Fiberglass (A/Asia) Sales Pty Ltd

ABN 98 000 869 367

SAFETY DATA SHEET

ISSUED DATE: 10th September 2016 **Revision Date** 19-Dec- 2016 **Version** 1

Section 1: PRODUCT IDENTIFIER AND CHEMICAL IDENTITY

Product Identifier	
Product name	**AUSTHANE POLYOL AUE276 Part A**
Synonyms	Product Code: AUE276
Other means of identification	Plastifoam

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

Relevant identified uses	Part A liquid component of Polyurethane Foam System

Details of the manufacturer/importer

Registered company name	Australian Urethane Systems
Address	25 Garling Road Kings Park 2148 NSW Australia
Telephone	+61 2 9678 9833
Fax	+61 2 9678 9887
Website	http://www.ausurethane.com/
Email	sales@ausurethane.com

Emergency telephone number

Association / Organisation	Not Available
Emergency telephone numbers	1800 039 008
Other emergency telephone numbers	+800 2436 2255 (International)

CHEMWATCH EMERGENCY RESPONSE

Primary Number	**Alternative Number 1**	**Alternative Number 2**
1800 039 008	+612 9186 1132	Not Available

Once connected and if the message is not in your prefered language then please dial 01

Details of Distributor
Fiberglass (A/Asia) Sales Pty. Ltd.
2 Lincoln Street,
Minto NSW 2566

For further information, please contact
Contact Point Phone: (02) 9820 1144
Email: info@fiberglass-sales.com.au

Section 2: HAZARD(S) IDENTIFICATION

Classification of the substance or mixture

HAZARDOUS SUBSTANCE. NON-DANGEROUS GOODS. According to the Criteria of NOHSC, and the ADG Code.

CHEMWATCH HAZARD RATINGS

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

Poisons Schedule	Not Applicable
GHS Classification [1]	Flammable Liquid Category 3, Carcinogen Category 2, Reproductive Toxicity Category 2
Legend:	*1. Classified by Chemwatch; 2. Classification drawn from HSIS ; 3. Classification drawn from EC Directive 1272/2008 - Annex VI*

GHS Label elements

Signal word **Warning**

Hazard statements

H226	Flammable liquid and vapour
H351	Suspected causing cancer
H361	Suspected of damaging fertility or the unborn child

Precautionary Statements - Prevention

P201	Obtain special instructions before use
P210	Keep away from heat/sparks/open flames/hot surfaces. - No smoking
P233	Keep container tightly closed
P240	Ground/bond container and receiving equipment
P241	Use explosion-proof electrical/ ventilating/ lighting/ equipment
P242	Use only non-sparking tools
P243	Take precautionary measures against static discharge
P280	Wear protective gloves/protective clothing/face protection.

Precautionary Statements - Response

P308+P313	IF exposed or concerned: Get medical advice/attention
P370+P313	In case of fire: Use alcohol resistant foam or normal protein foam for extinction.
P303+P361+P353	IF ON SKIN (or hair): Remove Take off immediately all contaminated clothing. Rinse skin with water/shower

Precautionary Statements - Storage

P403+P235	Store in a well-ventilated place. Keep cool.
P405	Store locked up

Precautionary Statements - Disposal

P501	Dispose of contents/container to authorised chemical landfill or if organic to high temperature incineration

Section 3: COMPOSITION/INFORMATION ON INGREDIENTS

Substance See section below for composition of Mixtures

CAS No	Weight-	Chemical Name
9082-00-2	>60	polyethylene/ polypropylene glycol glyceryl ether
13674-84-5	10-30	tris(2-chloroisopropyl)phosphate
Not Available	<10	blowing agent proprietary
Not Available	<10	other ingredients at levels considered not to be hazardous

The specific chemical identity and/or exact percentage (concentration) of composition has been withheld as a trade secret.

