

Carboguard 504 Part A

Altex Coatings Limited Material Safety Data Sheet (REVIEW)
Issue Date: 3-Aug-2012
XC477SP

Hazard Alert Code: **EXTREME**

ALTEX COATINGS LIMITED 9-38000
Version No:1
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Section 1 - CHEMICAL PRODUCT AND COMPANY IDENTIFICATION

PRODUCT NAME

Carboguard 504 Part A

STATEMENT OF HAZARDOUS NATURE

Considered a Hazardous Substance according to the criteria of the New Zealand Hazardous Substances New Organisms legislation.

CONSIDERED A DANGEROUS MIXTURE ACCORDING TO DIRECTIVE 1999/45/EC AND ITS AMENDMENTS.

CONSIDERED A HAZARDOUS SUBSTANCE ACCORDING TO OSHA 29 CFR 1910.1200.

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

PROPER SHIPPING NAME

PAINT RELATED MATERIAL

PRODUCT USE

Used according to manufacturer's directions.

Part A of a two pack epoxy coating

SUPPLIER

Company: Altex Coatings Ltd

Address:

91- 111 Oropi Road, Tauranga, NEW ZEALAND

CONTACTS

ALTEX COATINGS LIMITED

91-111 Oropi Road, Tauranga, New Zealand, 3112 - ☎+64 7 5411221, Fax +64 7 5411310

RESENE PAINTS (AUSTRALIA) LIMITED; T/A ALTEX COATINGS

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Section 2 - HAZARDS IDENTIFICATION

GHS Classification

Chronic Aquatic Hazard Category 3

Flammable Liquid Category 2

Reproductive Toxicity Category 1B

Respiratory Sensitizer Category 1

Serious Eye Damage Category 1

Skin Corrosion/Irritation Category 2

STOT - SE Category 3



EMERGENCY OVERVIEW

HAZARD

DANGER

Determined by Chemwatch using GHS/HSNO criteria

3.1B, 6.3A, 6.5A, 6.8A, 6.9, 8.3A, 9.1C.

HAZARD STATEMENTS

H225

Highly flammable liquid and vapour.

H315

Causes skin irritation.

H318

Causes serious eye damage.

H334

May cause allergy or asthma symptoms or breathing difficulties if inhaled.

H335

May cause respiratory irritation.

H360

May damage fertility or the unborn child.

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Section 2 - HAZARDS IDENTIFICATION

H412 Harmful to aquatic life with long lasting effects.

PRECAUTIONARY STATEMENTS

Prevention

Code	Phrase
P201	Obtain special instructions before use.
P202	Do not handle until all safety precautions have been read and understood.
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.
P261	Avoid breathing dust/fume/gas/mist/vapours/spray.
P264	Wash ... thoroughly after handling.
P271	Use only outdoors or in a well- ventilated area.
P273	Avoid release to the environment.
P280	Wear protective gloves/protective clothing/eye protection/face protection.
P281	Use personal protective equipment as required.
P285	In case of inadequate ventilation wear respiratory protection.

Response

Code	Phrase
P303+P361+P353	IF ON SKIN (or hair): Remove/Take off immediately all contaminated clothing. Rinse skin with water/shower.
P304+P340	IF INHALED: Remove victim to fresh air and keep at rest in a position comfortable for breathing.
P304+P341	IF INHALED: If breathing is difficult, remove victim to fresh air and keep at rest in a position comfortable for breathing.
P305+P351+P338	IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing.
P308+P313	IF exposed or concerned: Get medical advice/attention.
P310	Immediately call a POISON CENTER or doctor/physician.
P312	Call a POISON CENTER or doctor/physician if you feel unwell.
P342+P311	If experiencing respiratory symptoms: Call a POISON CENTER or doctor/physician.

Storage

Code	Phrase
P403+P233	Store in a well- ventilated place. Keep container tightly closed.
P403+P235	Store in a well- ventilated place. Keep cool.
P405	Store locked up.

Disposal

Code	Phrase
P501	Dispose of contents/container to ...

Section 3 - COMPOSITION / INFORMATION ON INGREDIENTS

NAME	CAS RN	%
bisphenol A/ epichlorohydrin resin, solid	25068-38-6	20 - 30
methyl isobutyl ketone	108-10-1	10 - 20
silica crystalline - quartz	14808-60-7	1 - 10
n- butanol	71-36-3	1 - 10
aromatic hydrocarbon solvent	64742-95-6.	1 - 10
propylene glycol monomethyl ether acetate		< 1
n- butyl acetate	123-86-4	< 1
toluene	108-88-3	< 1

Section 4 - FIRST AID MEASURES

NEW ZEALAND POISONS INFORMATION CENTRE 0800 POISON (0800 764 766)
NZ EMERGENCY SERVICES: 111

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Section 4 - FIRST AID MEASURES

SWALLOWED

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

EYE

- If this product comes in contact with the eyes:
- Immediately hold eyelids apart and flush the eye continuously with 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.
- Continue flushing until advised to stop by the Poisons Information Centre or a doctor, or for at least 15 minutes.
- Transport to hospital or doctor without delay.

SKIN

- 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.

INHALED

- 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 valve resuscitator, bag-valve mask device, or pocket mask as trained. Perform CPR if necessary.

NOTES TO PHYSICIAN

Treat symptomatically.

Section 5 - FIRE FIGHTING MEASURES

EXTINGUISHING MEDIA

- Foam.
- Dry chemical powder.
- BCF (where regulations permit).
- Carbon dioxide.

FIRE FIGHTING

- Alert Fire Brigade and tell them location and nature of hazard.
- May be violently or explosively reactive.
- Wear breathing apparatus plus protective gloves in the event of a fire.
- Prevent, by any means available, spillage from entering drains or water course.

FIRE/EXPLOSION HAZARD

- Liquid and vapour are highly flammable.
 - Severe fire hazard when exposed to heat, flame and/or oxidisers.
 - Vapour may travel a considerable distance to source of ignition.
 - Heating may cause expansion or decomposition leading to violent rupture of containers.
- Combustion products include: carbon dioxide (CO₂), aldehydes, formaldehyde, silicon dioxide (SiO₂), other pyrolysis products typical of burning organic material.
- WARNING: Long standing in contact with air and light may result in the formation of potentially explosive peroxides.

FIRE INCOMPATIBILITY

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

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Section 6 - ACCIDENTAL RELEASE MEASURES

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.

MAJOR SPILLS

- Clear area of personnel and move upwind.
- Alert Fire Brigade and tell them location and nature of hazard.
- May be violently or explosively reactive.
- Wear breathing apparatus plus protective gloves.

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

Section 7 - HANDLING AND STORAGE

PROCEDURE FOR HANDLING

- Containers, even those that have been emptied, may contain explosive vapours.
- Do NOT cut, drill, grind, weld or perform similar operations on or near containers.
- DO NOT allow clothing wet with material to stay in contact with skin.

The substance accumulates peroxides which may become hazardous only if it evaporates or is distilled or otherwise treated to concentrate the peroxides. The substance may concentrate around the container opening for example.

Purchases of peroxidisable chemicals should be restricted to ensure that the chemical is used completely before it can become peroxidised.

- A responsible person should maintain an inventory of peroxidisable chemicals or annotate the general chemical inventory to indicate which chemicals are subject to peroxidation. An expiration date should be determined. The chemical should either be treated to remove peroxides or disposed of before this date.
- Avoid all personal contact, including inhalation.
- Wear protective clothing when risk of exposure occurs.
- Use in a well-ventilated area.
- Prevent concentration in hollows and sumps.

SUITABLE CONTAINER

- Packing as supplied by manufacturer.
- Plastic containers may only be used if approved for flammable liquid.
- Check that containers are clearly labelled and free from leaks.
- For low viscosity materials (i) : Drums and jerry cans must be of the non-removable head type. (ii) : Where a can is to be used as an inner package, the can must have a screwed enclosure.
- For materials with a viscosity of at least 2680 cSt. (23 deg. C)
- For manufactured product having a viscosity of at least 250 cSt. (23 deg. C)
- Manufactured product that requires stirring before use and having a viscosity of at least 20 cSt (25 deg. C)
- (i) : Removable head packaging;
- (ii) : Cans with friction closures and
- (iii) : low pressure tubes and cartridges may be used.

STORAGE INCOMPATIBILITY

Barium sulfate (barytes)

- reacts violently with dimethyl sulfoxide, sodium acetylide, finely divided carbon, aluminium, magnesium, zirconium, and possibly other active metals, especially at elevated temperatures
- is incompatible with potassium, phosphorus (ignites when primed with nitrate-calcium silicide).

Methyl isobutyl ketone (MIBK)

- forms unstable and explosive peroxides on contact with air and/ or when in contact with hydrogen peroxide
- reacts violently with strong oxidisers, aldehydes, aliphatic amines, nitric acid, perchloric acid, potassium tert-butoxide, strong acids, reducing agents
- dissolves some plastics, resins and rubber.

For alkyl aromatics:

The alkyl side chain of aromatic rings can undergo oxidation by several mechanisms. The most common and dominant one is the attack by oxidation at benzylic carbon as the intermediate formed is stabilised by resonance structure of the ring.

- Following reaction with oxygen and under the influence of sunlight, a hydroperoxide at the alpha-position to the aromatic ring, is the primary oxidation product formed (provided a hydrogen atom is initially available at this position) - this product is often short-lived but may be stable dependent on the nature of the aromatic substitution; a secondary C-H bond is more easily

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Section 7 - HANDLING AND STORAGE

- attacked than a primary C-H bond whilst a tertiary C-H bond is even more susceptible to attack by oxygen
- Monoalkylbenzenes may subsequently form monocarboxylic acids; alkyl naphthalenes mainly produce the corresponding naphthalene carboxylic acids.
- Vigorous reactions, sometimes amounting to explosions, can result from the contact between aromatic rings and strong oxidising agents.
- Aromatics can react exothermically with bases and with diazo compounds.

Titanium dioxide

- reacts with strong acids, strong oxidisers
- reacts violently with aluminium, calcium, hydrazine, lithium (at around 200 deg C.), magnesium, potassium, sodium, zinc, especially at elevated temperatures - these reactions involves reduction of the oxide and are accompanied by incandescence
- dust or powders can ignite and then explode in a carbon dioxide atmosphere.
- Avoid reaction with amines, mercaptans, strong acids and oxidising agents.

