisation: No sensitisation data were located. Repeat dose toxicity:

Repeated dose oral (gavage or diet) exposure to aliphatic acids did not result in systemic toxicity with NOAELs greater than the limit dose of 1000 ma/ka bw. Mutagenicity Aliphatic acids do not appear to be mutagenic or clastogenic in vitro or in vivo Carcinogenicity No data were located for carcinogenicity of aliphatic fatty acids. Reproductive toxicity No effects on fertility or on reproductive organs, or developmental effects were observed in studies on aliphatic acids and the NOAELs correspond to the maximum dose tested. The weight of evidence supports the lack of reproductive and developmental toxicity potential of the aliphatic acids category. Given the large number of substances in this category, their closely related chemical structure, expected trends in physical chemical properties, and similarity of toxicokinetic properties, both mammalian and aquatic endpoints were filled using read-across to the closest structural analogue, and selecting the most conservative supporting substance effect level. Structure-activity relationships are not evident for the mammalian toxicity endpoints. That is, the low mammalian toxicity of this category of substances limits the ability to discern structural effects on biological activity. Regardless, the closest structural analogue with the most conservative effect value was selected for read across. For group E aliphatic esters (polvol esters): The polyol esters, including trimethylolpropane (TMP). Pentaerythritol (PE) and dipentaerythritol (diPE) are unique in their chemical characteristics since they lack beta-tertiary hydrogen atoms, thus leading to stability against oxidation and elimination. Therefore their esters with C5-C10 fatty acids have applications as artificial lubricants. Because of their stability at high temperatures, they are also used in high temperature applications such as industrial oven chain oils, high temperature greases, fire resistant transformer coolants and turbine engines. Polyol esters that are extensively esterified also have greater polarity, less volatility and enhanced lubricating properties. Acute toxicity: Animal studies show relatively low toxicity by swallowing. These esters are hydrolysed in the gastrointestinal tract, and studies have not shown evidence of these accumulating in body tissues. Acute toxicity by skin contact was also found to be low. Repeat dose toxicity: According to animal testing, polyol esters show a low level of toxicity following repeated application, either by swallowing or by skin contact. Reproductive and developmental toxicity: This group should not produce profound reproductive effects in animals. Genetic toxicity: Tests have shown this group to be inactive. It is unlikely that these substances cause mutations. Cancer-causing potential: No association between this group of substances and cancer. For triglycerides: Carboxylic acid esters will undergo enzymatic hydrolysis by ubiquitously expressed GI esterases. The rate of hydrolysis is dependant on the structure of the ester, and may therefore be rapid or rather slow. Thus, due to hydrolysis, predictions on oral absorption based on the physicochemical characteristics of the intact parent substance alone may no longer apply. When considering the hydrolysis product glycerol, absorption is favoured based on passive and active absorption of glycerol. The Cosmetic Ingredient Review (CIR) Expert Panel has issued three final reports on the safety of 25 triglycerides, i.e., fatty acid triesters of glycerin High purity is needed for the triglycerides. Previously the Panel published a final report on a diglycerides, and concluded that the ingredients in the diglyceride family are safe in the present practices of use and concentration provided the content of 1,2-diesters is not high enough to induce epidermal hyperplasia. The Panel discussed that there was an increased level of concern because of data regarding the induction of protein kinase C (PKC) and the tumor promotion potential of 1,2-diacylglycerols. The Panel noted that, nominally, glyceryl-1,3-diesters contain 1,2-diesters, raising the concern that 1,2-diesters could potentially induce hyperplasia. The Panel did note that these compounds are more likely to cause these effects when the fatty acid chain length is <=14 carbons, when one fatty acid is saturated and one is not, and when given at high doses, repeatedly. Although minimal percutaneous absorption of triolein has been demonstrated in vivo using guinea pigs (but not hairless mice) and in vitro using full-thickness skin from hairless mice, the Expert Panel recognizes that, reportedly, triolein and tricaprylin can enhance the skin penetration of other chemicals, and recommends that care should be exercised in using these and other glyceryl triesters