Section 4: FIRST AID MEASURES

Description of first aid Measures

Eye Contact
If this product comes in contact with the eyes:
Wash out immediately with fresh running water.
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.
Seek medical attention without delay; if pain persists or recurs seek medical attention.
Removal of contact lenses after an eye injury should only be undertaken by skilled personnel.

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

Inhalation
If fumes, aerosols or combustion products are inhaled remove from contaminated area.
Other measures are usually unnecessary.

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.

Indication of any immediate medical attention and special treatment needed
Treat symptomatically.

Carbon dioxide.
Water spray or fog - Large fires only.

Special hazards arising from the substrate or mixture

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

Advice for firefighters

Fire Fighting
Alert Fire Brigade and tell them location and nature of hazard.
Wear breathing apparatus plus protective gloves.
Prevent, by any means available, spillage from entering drains or water course.
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 containers with water spray from a protected location.
If safe to do so, remove containers from path of 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 (CO2), phosphorus oxides (POx), other pyrolysis products typical of burning organic material

Section 6: ACCIDENTAL RELEASE MEASURES

Personal precautions, protective equipment and emergency procedures

Minor Spills
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 a suitable, labelled container for waste disposal.

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.
Stop leak if safe to do so.
Contain spill with sand, earth or vermiculite.
Collect recoverable product into labelled containers for recycling.
Absorb remaining product 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 occurs, advise emergency services.

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

Section 7: HANDLING AND STORAGE

Precautions for safe handling

Safe handling
Remove all ignition sources.
DO NOT allow clothing wet with material to stay in contact with skin
Limit all unnecessary personal contact.
Wear protective clothing when risk of exposure occurs.
Use in a well-ventilated area.
When handling **DO NOT** eat, drink or smoke.
Always wash hands with soap and water after handling.
Avoid physical damage to containers.
Use good occupational work practice.
Observe manufacturer's storage and handling recommendations contained within this MSDS.

Other information
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 and check regularly for leaks.

Observe manufacturer's storage and handling recommendations contained within this MSDS.

Conditions for safe storage, including any incompatibilities

Suitable container Metal can or drum
Packaging as recommended by manufacturer.
Check all containers are clearly labelled and free from leaks.

Storage incompatibility

Avoid storage with oxidisers

Section 8: EXPOSURE CONTROLS/PERSONAL PROTECTION

Control parameters

OCCUPATIONAL EXPOSURE LIMITS (OEL)

INGREDIENT DATA
Not Available

EMERGENCY LIMITS

Ingredient	Material name	TEEL-1	TEEL-2	TEEL-3
polyethylene/ polypropylene glycol glyceryl ether	Polyglycol 15-200; (Oxirane, 2-methyl-, polymer with oxirane, ether with 1,2,3-propanetriol (3:1); Calthane NF and ND "B")	30 mg/m3	330 mg/m3	2000 mg/m3

Ingredient	Original IDLH	Revised IDLH
polyethylene/ polypropylene glycol glyceryl ether	Not Available	Not Available
tris(2-chloroisopropyl)phosphate	Not Available	Not Available
blowing agent proprietary	Not Available	Not Available
other ingredients at levels considered not to be hazardous	Not Available	Not Available

Exposure controls

Appropriate engineering controls General exhaust is adequate under normal operating conditions.
Refer also to protective measures for the other component used with the product. Read both MSDS before using; store and attach MSDS together.

Personal protection

Eye and face protection Safety glasses with side shields.
Chemical goggles.
Contact lenses may pose a special hazard; soft contact lenses may absorb and concentrate irritants. A written policy document, describing the wearing of 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

Hands/feet protection Wear chemical protective gloves, e.g. PVC.
Wear safety footwear or safety gumboots, e.g. Rubber

Body protection See Other protection below
Other protection Overalls.
P.V.C. apron.
Barrier cream.
Skin cleansing cream.
Eye wash unit.