Silicas:

- react with hydrofluoric acid to produce silicon tetrafluoride gas
- react with xenon hexafluoride to produce explosive xenon trioxide
- reacts exothermically with oxygen difluoride, and explosively with chlorine trifluoride (these halogenated materials are not commonplace industrial materials) and other fluorine-containing compounds
- may react with fluorine, chlorates.

Glycidyl ethers:

- may form unstable peroxides on storage in air ,light, sunlight, UV light or other ionising radiation, trace metals - inhibitor should be maintained at adequate levels
- may polymerise in contact with heat, organic and inorganic free radical producing initiators
- may polymerise with evolution of heat in contact with oxidisers, strong acids, bases and amines
- react violently with strong oxidisers, permanganates, peroxides, acyl halides, alkalis, ammonium persulfate, bromine dioxide.

STORAGE REQUIREMENTS

- Store in original containers in approved flame-proof area.
- No smoking, naked lights, heat or ignition sources.
- DO NOT store in pits, depressions, basements or areas where vapours may be trapped.
- Keep containers securely sealed.

Section 8 - EXPOSURE CONTROLS / PERSONAL PROTECTION

EXPOSURE CONTROLS

Source	Material	TWA ppm	TWA mg/m³	STEL ppm	STEL mg/m³	Peak ppm	Peak mg/m³	TWA F/CC	Notes
New Zealand Workplace Exposure Standards (WES)	Carboguard 504 Part A (Trimethyl benzene)	25	123						
New Zealand Workplace Exposure Standards (WES)	methyl isobutyl ketone (Methyl isobutyl ketone)	50	205	75	307				
New Zealand Workplace Exposure Standards (WES)	silica crystalline - quartz (Silica- Crystalline Quartz)		0.2 Respir able dust						2011 correction; Confirmed carcinogen
New Zealand Workplace Exposure Standards (WES)	n- butanol (n- Butyl alcohol)					50	150		skin
New Zealand Workplace Exposure Standards (WES)	aromatic hydrocarbon solvent (Petrol (Gasoline))	300	890	500	1, 480				
New Zealand Workplace Exposure Standards (WES)	n- butyl acetate (n- Butyl acetate)	150	713	200	950				

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Source	Material	TWA ppm	TWA mg/m ³	STEL ppm	STEL mg/m ³	Peak ppm	Peak mg/m ³	TWA F/CC	Notes
New Zealand Workplace Exposure Standards (WES)	toluene (Toluene)	50	188						skin

The following materials had no OELs on our records

• bisphenol A/ epichlorohydrin resin, solid:

CAS:25068- 38- 6 CAS:25085- 99- 8

MATERIAL DATA

METHYL ISOBUTYL KETONE:

N-BUTANOL:

N-BUTYL ACETATE:

Exposed individuals are reasonably expected to be warned, by smell, that the Exposure Standard is being exceeded.

Odour Safety Factor (OSF) is determined to fall into either Class A or B.

The Odour Safety Factor (OSF) is defined as:

OSF= Exposure Standard (TWA) ppm/ Odour Threshold Value (OTV) ppm

Classification into classes follows:

Class	OSF	Description
A	550	Over 90% of exposed individuals are aware by smell that the Exposure Standard (TLV- TWA for example) is being reached, even when distracted by working activities
B	26- 550	As " A" for 50- 90% of persons being distracted
C	1- 26	As " A" for less than 50% of persons being distracted
D	0.18- 1	10- 50% of persons aware of being tested perceive by smell that the Exposure Standard is being reached
E	<0.18	As " D" for less than 10% of persons aware of being tested

CARBOGUARD 504 PART A:

TOLUENE:

For toluene:

Odour Threshold Value: 0.16-6.7 (detection), 1.9-69 (recognition)

NOTE: Detector tubes measuring in excess of 5 ppm, are available.

High concentrations of toluene in the air produce depression of the central nervous system (CNS) in humans.

CARBOGUARD 504 PART A:

N-BUTANOL:

For n-butanol:

Odour Threshold Value: 0.12-3.4 ppm (detection), 1.0-3.5 ppm (recognition)

NOTE: Detector tubes for n-butanol, measuring in excess of 5 ppm are commercially available.

Exposure at or below the TLV-TWA is thought to provide protection against hearing loss due to vestibular and auditory nerve damage in younger workers and to protect against the significant risk of headache and irritation.

25 ppm may produce mild irritation of the respiratory tract 50 ppm may produce headache and vertigo.

Higher concentrations may produce marked irritation, sore throat, coughing, nausea, shortness of breath, pulmonary injury and central nervous system depression characterised by headache, dizziness, dullness and drowsiness.

CARBOGUARD 504 PART A:

METHYL ISOBUTYL KETONE:

for methyl isobutyl ketone (MIBK):

Unfatigued, odour recognition threshold (100% test panel) is 0.3 - 0.5 ppm.

Distinct odour at 15 ppm.

Odour is objectionable and vapours are irritating to eyes at 200 ppm.

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NOTE: Detector tubes for methyl isobutyl ketone, measuring in excess of 50 ppm, are commercially available.

AROMATIC HYDROCARBON SOLVENT:

CARBOGUARD 504 PART A:

For trimethyl benzene as mixed isomers (of unstated proportions)

Odour Threshold Value: 2.4 ppm (detection)

Use care in interpreting effects as a single isomer or other isomer mix. Trimethylbenzene is an eye, nose and respiratory irritant.

CARBOGUARD 504 PART A:

N-BUTYL ACETATE:

For n-butyl acetate

Odour Threshold Value: 0.0063 ppm (detection), 0.038-12 ppm (recognition)

Exposure at or below the recommended TLV-TWA is thought to prevent significant irritation of the eyes and respiratory passages as well as narcotic effects. In light of the lack of substantive evidence regarding teratogenicity and a review of acute oral data a STEL is considered inappropriate.

Odour Safety Factor(OSF)

OSF=3.8E2 (n-BUTYL ACETATE).

CARBOGUARD 504 PART A:

SILICA CRYSTALLINE - QUARTZ:

Because the margin of safety of the quartz TLV is not known with certainty and given the associated link between silicosis and lung cancer it is recommended that quartz concentrations be maintained as far below the TLV as prudent practices will allow.

CARBOGUARD 504 PART A:

For talc (a form of magnesium silicate):

Most health problems associated with occupational exposure to talcs appear to evolve mostly from the nonplatifform content of the talc being mined or milled (being the asbestos-like amphiboles, serpentines (asbestiformes) and other minerals in the form of acicular, prismatic and fibrous crystals including, possibly, asbestos).

Because of severe health effects associated with exposures to asbestos, regulatory agencies tend to regard all elongate mineral crystal particles, whether prismatic, acicular, fibrous, as asbestos - the only provision is the particles have an aspect ratio (length to diameter) of 3:1 or greater.</>.

The concentration of respirable dust for application of this limit is to be determined from the fraction that penetrates a separator whose size collection efficiency is described by a cumulative lognormal function with a median aerodynamic volume of 4.0 µm (+-) 0.3 µm and with a geometric standard deviation of 1.5 µm (+-) 0.1 µm, i.e.. less than 5 µm.

</>.

WARNING: For inhalation exposure ONLY: This substance has been classified by the IARC as Group 1: CARCINOGENIC TO HUMANS.

The International Agency for Research on Cancer (IARC) has classified occupational exposures to respirable (<5 µm) crystalline silica as being carcinogenic to humans . This classification is based on what IARC considered sufficient evidence from epidemiological studies of humans for the carcinogenicity of inhaled silica in the forms of quartz and cristobalite.

Intermittent exposure produces; focal fibrosis, (pneumoconiosis), cough, dyspnoea, liver tumours.

Barium sulfate has been identified as a nontoxic dust. However high dust levels have caused benign pneumoconiosis (baritosis).

Animals exposed by inhalation to 10 mg/m3 titanium dioxide show no significant fibrosis, possibly reversible tissue reaction.

The architecture of lung air spaces remains intact.

for barium compounds:

The recommended TLV-TWA is based on satisfactory results achieved while employing an internal limit for barium nitrate at a national laboratory. It is not known what degree of added safety this limit incorporates.

for propylene glycol monomethyl ether acetate (PGMEA)

Saturated vapour concentration: 4868 ppm at 20 C.

A two-week inhalation study found nasal effects to the nasal mucosa in animals at concentrations up to 3000 ppm.

BISPHENOL A/ EPICHLOROHYDRIN RESIN, SOLID:

It is the goal of the ACGIH (and other Agencies) to recommend TLVs (or their equivalent) for all substances for which there is evidence of health effects at airborne concentrations encountered in the workplace.

At this time no TLV has been established, even though this material may produce adverse health effects (as evidenced in animal experiments or clinical experience).

NOTE: The ACGIH occupational exposure standard for Particles Not Otherwise Specified (P.N.O.S) does NOT apply.

Sensory irritants are chemicals that produce temporary and undesirable side-effects on the eyes, nose or throat. Historically occupational exposure standards for these irritants have been based on observation of workers' responses to various airborne concentrations.

For epichlorohydrin

Odour Threshold Value: 0.08 ppm

NOTE: Detector tubes for epichlorohydrin, measuring in excess of 5 ppm, are commercially available.

Exposure at or below the recommended TLV-TWA is thought to minimise the potential for adverse respiratory, liver, kidney effects.

Odour Safety Factor (OSF)

OSF=0.54 (EPICHLOROHYDRIN).

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SILICA CRYSTALLINE - QUARTZ:

The concentration of dust, for application of respirable dust limits, is to be determined from the fraction that penetrates a separator whose size collection efficiency is described by a cumulative log-normal function with a median aerodynamic diameter of 4.0 µm (+-) 0.3 µm and with a geometric standard deviation of 1.5 µm (+-) 0.1 µm, i.e..generally less than 5 µm.

WARNING: For inhalation exposure ONLY:

This substance has been classified by the ACGIH as A2 Suspected Human Carcinogen.

AROMATIC HYDROCARBON SOLVENT:

Odour threshold: 0.25 ppm.