in cosmetic products. The Panel acknowledged that some of the triglycerides may be formed from plant-derived or animal-derived constituents. The Panel thus expressed concern regarding pesticide residues and heavy metals that may be present in botanical ingredients. They stressed that the cosmetics industry should continue to use the necessary procedures to sufficiently limit amounts of such impurities in an ingredient before blending them into cosmetic formulations. Additionally, the Panel considered the risks inherent in using animal-derived ingredients, namely the transmission of infectious agents. Some tumorigenic effects have been reported in animal studies using castor oil The castor seed contains ricin, a toxic protein. Heating during the oil extraction process denatures and inactivates the protein. However, harvesting castor beans may not be without risk. Allergenic compounds found on the plant surface can cause permanent nerve damage, making the harvest of castor beans a human health risk. The United States Food and Drug Administration (FDA) has categorized castor oil as "generally recognized as safe and effective" (GRASE) for over-the-counter use as a laxative with its major site of action the small intestine where it is digested into ricinoleic acid. Despite castor oil being widely used to start labor in pregnant women, to date there is not enough research to show whether it is effective to ripen the cervix or induce labour Due to its foul taste a heavy dose of castor oil was formerly used as a humiliating punishment for children and adults. Victims of this treatment did sometimes die, as the dehydrating effects of the oil-induced diarrhea; however, even those victims who survived had to bear the humiliation of the laxative effects resulting from excessive consumption of the oil. Several instances of sensitization to castor oil in cosmetics have been reported, including an allergic reaction to a make-up remover and contact dermatitis caused by use of a lipstick containing castor oil . Hypersensitivity reactions such as angioedema, rhinitis, asthma, and scarlatiniform rashes have been reported in factory workers involved in the extraction of castor oil , or in association with ingesting it . Relatively few studies of castor oil toxicity have been conducted with experimental animals, and no studies were located concerning its absorption, distribution, metabolism, or excretion.. The following information refers to contact allergens as a group and may not be specific to this product. Contact allergies quickly manifest themselves as contact eczema, more rarely as urticaria or Quincke's oedema. The pathogenesis of contact eczema involves a cell-mediated (T lymphocytes) immune reaction of the delayed type. Other allergic skin reactions, e.g. contact urticaria, involve antibody-mediated immune reactions. The significance of the contact allergen is not simply determined by its sensitisation potential: the distribution of the substance and the opportunities for contact with it are equally important. A weakly sensitising substance which is widely distributed can be a more important allergen than one with stronger sensitising potential with which few individuals come into contact. From a clinical point of view, substances are noteworthy if they produce an allergic test reaction in more than 1% of the persons tested. Overexposure to most of these materials may cause adverse health effects. Many amine-based compounds can cause release of histamines, which, in turn, can trigger allergic and other physiological effects, including constriction of the bronchi or asthma and inflammation of the cavity of the nose. Whole-body symptoms include headache, nausea, faintness, TRIETHANOLAMINE anxiety, a decrease in blood pressure, rapid heartbeat, itching, reddening of the skin, urticaria (hives) and swelling of the face, which are usually transient. There are generally four routes of possible or potential exposure: inhalation, skin contact, eye contact, and swallowing. Inhalation: Inhaling vapours may result in moderate to severe irritation of the tissues of the nose and throat and can irritate the lungs. Higher concentrations of certain amines can produce severe respiratory irritation, characterized by discharge from the nose, coughing, difficulty in breathing and chest pain. Chronic exposure via inhalation may cause headache, nausea, vomiting, drowsiness, sore throat, inflammation of the bronchi and lungs, and possible lung damage. Repeated and/or prolonged exposure to some amines may result in liver disorders, jaundice and liver enlargement. Some amines have been shown to cause kidney, blood and central nervous system disorders in animal studies. While most polyurethane amine catalysts are not sensitisers, some certain individuals may also become sensitized to amines and my experience