Thermal hazards Not Available

Recommended material(s)

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 ***computergenerated*** selection:
AUSTHANE POLYOL AUE276 Not Available

Material	CPI

* CPI - Chemwatch Performance Index
A: Best Selection
B: Satisfactory; may degrade after 4 hours continuous immersion
C: Poor to Dangerous Choice for other than short term immersion
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 A-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	A-AUS P2	-	A-PAPR-AUS / Class 1 P2
up to 50 x ES	-	A-AUS / Class 1 P2	-
up to 100 x ES	-	A-2 P2	A-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)

Section 9: PHYSICAL AND CHEMICAL PROPERTIES

Information on basic physical and chemical properties

Appearance Clear amber liquid with mild, pungent odour; partly mixes with water.

Physical state	Liquid	**Relative density (Water = 1)**	1.10
Odour	Not Available	**Partition coefficient n-octanol / water**	Not Available
Odour threshold	Not Available	**Auto-ignition temperature (°C)**	Not Available
pH (as supplied)	Not Applicable	**Decomposition temperature**	Not Available
Melting point / freezing point (°C)	Not Applicable	**Viscosity (cSt)**	Not Available
Initial boiling point and boiling range (°C)	Not Available	**Molecular weight (g/mol)**	Not Applicable
Flash point (°C)	>50 (ASTM D-92)	**Taste**	Not Available
Evaporation rate	Not Available	**Explosive properties**	Not Available
Flammability	Flammable.	**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)	<7 @ 25C	**Gas group**	Not Available
Solubility in water (g/L)	Partly Miscible	**pH as a solution (1%)**	Not Applicable
Vapour density (Air = 1)	>1	**VOC g/L**	Not Available

Section 10: STABILITY AND REACTIVITY

Reactivity	See Section 7
Chemical stability	Unstable in the presence of incompatible materials. Product is considered stable. Hazardous polymerisation will not occur.
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 likely routes of exposure

Inhaled Inhalation of vapours may cause drowsiness and dizziness. This may be accompanied by sleepiness, reduced alertness, loss of reflexes, lack of co-ordination, and vertigo.

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 There is some evidence to suggest that this material can cause inflammation of the skin on contact in some persons.

Eye There is some evidence to suggest that this material can cause eye irritation and damage in some persons.

Chronic There has been concern that this material can cause cancer or mutations, but there is not enough data to make an assessment. Based on experience with animal studies, exposure to the material may result in toxic effects to the development of the foetus, at levels which do not cause significant toxic effects to the mother.

AUSTHANE POLYOL	**TOXICITY**	**IRRITATION**
AUE276	Not Available	Not Available

extracted from RTECS - Register of Toxic Effect of chemical Substances

POLYETHYLENE/POLYPROPYLENE GLYCOL GLYCERYL ETHER

No significant acute toxicological data identified in literature search.

Non-chlorinated triphosphates have varying chemical, physical, toxicological and environmental properties. Blooming has been identified as a source of potential exposure (human and environmental) to triphosphate plasticisers / flame retardants. Blooming is the movement of an ingredient in rubber or plastic to the outer surface after curing. Blooming is quickened by increased temperature, and triphosphates are known to bloom from car interior plastics, TVs and computer monitors. These substances are absorbed to various organs, particularly the liver and kidney but also the brain. Excretion is rapid and mainly in the urine. Animal testing shows that they have low to moderate acute toxicity, and do not significantly irritate the skin and eye. TCEP has caused convulsions, brain lesions and impaired performance in animal testing. These substances have not been found to cause developmental toxicity or birth defects, but may reduce fertility. Data suggests that they do not cause mutations. Animal testing suggests that these substances, in particular TCEP, TDCPP and TDCiPP, can all cause tumours in various organs, including cancers. At high doses, they may also cause immunotoxicity.