The TLV-TWA is protective against ocular and upper respiratory tract irritation and is recommended for bulk handling of gasoline based on calculations of hydrocarbon content of gasoline vapour.

for xylenes:

IDLH Level: 900 ppm

Odour Threshold Value: 20 ppm (detection), 40 ppm (recognition)

NOTE: Detector tubes for o-xylene, measuring in excess of 10 ppm, are available commercially. (m-xylene and p-xylene give almost the same response).

For cumene:

Odour Threshold Value: 0.008-0.132 ppm (detection), 0.047 ppm (recognition)

Exposure at or below the TLV-TWA is thought to prevent induction of narcosis.

CEL TWA: 50 ppm, 250 mg/m3 as total hydrocarbons [Manufacturer]

TOLUENE:

Exposure limits with "skin" notation indicate that vapour and liquid may be absorbed through intact skin. Absorption by skin may readily exceed vapour inhalation exposure. Symptoms for skin absorption are the same as for inhalation. Contact with eyes and mucous membranes may also contribute to overall exposure and may also invalidate the exposure standard.

PERSONAL PROTECTION

RESPIRATOR

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

EYE

- Safety glasses with side shields.
- Chemical goggles.
- Contact lenses may pose a special hazard; soft contact lenses may absorb and concentrate irritants. A written policy document, describing the wearing of lens or restrictions on use, should be created for each workplace or task. This should include a review of lens absorption and adsorption for the class of chemicals in use and an account of injury experience. Medical and first-aid personnel should be trained in their removal and suitable equipment should be readily available. In the event of chemical exposure, begin eye irrigation immediately and remove contact lens as soon as practicable. Lens should be removed at the first signs of eye redness or irritation - lens should be removed in a clean environment only after workers have washed hands thoroughly. [CDC NIOSH Current Intelligence Bulletin 59], [AS/NZS 1336 or national equivalent].

HANDS/FEET

■ NOTE:

- The material may produce skin sensitisation in predisposed individuals. Care must be taken, when removing gloves and other protective equipment, to avoid all possible skin contact.
 - Contaminated leather items, such as shoes, belts and watch-bands should be removed and destroyed.
- The selection of the 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.
- Suitability and durability of glove type is dependent on usage. Important factors in the selection of gloves include:.
- When handling liquid-grade epoxy resins wear chemically protective gloves (e.g nitrile or nitrile-butadiene rubber), boots and aprons.
 - DO NOT use cotton or leather (which absorb and concentrate the resin), polyvinyl chloride, rubber or polyethylene gloves (which absorb the resin).
 - DO NOT use barrier creams containing emulsified fats and oils as these may absorb the resin; silicone-based barrier creams should be reviewed prior to use.

OTHER

- Overalls.
- PVC Apron.
- PVC protective suit may be required if exposure severe.
- Eyewash unit.

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- Some plastic personal protective equipment (PPE) (e.g. gloves, aprons, overshoes) are not recommended as they may produce static electricity.
- For large scale or continuous use wear tight-weave non-static clothing (no metallic fasteners, cuffs or pockets), non sparking safety footwear.

ENGINEERING CONTROLS

■ 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.

Section 9 - PHYSICAL AND CHEMICAL PROPERTIES

APPEARANCE

Coloured with Characteristic Odour

PHYSICAL PROPERTIES

Liquid.			
Does not mix with water.			
Sinks in water.			
State	Liquid	Molecular Weight	
Melting Range (°C)		Viscosity	Not available
Boiling Range (°C)	97	Solubility in water (g/L)	Immiscible
Flash Point (°C)	7	pH (1% solution)	
Decomposition Temp (°C)	Not available	pH (as supplied)	
Autoignition Temp (°C)	451	Vapour Pressure (kPa)	6.6
Upper Explosive Limit (%)	10.9	Specific Gravity (water=1)	1.45
Lower Explosive Limit (%)	1.6	Relative Vapour Density (air=1)	2.8
Volatile Component (%vol)		Evaporation Rate	4.0
Material		Value	
log Kow values of 0.68 and 0.86. BAF and BCF		1 to 17 L./kg.	
log Kow		0.88	
log Kow		1.78;	
log Kow		2.1- 3;	

Section 10 - CHEMICAL STABILITY

CONDITIONS CONTRIBUTING TO INSTABILITY

- Presence of incompatible materials.
- Product is considered stable.
- Hazardous polymerisation will not occur.

For incompatible materials - refer to Section 7 - Handling and Storage.

Section 11 - TOXICOLOGICAL INFORMATION

POTENTIAL HEALTH EFFECTS

ACUTE HEALTH EFFECTS

SWALLOWED

■ Ingestion of soluble barium compounds may result in ulceration of the mucous membranes of the gastrointestinal tract, tightness in the muscles of the face and neck, gastroenteritis, vomiting, diarrhoea, muscular tremors and paralysis, anxiety, weakness,

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Altex Coatings Limited Material Safety Data Sheet (REVIEW)

Issue Date: 3-Aug-2012

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Section 11 - TOXICOLOGICAL INFORMATION

laboured breathing, cardiac irregularity due to contractions of smooth striated and cardiac muscles (often violent and painful), slow irregular pulse, hypertension, convulsions and respiratory failure.

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

EYE

- If applied to the eyes, this material causes severe eye damage.
- At concentrations of 100-200 ppm the vapour of MIBK may irritate the eyes and respiratory tract.

SKIN

- The material may cause mild but significant inflammation of the skin either following direct contact or after a delay of some time. Repeated exposure can cause contact dermatitis which is characterised by redness, swelling and blistering.
- 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.
- 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.

INHALED

- The material can cause respiratory irritation in some persons. The body's response to such irritation can cause further lung damage.
- The acute toxicity of inhaled alkylbenzenes is best described by central nervous system depression. As a rule, these compounds may also act as general anaesthetics.<</>
- The material has NOT been classified by EC Directives or other classification systems as "harmful by inhalation". This is because of the lack of corroborating animal or human evidence. In the absence of such evidence, care should be taken nevertheless to ensure exposure is kept to a minimum and that suitable control measures be used, in an occupational setting to control vapours, fumes and aerosols.
- On exposure to mixed trimethylbenzenes, some people may become nervous, tensed, anxious and have difficult breathing. There may be a reduction red blood cells and bleeding abnormalities. There may also be drowsiness.
- Human overexposure to MIBK vapour may produce a dose dependent effect, including weakness, loss of appetite, headache, burning sensation to the eyes, abdominal pain, nausea, vomiting, sore throat, sleeplessness, sleepiness, heartburn, intestinal pain, central nervous system depression, narcosis, weakness, headache and nausea. Toxic kidney and liver damage in rats, as well as memory and behaviour changes in the baboon have been reported.

CHRONIC HEALTH EFFECTS

- There is some evidence that inhaling this product is more likely to cause a sensitisation reaction in some persons compared to the general population.

Long-term exposure to respiratory irritants may result in disease of the airways involving difficult breathing and related systemic problems.

Skin contact with the material is more likely to cause a sensitisation reaction in some persons compared to the general population.

Harmful: danger of serious damage to health by prolonged exposure through inhalation.

This material can cause serious damage if one is exposed to it for long periods. It can be assumed that it contains a substance which can produce severe defects. This has been demonstrated via both short- and long-term experimentation.

Ample evidence exists from experimentation that reduced human fertility is directly caused by exposure to the material.

Substance accumulation, in the human body, may occur and may cause some concern following repeated or long-term occupational exposure.

Crystalline silicas activate the inflammatory response of white blood cells after they injure the lung epithelium. Chronic exposure to crystalline silicas reduces lung capacity and predisposes to chest infections. A large part of the crystals accumulates in the lungs. Silicosis can occur, a condition where irreversible scarring of the lung occurs. Symptoms do not appear until months to years after exposure. Smoking increases this risk. Most simple cases of silicosis do not produce symptoms, but they can progress and eventually cause a tuberculosis-like syndrome which can be fatal. When silicosis is advanced, there is an increased risk of lung cancer and lymphoma. Laws in some areas require those exposed to silica to be under health surveillance. Long term exposure to vermiculite usually causes few hazards in low concentration and does not cause cancer. Over years, scarring of the lungs may develop; however tuberculosis does not occur. Some ores of vermiculite contain silica which can produce its own toxic chronic health effects (eg. silicosis).

Glycidyl ethers can cause genetic damage and cancer.

There has been concern that this material can cause cancer or mutations, but there is not enough data to make an assessment.

MIBK may cause nerve changes leading to weakness and numbness. Long term occupational exposure may result in nausea, headache, burning eyes, and weakness. There may be drowsiness, sleeplessness, abdominal pain and slight liver enlargement.

Prolonged or repeated skin contact may cause drying with cracking, irritation and possible dermatitis following.

Chronic solvent inhalation exposures may result in nervous system impairment and liver and blood changes. [PATTYS].

continued...

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Section 11 - TOXICOLOGICAL INFORMATION

TOXICITY AND IRRITATION

~OTHER

■ 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.

Asthma-like symptoms may continue for months or even years after exposure to the material ceases. This may be due to a non-allergenic condition known as reactive airways dysfunction syndrome (RADS) which can occur following exposure to high levels of highly irritating compound.

No significant acute toxicological data identified in literature search.

For trimethylbenzenes:

Absorption of 1,2,4-trimethylbenzene occurs after oral, inhalation, or dermal exposure. Occupationally, inhalation and dermal exposures are the most important routes of absorption although systemic intoxication from dermal absorption is not likely to occur due to the dermal irritation caused by the chemical prompting quick removal.

The material may cause skin irritation after prolonged or repeated exposure and may produce on contact skin redness, swelling, the production of vesicles, scaling and thickening of the skin.

Oxiranes (including glycidyl ethers and alkyl oxides, and epoxides) exhibit many common characteristics with respect to animal toxicology. One such oxirane is ethyloxirane; data presented here may be taken as representative.

for 1,2-butylene oxide (ethyloxirane):

Ethyloxirane increased the incidence of tumours of the respiratory system in male and female rats exposed via inhalation.

Significant increases in nasal papillary adenomas and combined alveolar/bronchiolar adenomas and carcinomas were observed in male rats exposed to 1200 mg/m³ ethyloxirane via inhalation for 103 weeks.