distress while breathing, including asthma-like attacks, whenever they are subsequently exposed to even very small amounts of vapours. Once sensitized, these individuals must avoid any further exposure to amines.

	<ul> <li>The material may produce severe irritation to the eye causing pronounced inflammation. Repeated or prolonged exposure to irritants may produce conjunctivitis.</li> <li>The material may cause skin irritation after prolonged or repeated exposure and may produce on contact skin redness, swelling, the production or vesicles, scaling and thickening of the skin.</li> <li>Studies done show that triethanolamine is of low toxicity following high dose exposure by swallowing, skin contact or inhalation. It has not been shown to cause cancer, genetic defects, reproductive or developmental toxicity.</li> <li>A Cosmetic Ingredient Review (CIR) expert panel conducted a review of triethanolamine-containing personal care products</li> <li>The panel was concerned with the levels of free diethanolamine that could be present as an impurity in TEA or TEA-containing ingredients. The panel stated that the amount of free diethanolamine available must be limited to the present practices of use and concentration of diethanolamine.</li> <li>The Panel concluded that TEA and 31 related TEA-containing ingredients, are safe when formulated to be nonirritating and when the levels of free diethanolamine do not exceed the prescribed levels. These ingredients should not be used in cosmetic products in which N-nitroso compounds can be formed.</li> <li>Dermal carcinogenicity studies performed by the NTP on TEA reported equivocal evidence of carcinogenic activity in male mice based on the occurrence of liver hemangiosarcoma, some evidence of carcinogenic activity in female mice based on a marginal increase in the incidence of real tubule cell adenoma. It has been hypothesized that TEA may cause liver tumours in mice via a choline-depletion mode of action. Humans are much less sensitive to this deficiency, and these hepatic findings are considered to have little relevance to humans regarding the safety of the use of TEA in personal care products.</li> <li>The panel specified that products containing ingredien</li></ul>			
ALUMINIUM OXIDE & DISTILLATES, PETROLEUM, LIGHT, HYDROTREATED & CASTOR OIL & WATER	No significant acute toxicological data identified in literature search.			
WHITE MINERAL OIL (PETROLEUM) & TRIETHANOLAMINE	The substance is classified by IARC as Group 3: NOT classifiable as to its carcinogenicity to humans. Evidence of carcinogenicity may be inadequate or limited in animal testing.			
GLYCEROL & TRIETHANOLAMINE	Asthma-like symptoms may continue for months or even years after exposure to the material ends. This may be due to a non-allergic condition known as reactive airways dysfunction syndrome (RADS) which can occur after exposure to high levels of highly irritating compound. Main criteria for diagnosing RADS include the absence of previous airways disease in a non-atopic individual, with sudden onset of persistent asthma-like symptoms within minutes to hours of a documented exposure to the irritant. Other criteria for diagnosis of RADS include a reversible airflow pattern on lung function tests, moderate to severe bronchial hyperreactivity on methacholine challenge testing, and the lack of minimal lymphocytic inflammation, without eosinophilia. RADS (or asthma) following an irritating inhalation is an infrequent disorder with rates related to the concentration of and duration of exposure to the irritating substance. On the other hand, industrial bronchitis is a disorder that occurs as a result of exposure due to high concentrations of irritating substance (often particles) and is completely reversible after exposure ceases. The disorder is characterized by difficulty breathing, cough and mucus production.			
Acute Toxicity	×	Carcinogenicity	×	
Skin Irritation/Corrosion	¥	Reproductivity	×	
Serious Eye Damage/Irritation	×	STOT - Single Exposure	✓	
Respiratory or Skin sensitisation	×	STOT - Repeated Exposure	×	
Mutagenicity	×	Aspiration Hazard	×	

**SECTION 12 Ecological information** 

KIC	

	Endpoint	Test Duration (hr)	Species	Value	Source
AK10 Liquid Carbon Cut	Not Available	Not Available	Not Available	Not Available	Not Available
	Endpoint	Test Duration (hr)	Species	Value	Source
	LC50	96	Fish	0.295684mg/L	2
aluminium oxide	EC50	48	Crustacea	0.7364mg/L	2
	EC50	96	Algae or other aquatic plants	0.0054mg/L	2
	NOEC	72	Algae or other aquatic plants	>=0.004mg/L	2
	Endpoint	Test Duration (hr)	Species	Value	Source
	LC50	96	Fish	1.13mg/L	2
vhite mineral oil (petroleum)	EC50	48	Crustacea	2mg/L	2
	NOEL	504	Crustacea	>=1mg/L	2
	Endpoint	Test Duration (hr)	Species	Value	Source
glycerol	LC50	96	Fish	>11mg/L	2

Legend:

X − Data either not available or does not fill the criteria for classification
✓ − Data available to make classification

	NOEL	48		Not Available		12ug/cm	4
	Endpoint	Test Duration (hr)		Species		Value	Source
	LC50	96		Fish		2.2-mg/L	4
distillates, petroleum, light, hydrotreated	EC50	48		Crustacea		1.4mg/L	2
nyurotreateu	EC50	72		Algae or other aquatic plants		3.7mg/L	2
	NOEL	96		Algae or other aquatic plants		0.2mg/L	2
	Endpoint	Test Duration (hr)		Species		Value	Source
	EC50	48		Crustacea		>100mg/L	2
castor oil	EC50	72		Algae or other aquatic plants		>100mg/L	2
	NOEC	72		Algae or other aquatic plants		100mg/L	2
	Endpoint	Test Duration (hr)	Specie	es	Value		Source
	LC50	96	Fish		-0.0010607-0.	0013007mg/L	4
triath an alamin a	EC50	48	Crusta	cea	-565.2-658.3m	ig/L	4
triethanolamine	EC50	72	Algae	or other aquatic plants	>107-<260mg	۲L	2
	EC10	96	Algae	or other aquatic plants	7.1mg/L		1
	NOEC	504	Crusta	cea	16mg/L		1
	Endpoint	Test Duration (hr)		Species		Value	Source
water	Not Available	Not Available		Not Available		Not Available	Not Available
Legend:	V3.12 (QSAR)	n 1. IUCLID Toxicity Data 2. Europe ECHA ) - Aquatic Toxicity Data (Estimated) 4. US (Japan) - Bioconcentration Data 7. METI (J	EPA, Eco	tox database - Aquatic Toxicity Da	ata 5. ECETOC Ad		

## for lubricating oil base stocks:

Vapor Pressure Vapor pressures of lubricating base oils are reported to be negligible. In one study, the experimentally measured vapour pressure of a solvent-dewaxed heavy paraffinic distillate base oil was 1.7 x 10exp-4 Pa . Since base oils are mixtures of C15 to C50 paraffinic, naphthenic, and aromatic hydrocarbon isomers, representative components of those structures were selected to calculate a range of vapor pressures. The estimated vapor pressure values for these selected components of base oils ranged from 4.5 x 10exp-1 Pa to 2 x 10exp-13Pa. Based on Dalton's Law the expected total vapour pressure for base oils would fall well below minimum levels (10exp-5 Pa) of recommended experimental procedures.

Partition Coefficient (log Kow): In mixtures such as the base oils, the percent distribution of the hydrocarbon groups (i.e., paraffins, naphthenes, and aromatics) and the carbon chain lengths determines in-part the partitioning characteristics of the mixture. Generally, hydrocarbon chains with fewer carbon atoms tend to have lower partition coefficients than those with higher carbon numbers. However, due to their complex composition, unequivocal determination of the log Kow of these hydrocarbon mixtures cannot be made.

## Persistence and degradability

Ingredient	Persistence: Water/Soil	Persistence: Air
glycerol	LOW	LOW
triethanolamine	LOW	LOW
water	LOW	LOW

#### **Bioaccumulative potential**

Ingredient	Bioaccumulation
glycerol	LOW (LogKOW = -1.76)
distillates, petroleum, light, hydrotreated	LOW (BCF = 159)
triethanolamine	LOW (BCF = 3.9)
water	LOW (LogKOW = -1.38)

## Mobility in soil

Ingredient	Mobility	
glycerol	GH (KOC = 1)	
triethanolamine	LOW (KOC = 10)	
water	LOW (KOC = 14.3)	

# **SECTION 13 Disposal considerations**

# Waste treatment methods 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:

Product / Packaging disposal

- Reuse
- Recycling
- Disposal (if all else fails)

Continued...