For tris(2-chloro-1-methylethyl)phosphate (TCPP) The flame retardant product supplied in the EU, marketed as TCPP, is actually a reaction mixture containing four isomers. The individual isomers in this reaction mixture are not separated or marketed. The individual components are never produced as such. These data are true for TCPP produced by all EU manufacturers. The other isomers in the mixture include bis(1-chloro-2-propyl)-2-chloropropyl phosphate (CAS 76025-08-6); bis(2-chloropropyl)-1-chloro-2-propyl phosphate (CAS 76649-15-5) and tris(2-chloropropyl) phosphate (CAS 6145-73-9). The assumption is made that all isomers have identical properties in respect of risk assessment. The assumption is justified in part by the fact that they exhibit very similar chromatographic properties, even under conditions optimised to separate them. Predicted physicochemical properties differ to only a small extent.

Chlorinated alkyl phosphate esters (particularly TCPP) were identified as possible substitutes for the fire retardant pentabromodiphenyl ether They appear to be relatively persistent substances, and there is some human health concern. Three substances in this group have been characterised to a degree and serve as a read across reference for TCPP. They include tris(2-chloroethyl)phosphate (TCEP, CAS 115-96-8), tris[2-(chloro- 1-chloromethyl)ethyl]phosphate (TDCP, CAS 13674-87-8) and 2,2-bis(chloromethyl)trimethylene bis[bis(2-chloroethyl)phosphate] (V6, CAS 38051-10-4). Other flame retardants in this family, which do not appear as EU HPV (High Production Volume) substances, include tetrakis[2-(chloroethyl)ethylene)diphosphate (CAS 33125-86-9), tris (2,3-dichloro-1-propyl)phosphate (CAS 78-43-3, an isomer of TDCP))

Acute toxicity: The inhalation exposure studies in animals were somewhat equivocal and in general lacking in detailed information. One study yielded an LC50 of > 7 mg/L/4 hr. A limit test yielded an acute LC50 value of >4.6 mg/L/4h. No deaths occurred at this concentration. Toxic signs observed in this study, and in 2 further poorly reported studies, included mild lethargy, matted fur, acute bodyweight depression and convulsions. From the studies, it appears that TCPP is more toxic when administered whole body as aerosol than by nose-only exposure. This suggests that some of the systemic toxicity observed when TCPP is administered whole body may result from dermal or oral uptake, rather than inhalation. Therefore, it is concluded that TCPP is of low toxicity via the inhalation route.

Studies in rats indicated that TCPP is of moderate toxicity via the oral route of exposure, with LD50 values from the better quality studies ranging from 632 mg/kg up to 4200 mg/kg, with the majority of values determined to be <2000 mg/kg. Common clinical and macroscopic signs of toxicity observed on nearly all studies included depression, ataxia, hunched posture, lethargy, laboured respiration, increased salivation, partially closed eyelids, body tremors, pilo-erection, ptosis, haemorrhagic lungs and dark liver and/or kidneys. A NOAEL of 200 mg/kg can be identified for acute oral toxicity. This is taken from a 1996 study, in which no clinical signs of toxicity were observed in animals dosed with 200 mg/kg TCPP. Based on the results of the acute oral studies, TCPP should be classified with R22, harmful if swallowed.

TRIS(2- CHLOROISOPROPYL)PHOSPHATE

In a delayed neurotoxicity study conducted in hens, TCPP showed moderate toxicity. The principle effects were reduced mean body weight and food consumption, feather loss and cessation of laying. There was no evidence of inhibited plasma acetylcholinesterase or brain neurotoxic esterase enzyme levels. Therefore, there is no concern for acute delayed neurotoxicity for TCPP.

Studies in rats and rabbits indicated that TCPP is of low toxicity via the dermal route of exposure with LD50 values of >2000mg/kg.