CARCINOGEN

Methyl isobutyl ketone	International Agency for Research on Cancer (IARC) - Agents Reviewed by the IARC Monographs	Group	2B
Silica dust, crystalline, in the form of quartz or cristobalite	International Agency for Research on Cancer (IARC) - Agents Reviewed by the IARC Monographs	Group	1
Toluene	International Agency for Research on Cancer (IARC) - Agents Reviewed by the IARC Monographs	Group	3

REPROTOXIN

toluene	ILO Chemicals in the electronics industry that have toxic effects on reproduction	Reduced fertility or sterility
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SKIN

n- butanol	New Zealand Workplace Exposure Standards (WES) - Skin	Notes	skin
toluene	New Zealand Workplace Exposure Standards (WES) - Skin	Notes	skin

Section 12 - ECOLOGICAL INFORMATION

n-butanol 96 hr LC50 (100) mg/L Bluegill Fish Source: Experimental

n-butyl acetate 96 hr LC50 (100) mg/L Bluegill Fish Source: Experimental

toluene 48 hr EC50 (15.5) mg/L Daggerblade grass shrimp Crustacea Source: Experimental

Harmful to aquatic organisms, may cause long-term adverse effects in the aquatic environment.
This material and its container must be disposed of as hazardous waste.

Ecotoxicity

Ingredient	Persistence: Water/Soil	Persistence: Air	Bioaccumulation	Mobility
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Section 12 - ECOLOGICAL INFORMATION

bisphenol A/ epichlorohydrin resin, solid	HIGH	No Data Available	LOW	HIGH
methyl isobutyl ketone	LOW	LOW	LOW	HIGH
silica crystalline - quartz	No Data Available	No Data Available		
n- butanol	LOW	MED	LOW	HIGH
aromatic hydrocarbon solvent	No Data Available	No Data Available		
n- butyl acetate	LOW	No Data Available	LOW	HIGH
toluene	LOW	MED	LOW	MED

Section 13 - DISPOSAL CONSIDERATIONS

- 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 MSDS 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.
- A Hierarchy of Controls seems to be common - the user should investigate:
- Reduction.
 - 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.
 - Consult manufacturer for recycling options or consult local or regional waste management authority for disposal if no suitable treatment or disposal facility can be identified.
 - Dispose of by: burial in a land-fill specifically licenced to accept chemical and / or pharmaceutical wastes or Incineration in a licenced apparatus (after admixture with suitable combustible material).
 - Decontaminate empty containers. Observe all label safeguards until containers are cleaned and destroyed.
- Insure that the disposal of material is carried out in accordance with Hazardous Substances (Disposal) Regulations 2001.*

Section 14 - TRANSPORTATION INFORMATION



Labels Required: FLAMMABLE LIQUID

HAZCHEM:

•3YE

Land Transport UNDG:

Class or division:	3	Subsidiary risk:	None
UN No.:	1263	UN packing group:	II

Shipping Name: PAINT RELATED MATERIAL (including paint thinning or reducing compound)

Air Transport IATA:

ICAO/IATA Class:	3	ICAO/IATA Subrisk:	None
UN/ID Number:	1263	Packing Group:	II
Special provisions:	A3		
Cargo Only			
Packing Instructions:	364	Maximum Qty/Pack:	60 L
Passenger and Cargo			
Packing Instructions:	353	Maximum Qty/Pack:	5 L

continued...

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Section 14 - TRANSPORTATION INFORMATION

Passenger and Cargo Limited Quantity	Passenger and Cargo Limited Quantity
Packing Instructions: Y341	Maximum Qty/Pack: 1 L

Shipping name:PAINT RELATED MATERIAL

Maritime Transport IMDG:

IMDG Class:	3	IMDG Subrisk:	None
UN Number:	1263	Packing Group:	II
EMS Number:	F-E,S-E	Special provisions:	163
Limited Quantities:	5 L		

Shipping name:PAINT RELATED MATERIAL

Section 15 - REGULATORY INFORMATION

EPA Approval number

This substance is to be managed in accordance with the classification and controls specified in the Hazardous Substances Transfer Notice, 2004, (see table below). This substance may alternatively be managed under the conditions imposed by an applicable Group Standard.

HSR No.	HSR Name
HSR002495	Additives, Process Chemicals and Raw Materials (Flammable) Group Standard 2006
HSR002528	Cleaning Products (Flammable) Group Standard 2006
HSR002548	Corrosion Inhibitors (Flammable) Group Standard 2006
HSR002556	Dental Products (Flammable) Group Standard 2006
HSR002563	Embalming Products (Flammable) Group Standard 2006
HSR002583	Fuel Additives (Flammable) Group Standard 2006
HSR002599	Leather and Textile Products (Flammable) Group Standard 2006
HSR002611	Metal Industry Products (Flammable) Group Standard 2006
HSR002621	N.O.S. (Flammable) Group Standard 2006
HSR002637	Photographic Chemicals (Flammable) Group Standard 2006
HSR002641	Polymers (Flammable) Group Standard 2006
HSR002650	Solvents (Flammable) Group Standard 2006
HSR002662	Surface Coatings and Colourants (Flammable) Group Standard 2006
HSR100425	Pharmaceutical Active Ingredients Group Standard 2010
HSR002603	Lubricants (Flammable) Group Standard 2006

REGULATIONS

Carboguard 504 Part A (CAS:) is found on the following regulatory lists;

"IMO IBC Code Chapter 17: Summary of minimum requirements", "IMO Provisional Categorization of Liquid Substances - List 2: Pollutant only mixtures containing at least 99% by weight of components already assessed by IMO", "New Zealand Workplace Exposure Standards (WES)"

Regulations for ingredients

bisphenol A/ epichlorohydrin resin, solid (CAS: 25068-38-6, 25085-99-8) is found on the following regulatory lists;

"New Zealand Hazardous Substances and New Organisms (HSNO) Act - Chemicals (single components)", "New Zealand Hazardous Substances and New Organisms (HSNO) Act - Classification of Chemicals", "New Zealand Hazardous Substances and New Organisms (HSNO) Act - Classification of Chemicals - Classification Data", "New Zealand Inventory of Chemicals (NZIoC)", "OECD List of High Production Volume (HPV) Chemicals", "OSPAR National List of Candidates for Substitution – Norway", "OSPAR National List of Candidates for Substitution – United Kingdom"

methyl isobutyl ketone (CAS: 108-10-1) is found on the following regulatory lists;

"GESAMP/EHS Composite List - GESAMP Hazard Profiles", "IMO IBC Code Chapter 17: Summary of minimum requirements", "IMO MARPOL 73/78 (Annex II) - List of Noxious Liquid Substances Carried in Bulk", "International Agency for Research on Cancer (IARC) - Agents Reviewed by the IARC Monographs", "International Fragrance Association (IFRA) Survey: Transparency List", "New Zealand Hazardous Substances and New Organisms (HSNO) Act - Classification of Chemicals", "New Zealand Hazardous Substances and New Organisms (HSNO) Act - Classification of Chemicals - Classification Data", "New Zealand Hazardous Substances and New Organisms (HSNO) Act - Dangerous Goods", "New Zealand Inventory of Chemicals (NZIoC)", "New Zealand Workplace Exposure Standards (WES)", "OECD List of High Production Volume (HPV) Chemicals", "OSPAR National List of Candidates for Substitution – Norway"

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Section 15 - REGULATORY INFORMATION

silica crystalline - quartz (CAS: 14808-60-7, 122304-48-7, 122304-49-8, 12425-26-2, 1317-79-9, 70594-95-5, 87347-84-0) is found on the following regulatory lists;

"International Agency for Research on Cancer (IARC) - Agents Reviewed by the IARC Monographs", "International Fragrance Association (IFRA) Survey: Transparency List", "New Zealand Hazardous Substances and New Organisms (HSNO) Act - Chemicals (single components)", "New Zealand Hazardous Substances and New Organisms (HSNO) Act - Classification of Chemicals", "New Zealand Hazardous Substances and New Organisms (HSNO) Act - Classification of Chemicals - Classification Data", "New Zealand Inventory of Chemicals (NZIoC)", "New Zealand Workplace Exposure Standards (WES)", "OECD List of High Production Volume (HPV) Chemicals", "United Nations Consolidated List of Products Whose Consumption and/or Sale Have Been Banned, Withdrawn, Severely Restricted or Not Approved by Governments"

n-butanol (CAS: 71-36-3) is found on the following regulatory lists;

"GESAMP/EHS Composite List - GESAMP Hazard Profiles", "IMO IBC Code Chapter 17: Summary of minimum requirements", "IMO IBC Code Chapter 18: List of products to which the Code does not apply", "IMO MARPOL 73/78 (Annex II) - List of Other Liquid Substances", "International Council of Chemical Associations (ICCA) - High Production Volume List", "International Fragrance Association (IFRA) Survey: Transparency List", "New Zealand Hazardous Substances and New Organisms (HSNO) Act - Chemicals (single components)", "New Zealand Hazardous Substances and New Organisms (HSNO) Act - Classification of Chemicals", "New Zealand Hazardous Substances and New Organisms (HSNO) Act - Classification of Chemicals - Classification Data", "New Zealand Hazardous Substances and New Organisms (HSNO) Act - Dangerous Goods", "New Zealand Inventory of Chemicals (NZIoC)", "New Zealand Workplace Exposure Standards (WES)", "OECD List of High Production Volume (HPV) Chemicals", "OSPAR National List of Candidates for Substitution – Norway"

aromatic hydrocarbon solvent (CAS: 64742-95-6) is found on the following regulatory lists;