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.
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**

Labels Required		
Marine Pollutant	NO	
HAZCHEM	Not Applicable	

# Land transport (ADG): NOT REGULATED FOR TRANSPORT OF DANGEROUS GOODS

Air transport (ICAO-IATA / DGR): NOT REGULATED FOR TRANSPORT OF DANGEROUS GOODS

## Sea transport (IMDG-Code / GGVSee): NOT REGULATED FOR TRANSPORT OF DANGEROUS GOODS

# Transport in bulk according to Annex II of MARPOL and the IBC code

### Not Applicable

## Transport in bulk in accordance with MARPOL Annex V and the IMSBC Code

Product name	Group	
aluminium oxide	Not Available	
white mineral oil (petroleum)	Not Available	
glycerol	Not Available	
distillates, petroleum, light, hydrotreated	Not Available	
castor oil	Not Available	
triethanolamine	Not Available	
water	Not Available	

## Transport in bulk in accordance with the ICG Code

Product name	Ship Type	
aluminium oxide	Not Available	
white mineral oil (petroleum)	Not Available	
glycerol	Not Available	
distillates, petroleum, light, hydrotreated	Not Available	
castor oil	Not Available	
triethanolamine	Not Available	
water	Not Available	

# **SECTION 15 Regulatory information**

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

#### aluminium oxide is found on the following regulatory lists

Australian Inventory of Industrial Chemicals (AIIC)

Chemical Footprint Project - Chemicals of High Concern List

# white mineral oil (petroleum) is found on the following regulatory lists

Australian Inventory of Industrial Chemicals (AIIC)

Chemical Footprint Project - Chemicals of High Concern List

International Agency for Research on Cancer (IARC) - Agents Classified by the IARC Monographs

International Agency for Research on Cancer (IARC) - Agents Classified by the IARC Monographs - Group 1: Carcinogenic to humans

# glycerol is found on the following regulatory lists

Australian Inventory of Industrial Chemicals (AIIC)

## distillates, petroleum, light, hydrotreated is found on the following regulatory lists

Australia Hazardous Chemical Information System (HCIS) - Hazardous Chemicals

Australian Inventory of Industrial Chemicals (AIIC)

Chemical Footprint Project - Chemicals of High Concern List

International Agency for Research on Cancer (IARC) - Agents Classified by the IARC Monographs

International Agency for Research on Cancer (IARC) - Agents Classified by the IARC Monographs - Group 1: Carcinogenic to humans

# castor oil is found on the following regulatory lists

Australian Inventory of Industrial Chemicals (AIIC)

## triethanolamine is found on the following regulatory lists

Australia Hazardous Chemical Information System (HCIS) - Hazardous Chemicals Australia Standard for the Uniform Scheduling of Medicines and Poisons (SUSMP) - Schedule 4 Australia Standard for the Uniform Scheduling of Medicines and Poisons (SUSMP) - Schedule 5 Australian Inventory of Industrial Chemicals (AIIC) International Agency for Research on Cancer (IARC) - Agents Classified by the IARC Monographs

## water is found on the following regulatory lists

Australian Inventory of Industrial Chemicals (AIIC)

# **National Inventory Status**

National Inventory	Status			
Australia - AIIC / Australia Non-Industrial Use	Yes			
Canada - DSL	Yes			
Canada - NDSL	No (aluminium oxide; white mineral oil (petroleum); glycerol; distillates, petroleum, light, hydrotreated; castor oil; triethanolamine; water)			
China - IECSC	Yes			
Europe - EINEC / ELINCS / NLP	Yes			
Japan - ENCS	No (white mineral oil (petroleum))			
Korea - KECI	Yes			
New Zealand - NZIoC	Yes			
Philippines - PICCS	Yes			
USA - TSCA	Yes			
Taiwan - TCSI	Yes			
Mexico - INSQ	Yes			
Vietnam - NCI	Yes			
Russia - ARIPS	Yes			
Legend:	Yes = All CAS declared ingredients are on the inventory No = One or more of the CAS listed ingredients are not on the inventory and are not exempt from listing(see specific ingredients in brackets)			

## **SECTION 16 Other information**

Revision Date	01/11/2019
Initial Date	18/04/2017

## SDS Version Summary

Version	Issue Date	Sections Updated
2.1.1.1	18/04/2017	Acute Health (inhaled), Fire Fighter (extinguishing media), Fire Fighter (fire incompatibility), Handling Procedure, Ingredients, Personal Protection (Respirator), Toxicity and Irritation (Toxicity Figure)
5.1.1.1	01/11/2019	One-off system update. NOTE: This may or may not change the GHS classification

#### Other information

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.

The 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.