There is an extensive database in animals, indicating that TCPP is non-irritant in the rabbit eye and skin. The lack of any

substantial skin or eye irritation and the lack of irritation observed in the acute inhalation studies suggest that TCPP would be unlikely to produce significant respiratory tract irritation.
Evidence from a guinea pig study as well as from a local lymph node assay, indicates that TCPP does not possess significant skin sensitization potential. No information is available on the respiratory sensitisation potential of TCPP.
Repeat dose toxicity: A study is available in which male and female rats were fed diets containing TCPP for 13 weeks at concentrations corresponding to mean substance intake values of up to 1349 mg/kg/day and 1745 mg/kg/day for males and females respectively. This study indicated the liver and thyroid to be the main target organs affected by TCPP. Effects observed included statistically significant increases in absolute and relative liver weights in males at all doses and females at the two highest doses, periportal hepatocyte swelling in high dose groups and mild thyroid follicular cell hyperplasia in males at all doses and females at the highest dose.Based on the increase in both absolute and relative liver weights, accompanied by mild thyroid follicular cell hyperplasia observed in males of all dose groups, a LOAEL of 52 mg/kg/day is derived and taken forward to risk characterisation. This LOAEL is taken forward in preference to the NOAEL which was identified in a 4-week study in which rats were dosed with TCPP at concentrations of 0, 10, 100 and 1000 mg/kg/day, as it was derived from a study of longer duration. The 4-week study also showed the liver as the target organ, with increased liver weight changes observed in the high dose groups, accompanied by hepatocyte hypertrophy in all high-dose males and one mid-dose male and changes in ALAT activity in high-dose animals.
A two-week study in which rats were fed diets of TCPP at concentrations corresponding to mean substance intake values of up to 1636 mg/kg/day for males and 1517 mg/kg/day for females showed no major clinical signs of toxicity. There was a significant reduction in weight gain and food consumption in high dose males during week 2, but there were no other significant findings.
In a 2-generation reproductive toxicity study in which rats were fed TCPP in the diet over two successive generations, the low-dose of 99 mg/kg for females is considered to be the LOAEL for parental toxicity. This is based on decreased body weight and food consumption seen in mid and high dose parental animals and the effects on uterus weight seen in all dosed animals. For males, a NOAEL of approximately 85 mg/kg is derived for parental toxicity, based on decreased body weights, food consumption and organ weight changes observed at mid and high dose groups.
No data are available on inhalation and dermal repeated dose toxicity.
Genotoxicity: The mutagenic potential of TCPP has been well investigated *in vitro*. Evidence from several bacterial mutagenicity studies shows that TCPP is not a bacterial cell mutagen. TCPP was also shown to be non-mutagenic in fungi. In mammalian cell studies, TCPP did not induce forward mutations at the TK locus in L5178Y mouse lymphoma cells in one study, but in a second study, the result was considered equivocal (in the presence of rat liver S9 fraction). A confirmatory mouse lymphoma was conducted in accordance with the relevant regulatory guidelines. The results of the assay indicate that TCPP shows clastogenic activity *in vitro* in the presence of metabolic activation. The main concern for TCPP is clastogenicity, owing to the clearly positive *in vitro* mouse lymphoma study. *In vivo*, TCPP was not clastogenic in a mouse bone marrow micronucleus test. TCPP did not induce an increase in chromosomal aberrations in a rat bone marrow cytogenetics assay. In order to further investigate the potential for TCPP to induce DNA damage, an *in vivo* Comet assay in the rat liver was conducted. The liver was chosen for comet analysis as TCPP caused an increased mutation frequency in the mouse lymphoma assay in the presence of S9 and also induced liver enlargement in repeat dose studies. Under the conditions of this study, TCPP did not induce DNA damage in the liver of rats treated with either 750 or 1500 mg/kg TCPP. Overall, it is considered that TCPP is not genotoxic *in vivo*.
Carcinogenicity: TCPP is structurally similar to two other chlorinated alkyl phosphate esters, TDCP (tris [2-chloro-1-(chloromethyl)ethyl] phosphate) and TCEP (tris (2-chloroethyl) phosphate). TDCP and TCEP are non-genotoxic carcinogens, in vivo, and have agreed classifications of Carc Cat 3 R40. Based on the available repeat dose toxicity data for TCPP, supported by a qualitative read-across from TDCP and TCEP, there is a potential concern for carcinogenicity for TCPP by a nongenotoxic mechanism. No quantitative read-across can be performed since there are no insights into an underlying mode of action for TCEP and TDCP which would make a prediction on a relatively potency of TCPP possible. Therefore, as a reasonable worst case approach, a risk characterisation will be carried out for this end-point.
It is proposed that the effects observed in the 90-day study for TCPP are taken as a starting point for risk characterisation. If these effects were to progress to cancer, they would do so by a non-genotoxic mechanism. Therefore, it is proposed that the LOAEL of 52 mg/kg/day, identified from the 90-day study with TCPP, should be used as a basis for risk characterisation of the carcinogenicity endpoint.
Reproductive toxicity: In a two-generation reproductive toxicity study with TCPP, there were no treatment related effects in pre-coital time, mating index, female fecundity index, male and female fertility index, duration of gestation and post-implantation loss. There was no effect on sperm parameters at necropsy. In females, the length of the longest oestrus cycle and the mean number of cycles per animal were statistically significantly increased in high dose animals of both generations. A decrease in uterus weight was observed in all dosed females in F0 and in high dose females in F1. Effects were also noted on pituitary weights, significant in high dose females of both generations. A LOAEL of 99 mg/kg is derived for effects on fertility. This is based on effects on the effect on uterus weight seen in all dosed females in F0 and high dose females in F1.
Developmental toxicity: From the same study, a LOAEL of 99 mg/kg is derived for developmental toxicity. This is based on a treatment related effect on the number of runts observed in all TCPP-treated groups of the F0 generation.
In a separate study, no treatment-related effects on foetal mortality, implantation number, resorption or foetal weight were observed following treatment of pregnant dams with TCPP. Cervical ribs and missing 13th ribs were noted at a low incidence in all treatment groups, but not in the control group. However, as a specific rib count undertaken in the 2-Generation study did not reveal an increase in this effect, it is concluded that this is not toxicologically significant. Weaning rate and rearing condition were unaffected by treatment and there was no evidence of any abnormality Alkyl esters of phosphoric acid exhibit a low to moderate acute toxicity and metabolised. From studies done on mice, they are not likely to cause gene damage or affect reproduction. However, 2-ethylhexanoic acid produced an effect on newborn rats at high doses to the pregnant female.