"GESAMP/EHS Composite List - GESAMP Hazard Profiles", "IMO IBC Code Chapter 17: Summary of minimum requirements", "IMO MARPOL 73/78 (Annex II) - List of Noxious Liquid Substances Carried in Bulk", "IMO Provisional Categorization of Liquid Substances - List 2: Pollutant only mixtures containing at least 99% by weight of components already assessed by IMO", "IMO Provisional Categorization of Liquid Substances - List 3: (Trade-named) mixtures containing at least 99% by weight of components already assessed by IMO, presenting safety hazards", "International Agency for Research on Cancer (IARC) - Agents Reviewed by the IARC Monographs", "International Council of Chemical Associations (ICCA) - High Production Volume List", "International Fragrance Association (IFRA) Survey: Transparency List", "International Maritime Dangerous Goods Requirements (IMDG Code) - Substance Index", "New Zealand Hazardous Substances and New Organisms (HSNO) Act - Classification of Chemicals - Classification Data", "New Zealand Inventory of Chemicals (NZIoC)", "New Zealand Workplace Exposure Standards (WES)", "OECD List of High Production Volume (HPV) Chemicals", "OSPAR List of Chemicals for Priority Action", "OSPAR National List of Candidates for Substitution – Norway", "WHO Guidelines for Drinking-water Quality - Guideline values for chemicals that are of health significance in drinking-water"

n-butyl acetate (CAS: 123-86-4) is found on the following regulatory lists;

"GESAMP/EHS Composite List - GESAMP Hazard Profiles", "IMO IBC Code Chapter 17: Summary of minimum requirements", "IMO MARPOL 73/78 (Annex II) - List of Noxious Liquid Substances Carried in Bulk", "International Council of Chemical Associations (ICCA) - High Production Volume List", "International Fragrance Association (IFRA) Survey: Transparency List", "New Zealand Hazardous Substances and New Organisms (HSNO) Act - Chemicals (single components)", "New Zealand Hazardous Substances and New Organisms (HSNO) Act - Classification of Chemicals", "New Zealand Hazardous Substances and New Organisms (HSNO) Act - Classification of Chemicals - Classification Data", "New Zealand Inventory of Chemicals (NZIoC)", "New Zealand Workplace Exposure Standards (WES)", "OECD List of High Production Volume (HPV) Chemicals", "OSPAR National List of Candidates for Substitution – Norway"

toluene (CAS: 108-88-3) is found on the following regulatory lists;

"GESAMP/EHS Composite List - GESAMP Hazard Profiles", "IMO IBC Code Chapter 17: Summary of minimum requirements", "IMO MARPOL 73/78 (Annex II) - List of Noxious Liquid Substances Carried in Bulk", "IMO Provisional Categorization of Liquid Substances - List 3: (Trade-named) mixtures containing at least 99% by weight of components already assessed by IMO, presenting safety hazards", "International Agency for Research on Cancer (IARC) - Agents Reviewed by the IARC Monographs", "International Fragrance Association (IFRA) Standards Prohibited", "International Fragrance Association (IFRA) Survey: Transparency List", "New Zealand Hazardous Substances and New Organisms (HSNO) Act - Classification of Chemicals", "New Zealand Hazardous Substances and New Organisms (HSNO) Act - Classification of Chemicals - Classification Data", "New Zealand Hazardous Substances and New Organisms (HSNO) Act - Dangerous Goods", "New Zealand Inventory of Chemicals (NZIoC)", "New Zealand Workplace Exposure Standards (WES)", "OECD List of High Production Volume (HPV) Chemicals", "OSPAR List of Chemicals for Priority Action", "United Nations Consolidated List of Products Whose Consumption and/or Sale Have Been Banned, Withdrawn, Severely Restricted or Not Approved by Governments", "United Nations Convention Against Illicit Traffic in Narcotic Drugs and Psychotropic Substances - Table II", "United Nations List of Precursors and Chemicals Frequently used in the Illicit Manufacture of Narcotic Drugs and Psychotropic Substances Under International Control (Red List) - Table II", "WHO Guidelines for Drinking-water Quality - Guideline values for chemicals that are of health significance in drinking-water"

talco (CAS: 14807-96-6) is found on the following regulatory lists;

"CODEX General Standard for Food Additives (GSFA) - Additives Permitted for Use in Food in General, Unless Otherwise Specified, in Accordance with GMP", "International Agency for Research on Cancer (IARC) - Agents Reviewed by the IARC Monographs", "New Zealand Cosmetic Products Group Standard - Schedule 5: Components Cosmetic Products May Contain With Restrictions", "New Zealand Hazardous Substances and New Organisms (HSNO) Act - Classification of Chemicals - Classification Data", "New Zealand Inventory of Chemicals (NZIoC)", "New Zealand Workplace Exposure Standards (WES)", "OECD List of High Production Volume (HPV) Chemicals", "WHO Food Additives Series - Food Additives considered for specifications only"

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Section 15 - REGULATORY INFORMATION

titanium dioxide (CAS: 13463-67-7, 1317-70-0, 1317-80-2, 12188-41-9, 1309-63-3, 100292-32-8, 101239-53-6, 116788-85-3, 12000-59-8, 12701-76-7, 12767-65-6, 12789-63-8, 1344-29-2, 185323-71-1, 185828-91-5, 188357-76-8, 188357-79-1, 195740-11-5, 221548-98-7, 224963-00-2, 246178-32-5, 252962-41-7, 37230-92-5, 37230-94-7, 37230-95-8, 37230-96-9, 39320-58-6, 39360-64-0, 39379-02-7, 416845-43-7, 494848-07-6, 494848-23-6, 494851-77-3, 494851-98-8, 55068-84-3, 55068-85-4, 552316-51-5, 62338-64-1, 767341-00-4, 97929-50-5, 98084-96-9) is found on the following regulatory lists;

"CODEX General Standard for Food Additives (GSFA) - Additives Permitted for Use in Food in General, Unless Otherwise Specified, in Accordance with GMP", "GESAMP/EHS Composite List - GESAMP Hazard Profiles", "IMO IBC Code Chapter 17: Summary of minimum requirements", "International Agency for Research on Cancer (IARC) - Agents Reviewed by the IARC Monographs", "International Fragrance Association (IFRA) Survey: Transparency List", "New Zealand Cosmetic Products Group Standard - Schedule 6 Colouring Agents Cosmetic Products May Contain With Restrictions- Table 1: List fo Colouring Agents Allowed for use in Cosmetic Products", "New Zealand Cosmetic Products Group Standard - Schedule 8: UV Filters Cosmetic Products May Contain With Restrictions - Table 1: List of Permitted UV Filters which Cosmetic Products may contain", "New Zealand Inventory of Chemicals (NZIoC)", "New Zealand Workplace Exposure Standards (WES)", "OECD List of High Production Volume (HPV) Chemicals"

C.I. Pigment Yellow 42 (CAS: 51274-00-1, 12259-21-1, 105478-30-6, 53028-10-7, 1342-51-4, 12000-32-7, 50641-37-7, 51109-85-4, 99241-66-4, 131462-81-2, 147625-38-5, 12001-03-5, 185464-57-7, 182761-12-2, 94809-98-0, 934248-40-5) is found on the following regulatory lists;

"New Zealand Cosmetic Products Group Standard - Schedule 6 Colouring Agents Cosmetic Products May Contain With Restrictions- Table 1: List fo Colouring Agents Allowed for use in Cosmetic Products", "New Zealand Inventory of Chemicals (NZIoC)", "New Zealand Workplace Exposure Standards (WES)", "OECD List of High Production Volume (HPV) Chemicals"

C.I. Pigment Red 101; C.I. Pigment Red 102 (CAS: 1309-37-1) is found on the following regulatory lists;

"International Agency for Research on Cancer (IARC) - Agents Reviewed by the IARC Monographs", "International Council of Chemical Associations (ICCA) - High Production Volume List", "New Zealand Cosmetic Products Group Standard - Schedule 6 Colouring Agents Cosmetic Products May Contain With Restrictions- Table 1: List fo Colouring Agents Allowed for use in Cosmetic Products", "New Zealand Inventory of Chemicals (NZIoC)", "New Zealand Workplace Exposure Standards (WES)", "OECD List of High Production Volume (HPV) Chemicals"

Specific advice on controls required for materials used in New Zealand can be found at www.epa.govt.nz/search-databases/Pages/controls-search.aspx

Section 16 - OTHER INFORMATION

NEW ZEALAND POISONS INFORMATION CENTRE
0800 POISON (0800 764 766)
NZ EMERGENCY SERVICES: 111

INGREDIENTS WITH MULTIPLE CAS NUMBERS

Ingredient Name	CAS					
bisphenol A/ epichlorohydrin resin, solid	25068-38-6,	25085-99-8				
silica crystalline - quartz	14808-60-7,	122304-48-7,	122304-49-8,	12425-26-2,	1317-79-9,	70594-95-5,
84-0						

■ Classification of the preparation and its individual components has drawn on official and authoritative sources using available literature references.

■ The (M)SDS is a Hazard Communication tool and should be used to assist in the Risk Assessment. Many factors determine whether the reported Hazards are Risks in the workplace or other settings.

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Carboguard 504 Part B

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Section 1 - CHEMICAL PRODUCT AND COMPANY IDENTIFICATION

PRODUCT NAME

Carboguard 504 Part B

STATEMENT OF HAZARDOUS NATURE

Considered a Hazardous Substance according to the criteria of the New Zealand Hazardous Substances New Organisms legislation.
CONSIDERED A DANGEROUS MIXTURE ACCORDING TO DIRECTIVE 1999/45/EC AND ITS AMENDMENTS.
CONSIDERED A HAZARDOUS SUBSTANCE ACCORDING TO OSHA 29 CFR 1910.1200.
HAZARDOUS SUBSTANCE. DANGEROUS GOODS. According to the Criteria of NOHSC, and the ADG Code.

PROPER SHIPPING NAME

PAINT RELATED MATERIAL, FLAMMABLE, CORROSIVE

PRODUCT USE

Used according to manufacturer's directions.
Part B of a two pack epoxy coating

SUPPLIER

Company: Altex Coatings Ltd
Address:
91- 111 Oropi Road, Tauranga, NEW ZEALAND

Telephone: +64 7 5411974
Fax: +64 7 5411310

Section 2 - HAZARDS IDENTIFICATION

GHS Classification

Chronic Aquatic Hazard Category 3
Flammable Liquid Category 3
Metal Corrosion Category 1
Reproductive Toxicity Category 1B
Respiratory Sensitizer Category 1
Serious Eye Damage Category 1
Skin Corrosion/Irritation Category 1C
Skin Sensitizer Category 1



EMERGENCY OVERVIEW

HAZARD

DANGER

Determined by Chemwatch using GHS/HSNO criteria
3.1C, 6.5A, 6.5B, 6.8A, 8.1A, 8.2C, 8.3A, 9.1C.

HAZARD STATEMENTS

H226	Flammable liquid and vapour.
H290	May be corrosive to metals.
H314	Causes severe skin burns and eye damage.
H317	May cause an allergic skin reaction.
H334	May cause allergy or asthma symptoms or breathing difficulties if inhaled.

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Section 2 - HAZARDS IDENTIFICATION

H360 May damage fertility or the unborn child.
H412 Harmful to aquatic life with long lasting effects.

PRECAUTIONARY STATEMENTS

Prevention

Code	Phrase
P201	Obtain special instructions before use.
P202	Do not handle until all safety precautions have been read and understood.
P210	Keep away from heat/sparks/open flames/hot surfaces. - No smoking.
P233	Keep container tightly closed.
P234	Keep only in original container.
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.
P260	Do not breathe dust/fume/gas/mist/vapours/spray.
P261	Avoid breathing dust/fume/gas/mist/vapours/spray.
P264	Wash ... thoroughly after handling.
P272	Contaminated work clothing should not be allowed out of the workplace.
P273	Avoid release to the environment.
P280	Wear protective gloves/protective clothing/eye protection/face protection.
P281	Use personal protective equipment as required.
P285	In case of inadequate ventilation wear respiratory protection.

Response

Code	Phrase
P301+P330+P331	IF SWALLOWED: Rinse mouth. Do NOT induce vomiting.
P302+P352	IF ON SKIN: Wash with plenty of soap and water.
P303+P361+P353	IF ON SKIN (or hair): Remove/Take off immediately all contaminated clothing. Rinse skin with water/shower.
P304+P340	IF INHALED: Remove victim to fresh air and keep at rest in a position comfortable for breathing.
P304+P341	IF INHALED: If breathing is difficult, remove victim to fresh air and keep at rest in a position comfortable for breathing.
P305+P351+P338	IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing.
P308+P313	IF exposed or concerned: Get medical advice/attention.
P310	Immediately call a POISON CENTER or doctor/physician.
P333+P313	If skin irritation or rash occurs: Get medical advice/attention.
P342+P311	If experiencing respiratory symptoms: Call a POISON CENTER or doctor/physician.
P363	Wash contaminated clothing before reuse.
P390	Absorb spillage to prevent material damage.

Storage

Code	Phrase
P403+P235	Store in a well- ventilated place. Keep cool.
P405	Store locked up.
P406	Store in corrosive resistant container or with a resistant inner liner.

Disposal

Code	Phrase
P501	Dispose of contents/container to ...

Section 3 - COMPOSITION / INFORMATION ON INGREDIENTS

NAME	CAS RN	%
aromatic hydrocarbon solvent	64742-95-6.	70 - 80
oleic acid/ triethylenetetramine amide	68412-09-9	10 - 20
n- butanol	71-36-3	1 - 10

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Section 4 - FIRST AID MEASURES

NEW ZEALAND POISONS INFORMATION CENTRE 0800 POISON (0800 764 766)
NZ EMERGENCY SERVICES: 111

SWALLOWED

- For advice, contact a Poisons Information Centre or a doctor at once.
- Urgent hospital treatment is likely to be needed.
- 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.
- If spontaneous vomiting appears imminent or occurs, hold patient's head down, lower than their hips to help avoid possible aspiration of vomitus.
- Avoid giving milk or oils.
- Avoid giving alcohol.

EYE

- If this product comes in contact with the eyes:
- Immediately hold eyelids apart and flush the eye continuously with 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.
- Continue flushing until advised to stop by the Poisons Information Centre or a doctor, or for at least 15 minutes.
- Transport to hospital or doctor without delay.

SKIN

- If skin or hair contact occurs:
- Immediately flush body and clothes with large amounts of water, using safety shower if available.
- Quickly remove all contaminated clothing, including footwear.
- Wash skin and hair with running water. Continue flushing with water until advised to stop by the Poisons Information Centre.
- Transport to hospital, or doctor.

INHALED

- 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 valve resuscitator, bag-valve mask device, or pocket mask as trained. Perform CPR if necessary.
- Inhalation of vapours or aerosols (mists, fumes) may cause lung oedema.
- Corrosive substances may cause lung damage (e.g. lung oedema, fluid in the lungs).
- As this reaction may be delayed up to 24 hours after exposure, affected individuals need complete rest (preferably in semi-recumbent posture) and must be kept under medical observation even if no symptoms are (yet) manifested.
- Before any such manifestation, the administration of a spray containing a dexamethasone derivative or beclomethasone derivative may be considered.

NOTES TO PHYSICIAN

Any material aspirated during vomiting may produce lung injury. Therefore emesis should not be induced mechanically or pharmacologically.

For acute or short term repeated exposures to xylene:

- Gastro-intestinal absorption is significant with ingestions. For ingestions exceeding 1-2 ml (xylene)/kg, intubation and lavage with cuffed endotracheal tube is recommended. The use of charcoal and cathartics is equivocal.
- Pulmonary absorption is rapid with about 60-65% retained at rest.
- Primary threat to life from ingestion and/or inhalation, is respiratory failure.
- Patients should be quickly evaluated for signs of respiratory distress (e.g. cyanosis, tachypnoea, intercostal retraction, obtundation) and given oxygen. Patients with inadequate tidal volumes or poor arterial blood gases ($pO_2 < 50$ mm Hg or $pCO_2 > 50$ mm Hg) should be intubated.

Depending on the degree of exposure, periodic medical examination is indicated. The symptoms of lung oedema often do not manifest until a few hours have passed and they are aggravated by physical effort.

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Section 5 - FIRE FIGHTING MEASURES

EXTINGUISHING MEDIA

- Foam.
- Dry chemical powder.
- BCF (where regulations permit).
- Carbon dioxide.

FIRE FIGHTING

- Alert Fire Brigade and tell them location and nature of hazard.
- May be violently or explosively reactive.
- Wear breathing apparatus plus protective gloves in the event of a fire.
- Prevent, by any means available, spillage from entering drains or water course.

FIRE/EXPLOSION HAZARD

- Liquid and vapour are flammable.
 - Moderate fire hazard when exposed to heat or flame.
 - Vapour forms an explosive mixture with air.
 - Moderate explosion hazard when exposed to heat or flame.
- Combustion products include: carbon dioxide (CO₂), carbon monoxide (CO), nitrogen oxides (NO_x), other pyrolysis products typical of burning organic material.
May emit clouds of acrid smoke.

FIRE INCOMPATIBILITY

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

Section 6 - ACCIDENTAL RELEASE MEASURES

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.
- Drains for storage or use areas should have retention basins for pH adjustments and dilution of spills before discharge or disposal of material.
- Check regularly for spills and leaks.

MAJOR SPILLS

- Clear area of personnel and move upwind.
- Alert Fire Brigade and tell them location and nature of hazard.
- May be violently or explosively reactive.
- Wear full body protective clothing with breathing apparatus.

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

Section 7 - HANDLING AND STORAGE

PROCEDURE FOR HANDLING

- Containers, even those that have been emptied, may contain explosive vapours.
- Do NOT cut, drill, grind, weld or perform similar operations on or near containers.
- DO NOT allow clothing wet with material to stay in contact with skin.
- Electrostatic discharge may be generated during pumping - this may result in fire.
- Ensure electrical continuity by bonding and grounding (earthing) all equipment.
- Restrict line velocity during pumping in order to avoid generation of electrostatic discharge (≤ 1 m/sec until fill pipe submerged to twice its diameter, then ≤ 7 m/sec).
- Avoid splash filling.
- Avoid all personal contact, including inhalation.
- Wear protective clothing when risk of overexposure occurs.
- Use in a well-ventilated area.

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Section 7 - HANDLING AND STORAGE

- Prevent concentration in hollows and sumps.

SUITABLE CONTAINER

- Packing as supplied by manufacturer.
- Plastic containers may only be used if approved for flammable liquid.
- Check that containers are clearly labelled and free from leaks.
- For low viscosity materials (i) : Drums and jerry cans must be of the non-removable head type. (ii) : Where a can is to be used as an inner package, the can must have a screwed enclosure.
- For materials with a viscosity of at least 2680 cSt. (23 deg. C)
- For manufactured product having a viscosity of at least 250 cSt. (23 deg. C)
- Manufactured product that requires stirring before use and having a viscosity of at least 20 cSt (25 deg. C)
- (i) : Removable head packaging;
- (ii) : Cans with friction closures and
- (iii) : low pressure tubes and cartridges may be used.

STORAGE INCOMPATIBILITY

Xylenes:

- may ignite or explode in contact with strong oxidisers, 1,3-dichloro-5,5-dimethylhydantoin, uranium fluoride
- attack some plastics, rubber and coatings
- may generate electrostatic charges on flow or agitation due to low conductivity.

For cumene:

- reacts violently with strong acids, strong oxidisers, chlorosulfonic acid, nitric acid, oleum, oxygen
- unless inhibited can form unstable peroxides
- prolonged exposure to air forms the highly reactive oxidiser, cumyl hydroperoxide
- attacks rubber.
- Vigorous reactions, sometimes amounting to explosions, can result from the contact between aromatic rings and strong oxidising agents.
- Aromatics can react exothermically with bases and with diazo compounds.

For alkyl aromatics:

The alkyl side chain of aromatic rings can undergo oxidation by several mechanisms. The most common and dominant one is the attack by oxidation at benzylic carbon as the intermediate formed is stabilised by resonance structure of the ring.

- Following reaction with oxygen and under the influence of sunlight, a hydroperoxide at the alpha-position to the aromatic ring, is the primary oxidation product formed (provided a hydrogen atom is initially available at this position) - this product is often short-lived but may be stable dependent on the nature of the aromatic substitution; a secondary C-H bond is more easily attacked than a primary C-H bond whilst a tertiary C-H bond is even more susceptible to attack by oxygen
- Monoalkylbenzenes may subsequently form monocarboxylic acids; alkyl naphthalenes mainly produce the corresponding naphthalene carboxylic acids.
- Avoid strong acids, acid chlorides, acid anhydrides and chloroformates.
- Avoid contact with copper, aluminium and their alloys.