Acute Toxicity	▨	**Carcinogenicity**	■
Skin Irritation/Corrosion	▨	**Reproductivity**	■
Serious Eye Damage/Irritation	▨	**STOT - Single Exposure**	▨
Respiratory or Skin sensitization	▨	**STOT - Repeated Exposure**	▨
Mutagenicity	▨	**Aspiration Hazard**	▨

Legend: ■ *– Data required to make classification available*
X– Data available but does not fill the criteria for classification
▨ *– Data Not Available to make classification*

Section 12: ECOLOGICAL INFORMATION

Toxicitv

Environmental Fate: Chlorinated trisphosphates have low volatility thus there is low potential for transport into the air. Some trisphosphates may enter the waste water system through disposal of water containing trisphosphates from washed fabrics. These compounds are generally not biodegraded.
Atmospheric Fate: When released in the atmosphere, trisphosphates are degraded by reaction with atmospheric hydroxyl radicals.
Aquatic Fate: Trisphosphates are not biodegraded under aerobic condition. Chlorinated trisphosphates may enter the water system through seepage of landfill leachate that contains degraded polyurethane foam and polyester.
Terrestrial Fate: Trisphosphates have high affinity to organic components of soils and sediments. But due to high water solubility of these compounds, mobility in and from soil media will be high.
Ecotoxicity: Toxicity tests show that chlorinated trisphosphates such as TCEP and TCPP are slightly toxic to aquatic organisms at all trophic level, while TDCPP is moderately toxic to fish.
Moreover, these compounds are found to be slightly toxic to terrestrial species and aquatic green algae but they are non-toxic to sewage bacteria.

DO NOT discharge into sewer or waterways.

Persistence and degradability

Ingredient	Persistence: Water/Soil	Persistence: Air
tris(2- chloroisopropyl)phosphate	HIGH	HIGH

Bioaccumulative potential

Ingredient	Bioaccumulation
tris(2-chloroisopropyl)phosphate	LOW (BCF = 8)

Mobility in soil

Ingredient	Mobility
tris(2- chloroisopropyl)phosphate	LOW (KOC = 1278)

Section 13: DISPOSAL CONSIDERATIONS

Waste treatment methods

Product / Packaging disposal

Recycle wherever possible or consult manufacturer for recycling options.
Consult State Land Waste Management Authority for disposal.
Material may be disposed of by controlled burning in an approved incinerator or buried in an approved landfill.
Prior to disposal in a landfill the material should be mixed with the other component and reacted to render the material inert.
Extreme caution should be taken when heating the resin/curing agent mix.
Recycle containers where possible, or dispose of in an authorised landfill.

Small quantities < 20 kgs can be disposed of by reaction with PMDI Isocyanate in open top containers.|Wear full protective safety equipment as detailed in SECTION 8 of this MSDS and the MSDS for the Isocyanate component.|Mix in well ventilated area, in < 3 kg mix quantities. Allow at least 30 minutes cooling time between each mix to allow the reacted foam to cool before the next mix. After reaction into a solid foam, dispose of in solid waste.|For larger quantities, normally suitable for incineration by an approved agent.|Drain containers to remove ullage material. Rinse the container with dilute|detergent / water solution. Dispose of cleaned container appropriately.|Collect the rinse solution in an open container and absorb onto an inert absorbent|material. Allow water to evaporate and dispose of in solid waste.|Do not weld or use a cutting torch on or near drums, even if drained. Uncontaminated|empty drums will contain residual material which may decompose to emit toxic or|irritating fumes if burned or cut with a steel cutting torch.

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

Section 15: REGULATORY INFORMATION

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

POLYETHYLENE/ POLYPROPYLENE GLYCOL GLYCERYL ETHER(9082-00-2) IS FOUND ON THE FOLLOWING REGULATORY LISTS
Australia Inventory of Chemical Substances (AICS)

TRIS(2-CHLOROISOPROPYL)PHOSPHATE(13674-84-5) IS FOUND ON THE FOLLOWING REGULATORY LISTS
Australia Inventory of Chemical Substances (AICS)

National Inventory	Status
Australia - AICS	Y
Canada - DSL	Y
Canada - NDSL	N (polyethylene/ polypropylene glycol glyceryl ether; tris(2-chloroisopropyl)phosphate)
China - IECSC	Y
Europe - EINEC / ELINCS /NLP	N (polyethylene/ polypropylene glycol glyceryl ether)
Japan - ENCS	Y
Korea - KECI	Y
New Zealand – NZIoC	Y
Philippines - PICCS	Y
USA - TSCA	Y

Legend:
Y = All ingredients are on the inventory N = Not determined or one or more ingredients are not on the inventory and are not exempt from listing(see specific ingredients in brackets)

Section 16: ANY OTHER RELEVANT INFORMATION

Other information

Ingredients with multiple cas numbers

Name	CAS No
tris(2-chloroisopropyl)phosphate	1244733-77-4, 13674-84-5, 16839-32-0, 98112-32-4

Classification of the preparation and its individual components has drawn on official and authoritative sources as well as independent review by the Chemwatch Classification committee using available literature references.
A list of reference resources used to assist the committee may be found at:

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

End of Safety Data Sheet