STORAGE REQUIREMENTS

- Store in original containers in approved flammable liquid storage area.
- Store away from incompatible materials in a cool, dry, well-ventilated area.
- DO NOT store in pits, depressions, basements or areas where vapours may be trapped.
- No smoking, naked lights, heat or ignition sources.

Section 8 - EXPOSURE CONTROLS / PERSONAL PROTECTION

EXPOSURE CONTROLS

Source	Material	TWA ppm	TWA mg/m ³	STEL ppm	STEL mg/m ³	Peak ppm	Peak mg/m ³	TWA F/CC	Notes
New Zealand Workplace Exposure Standards (WES)	Carboguard 504 Part B (Petrol (Gasoline))	300	890	500	1, 480				
New Zealand Workplace Exposure Standards (WES)	n- butanol (n- Butyl alcohol)					50	150		skin

The following materials had no OELs on our records

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• oleic acid/ triethylenetetramine amide:

CAS:68412- 09- 9

MATERIAL DATA

CARBOGUARD 504 PART B:

OLEIC ACID/ TRIETHYLENETETRAMINE AMIDE:

Polyamide hardeners have much reduced volatility, toxicity and are much less irritating to the skin and eyes than amine hardeners. However commercial polyamides may contain a percentage of residual unreacted amine and all unnecessary contact should be avoided.

AROMATIC HYDROCARBON SOLVENT:

CARBOGUARD 504 PART B:

Odour threshold: 0.25 ppm.

The TLV-TWA is protective against ocular and upper respiratory tract irritation and is recommended for bulk handling of gasoline based on calculations of hydrocarbon content of gasoline vapour.

AROMATIC HYDROCARBON SOLVENT:

CARBOGUARD 504 PART B:

For trimethyl benzene as mixed isomers (of unstated proportions)

Odour Threshold Value: 2.4 ppm (detection)

Use care in interpreting effects as a single isomer or other isomer mix. Trimethylbenzene is an eye, nose and respiratory irritant.

CARBOGUARD 504 PART B:

OLEIC ACID/ TRIETHYLENETETRAMINE AMIDE:

Amine adducts have much reduced volatility and are less irritating to the skin and eyes than amine hardeners. However commercial amine adducts may contain a percentage of unreacted amine and all unnecessary contact should be avoided.

Amine adducts are prepared by reacting excess primary amines with epoxy resin.

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N-BUTANOL:

For n-butanol:

Odour Threshold Value: 0.12-3.4 ppm (detection), 1.0-3.5 ppm (recognition)

NOTE: Detector tubes for n-butanol, measuring in excess of 5 ppm are commercially available.

Exposure at or below the TLV-TWA is thought to provide protection against hearing loss due to vestibular and auditory nerve damage in younger workers and to protect against the significant risk of headache and irritation.

25 ppm may produce mild irritation of the respiratory tract 50 ppm may produce headache and vertigo.

Higher concentrations may produce marked irritation, sore throat, coughing, nausea, shortness of breath, pulmonary injury and central nervous system depression characterised by headache, dizziness, dullness and drowsiness.

AROMATIC HYDROCARBON SOLVENT:

for xylenes:

IDLH Level: 900 ppm

Odour Threshold Value: 20 ppm (detection), 40 ppm (recognition)

NOTE: Detector tubes for o-xylene, measuring in excess of 10 ppm, are available commercially. (m-xylene and p-xylene give almost the same response).<</>.

For cumene:

Odour Threshold Value: 0.008-0.132 ppm (detection), 0.047 ppm (recognition)

Exposure at or below the TLV-TWA is thought to prevent induction of narcosis.

CEL TWA: 50 ppm, 250 mg/m3 as total hydrocarbons [Manufacturer]

OLEIC ACID/ TRIETHYLENETETRAMINE AMIDE:

None assigned. Refer to individual constituents.

N-BUTANOL:

Exposed individuals are reasonably expected to be warned, by smell, that the Exposure Standard is being exceeded.

Odour Safety Factor (OSF) is determined to fall into either Class A or B.

The Odour Safety Factor (OSF) is defined as:

OSF= Exposure Standard (TWA) ppm/ Odour Threshold Value (OTV) ppm

Classification into classes follows:

Class	OSF	Description
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A	550	Over 90% of exposed individuals are aware by smell that the Exposure Standard (TLV- TWA for example) is being reached, even when distracted by working activities
B	26- 550	As " A" for 50- 90% of persons being distracted
C	1- 26	As " A" for less than 50% of persons being distracted
D	0.18- 1	10- 50% of persons aware of being tested perceive by smell that the Exposure Standard is being reached
E	<0.18	As " D" for less than 10% of persons aware of being tested

PERSONAL PROTECTION

RESPIRATOR

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

EYE

- Chemical goggles.
- Full face shield may be required for supplementary but never for primary protection of eyes
- Contact lenses may pose a special hazard; soft contact lenses may absorb and concentrate irritants. A written policy document, describing the wearing of lens or restrictions on use, should be created for each workplace or task. This should include a review of lens absorption and adsorption for the class of chemicals in use and an account of injury experience. Medical and first-aid personnel should be trained in their removal and suitable equipment should be readily available. In the event of chemical exposure, begin eye irrigation immediately and remove contact lens as soon as practicable. Lens should be removed at the first signs of eye redness or irritation - lens should be removed in a clean environment only after workers have washed hands thoroughly. [CDC NIOSH Current Intelligence Bulletin 59], [AS/NZS 1336 or national equivalent].

HANDS/FEET

- Wear chemical protective gloves, eg. PVC.
- Wear safety footwear or safety gumboots, eg. Rubber.
- When handling corrosive liquids, wear trousers or overalls outside of boots, to avoid spills entering boots.

NOTE:

- The material may produce skin sensitisation in predisposed individuals. Care must be taken, when removing gloves and other protective equipment, to avoid all possible skin contact.
 - Contaminated leather items, such as shoes, belts and watch-bands should be removed and destroyed.
- The selection of the 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.
- Suitability and durability of glove type is dependent on usage. Important factors in the selection of gloves include:

OTHER

- Overalls.
- PVC Apron.
- PVC protective suit may be required if exposure severe.
- Eyewash unit.
- Some plastic personal protective equipment (PPE) (e.g. gloves, aprons, overshoes) are not recommended as they may produce static electricity.
- For large scale or continuous use wear tight-weave non-static clothing (no metallic fasteners, cuffs or pockets), non sparking safety footwear.

ENGINEERING CONTROLS

■ 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.

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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.

Section 9 - PHYSICAL AND CHEMICAL PROPERTIES

APPEARANCE

Coloured with Characteristic Odour

PHYSICAL PROPERTIES

Liquid.
Does not mix with water.
Floats on water.
Corrosive.

State	Liquid	Molecular Weight	
Melting Range (°C)		Viscosity	Not available
Boiling Range (°C)	147	Solubility in water (g/L)	Immiscible
Flash Point (°C)	41	pH (1% solution)	
Decomposition Temp (°C)	Not available	pH (as supplied)	
Autoignition Temp (°C)	460	Vapour Pressure (kPa)	1.3
Upper Explosive Limit (%)	7.2	Specific Gravity (water=1)	0.88
Lower Explosive Limit (%)	0.6	Relative Vapour Density (air=1)	3.9
Volatile Component (%vol)	82	Evaporation Rate	0.7
Material log Kow		Value	0.88

Section 10 - CHEMICAL STABILITY

CONDITIONS CONTRIBUTING TO INSTABILITY

- Presence of incompatible materials.
- Product is considered stable.
- Hazardous polymerisation will not occur.

For incompatible materials - refer to Section 7 - Handling and Storage.

Section 11 - TOXICOLOGICAL INFORMATION

POTENTIAL HEALTH EFFECTS

ACUTE HEALTH EFFECTS

SWALLOWED

- The material can produce chemical burns within the oral cavity and gastrointestinal tract following ingestion.
- Ingestion of amine epoxy-curing agents (hardeners) may cause severe abdominal pain, nausea, vomiting or diarrhoea. The vomitus may contain blood and mucous. If death does not occur within 24 hours there may be an improvement in the patients condition for 2-4 days only to be followed by the sudden onset of abdominal pain, boardlike abdominal rigidity or hypo-tension; this indicates that delayed gastric or oesophageal corrosive damage has occurred.
- Swallowing of the liquid may cause aspiration into the lungs with the risk of chemical pneumonitis; serious consequences may result. (ICSC13733).
- The material has NOT been classified by EC Directives or other classification systems as "harmful by ingestion". This is because of the lack of corroborating animal or human evidence. The material may still be damaging to the health of the individual, following ingestion, especially where pre-existing organ (eg. liver, kidney) damage is evident. Present definitions of harmful or toxic substances are generally based on doses producing mortality rather than those producing morbidity (disease, ill-health). Gastrointestinal tract discomfort may produce nausea and vomiting. In an occupational setting however, ingestion of insignificant quantities is not thought to be cause for concern.
- Ingestion of petroleum hydrocarbons can irritate the pharynx, oesophagus, stomach and small intestine, and cause swellings and ulcers of the mucous. Symptoms include a burning mouth and throat; larger amounts can cause nausea and vomiting, narcosis,

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weakness, dizziness, slow and shallow breathing, abdominal swelling, unconsciousness and convulsions. Damage to the heart muscle can produce heart beat irregularities, ventricular fibrillation (fatal) and ECG changes. The central nervous system can be depressed. Light species can cause a sharp tingling of the tongue and cause loss of sensation there. Aspiration can cause cough, gagging, pneumonia with swelling and bleeding.

EYE

- The material can produce chemical burns to the eye following direct contact. Vapours or mists may be extremely irritating.
- If applied to the eyes, this material causes severe eye damage.
- Direct eye contact with petroleum hydrocarbons can be painful, and the corneal epithelium may be temporarily damaged. Aromatic species can cause irritation and excessive tear secretion.
- The liquid produces a high level of eye discomfort and is capable of causing pain and severe conjunctivitis. Corneal injury may develop, with possible permanent impairment of vision, if not promptly and adequately treated.

SKIN

- The material can produce chemical burns following direct contact with the skin.
- Amine epoxy-curing agents (hardeners) may produce primary skin irritation and sensitisation dermatitis in predisposed individuals. Cutaneous reactions include erythema, intolerable itching and severe facial swelling. Blistering, with weeping of serous fluid, and crusting and scaling may also occur. Individuals exhibiting "amine dermatitis" may experience a dramatic reaction upon re-exposure to minute quantities. Highly sensitive persons may even react to cured resins containing trace amounts of unreacted amine hardener. Minute quantities of air-borne amine may precipitate intense dermatological symptoms in sensitive individuals. Prolonged or repeated exposure may produce tissue necrosis.
- Open cuts, abraded or irritated skin should not be exposed to this material.
- The liquid may be miscible with fats or oils and may degrease the skin, producing a skin reaction described as non-allergic contact dermatitis. The material is unlikely to produce an irritant dermatitis as described in EC Directives.
- The material may accentuate any pre-existing dermatitis condition.
- 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.
- Aromatic hydrocarbons may produce sensitivity and redness of the skin. They are not likely to be absorbed into the body through the skin but branched species are more likely to.
- The material may cause moderate inflammation of the skin either following direct contact or after a delay of some time. Repeated exposure can cause contact dermatitis which is characterised by redness, swelling and blistering.

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.
- The acute toxicity of inhaled alkylbenzenes is best described by central nervous system depression. As a rule, these compounds may also act as general anaesthetics.
- Inhalation of epoxy resin amine hardeners (including polyamines and amine adducts) may produce bronchospasm and coughing episodes lasting several days after cessation of the exposure. Even faint traces of these vapours may trigger an intense reaction in individuals showing "amine asthma". The literature records several instances of systemic intoxications following the use of amines in epoxy resin systems.
- The material has NOT been classified by EC Directives or other classification systems as "harmful by inhalation". This is because of the lack of corroborating animal or human evidence. In the absence of such evidence, care should be taken nevertheless to ensure exposure is kept to a minimum and that suitable control measures be used, in an occupational setting to control vapours, fumes and aerosols.
- Inhalation hazard is increased at higher temperatures.
- Inhaling high concentrations of mixed hydrocarbons can cause narcosis, with nausea, vomiting and lightheadedness. Low molecular weight (C2-C12) hydrocarbons can irritate mucous membranes and cause incoordination, giddiness, nausea, vertigo, confusion, headache, appetite loss, drowsiness, tremors and stupor. Massive exposures can lead to severe central nervous system depression, deep coma and death. Convulsions can occur due to brain irritation and/or lack of oxygen. Permanent scarring may occur, with epileptic seizures and brain bleeds occurring months after exposure. Respiratory system effects include inflammation of the lungs with oedema and bleeding. Lighter species mainly cause kidney and nerve damage; the heavier paraffins and olefins are especially irritant to the respiratory system. Alkenes produce pulmonary oedema at high concentrations. Liquid paraffins may produce sensation loss and depressant actions leading to weakness, dizziness, slow and shallow respiration, unconsciousness, convulsions and death. C5-7 paraffins may also produce multiple nerve damage. Aromatic hydrocarbons accumulate in lipid rich tissues (typically the brain, spinal cord and peripheral nerves) and may produce functional impairment manifested by nonspecific symptoms such as nausea, weakness, fatigue, vertigo; severe exposures may produce inebriation or unconsciousness. Many of the petroleum hydrocarbons can sensitise the heart and may cause ventricular fibrillation, leading to death.
- Central nervous system (CNS) depression may include general discomfort, symptoms of giddiness, headache, dizziness, nausea, anaesthetic effects, slowed reaction time, slurred speech and may progress to unconsciousness. Serious poisonings may result in respiratory depression and may be fatal.
- On exposure to mixed trimethylbenzenes, some people may become nervous, tensed, anxious and have difficult breathing. There may be a reduction in red blood cells and bleeding abnormalities. There may also be drowsiness.
- Inhalation of high concentrations of gas/vapour causes lung irritation with coughing and nausea, central nervous depression with headache and dizziness, slowing of reflexes, fatigue and inco-ordination.
- Inhalation of quantities of liquid mist may be extremely hazardous, even lethal due to spasm, extreme irritation of larynx and bronchi, chemical pneumonitis and pulmonary oedema.

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■ The material can cause respiratory irritation in some persons. The body's response to such irritation can cause further lung damage.

CHRONIC HEALTH EFFECTS

Repeated or prolonged exposure to corrosives may result in the erosion of teeth, inflammatory and ulcerative changes in the mouth and necrosis (rarely) of the jaw. Bronchial irritation, with cough, and frequent attacks of bronchial pneumonia may ensue.

Gastrointestinal disturbances may also occur. Chronic exposures may result in dermatitis and/or conjunctivitis.

Inhaling this product is more likely to cause a sensitisation reaction in some persons compared to the general population.

Skin contact with the material is more likely to cause a sensitisation reaction in some persons compared to the general population.

Ample evidence exists from experimentation that reduced human fertility is directly caused by exposure to the material.

Substance accumulation, in the human body, may occur and may cause some concern following repeated or long-term occupational exposure.

Constant or exposure over long periods to mixed hydrocarbons may produce stupor with dizziness, weakness and visual disturbance, weight loss and anaemia, and reduced liver and kidney function. Skin exposure may result in drying and cracking and redness of the skin. Chronic exposure to lighter hydrocarbons can cause nerve damage, peripheral neuropathy, bone marrow dysfunction and psychiatric disorders as well as damage the liver and kidneys.

There has been concern that this material can cause cancer or mutations, but there is not enough data to make an assessment.

Chronic solvent inhalation exposures may result in nervous system impairment and liver and blood changes. [PATTYS].

Women exposed to xylene in the first 3 months of pregnancy showed a slightly increased risk of miscarriage and birth defects.

Evaluation of workers chronically exposed to xylene has demonstrated lack of genetic toxicity. Exposure to xylene has been associated with increased rates of blood cancer, but this may be complicated by exposure to other substances, including benzene.

Animal testing found no evidence of cancer-causing activity.

TOXICITY AND IRRITATION

~OTHER

■ Allergic reactions involving the respiratory tract are usually due to interactions between IgE antibodies and allergens and occur rapidly. Allergic potential of the allergen and period of exposure often determine the severity of symptoms. Some people may be genetically more prone than others, and exposure to other irritants may aggravate symptoms. Allergy causing activity is due to interactions with proteins.

Attention should be paid to atopic diathesis, characterised by increased susceptibility to nasal inflammation, asthma and eczema.

Exogenous allergic alveolitis is induced essentially by allergen specific immune-complexes of the IgG type; cell-mediated reactions (T lymphocytes) may be involved. Such allergy is of the delayed type with onset up to four hours following exposure.

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.

The chemicals in the Fatty Nitrogen Derived (FND) Amides are generally similar in terms of physical and chemical properties, environmental fate and toxicity. Its low acute oral toxicity is well established across all subcategories by the available data and show no apparent organ specific toxicity, mutation, reproductive or developmental defects.

For trimethylbenzenes:

Absorption of 1,2,4-trimethylbenzene occurs after oral, inhalation, or dermal exposure. Occupationally, inhalation and dermal exposures are the most important routes of absorption although systemic intoxication from dermal absorption is not likely to occur due to the dermal irritation caused by the chemical prompting quick removal.

for petroleum:

This product contains benzene which is known to cause acute myeloid leukaemia and n-hexane which has been shown to metabolize to compounds which are neuropathic.

This product contains toluene.

This product contains ethyl benzene and naphthalene from which there is evidence of tumours in rodents

Carcinogenicity: Inhalation exposure to mice causes liver tumours, which are not considered relevant to humans.

The material may be irritating to the eye, with prolonged contact causing inflammation. Repeated or prolonged exposure to irritants may produce conjunctivitis.

The material may cause skin irritation after prolonged or repeated exposure and may produce on contact skin redness, swelling, the production of vesicles, scaling and thickening of the skin.

Asthma-like symptoms may continue for months or even years after exposure to the material ceases. This may be due to a non-allergenic condition known as reactive airways dysfunction syndrome (RADS) which can occur following exposure to high levels of highly irritating compound.

SKIN

n- butanol

New Zealand Workplace Exposure Standards
(WES) - Skin

Notes

skin

continued...

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Section 12 - ECOLOGICAL INFORMATION

n-butanol 96 hr LC50 (100) mg/L Bluegill Fish Source: Experimental

Harmful to aquatic organisms, may cause long-term adverse effects in the aquatic environment.
This material and its container must be disposed of as hazardous waste.

Ecotoxicity

Ingredient	Persistence: Water/Soil	Persistence: Air	Bioaccumulation	Mobility
aromatic hydrocarbon solvent	No Data Available	No Data Available		
oleic acid/ triethylenetetramine amide	No Data Available	No Data Available		
n- butanol	LOW	MED	LOW	HIGH

Section 13 - DISPOSAL CONSIDERATIONS

- 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 MSDS 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.
- A Hierarchy of Controls seems to be common - the user should investigate:
- Reduction.
 - 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.
 - Consult manufacturer for recycling options or consult local or regional waste management authority for disposal if no suitable treatment or disposal facility can be identified.
 - Treat and neutralise at an approved treatment plant. Treatment should involve: Neutralisation with suitable dilute acid followed by: burial in a land-fill specifically licenced to accept chemical and / or pharmaceutical wastes or Incineration in a licenced apparatus
 - Decontaminate empty containers. Observe all label safeguards until containers are cleaned and destroyed.
- Insure that the disposal of material is carried out in accordance with Hazardous Substances (Disposal) Regulations 2001.*

Section 14 - TRANSPORTATION INFORMATION



Labels Required: FLAMMABLE LIQUID,CORROSIVE

HAZCHEM:

•3W

Land Transport UNDG:

Class or division: 3 Subsidiary risk: 8
UN No.: 3469 UN packing group: III

Shipping Name:PAINT RELATED MATERIAL, FLAMMABLE, CORROSIVE (including paint thinning or reducing compound)

continued...

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Section 14 - TRANSPORTATION INFORMATION

Air Transport IATA:

ICAO/IATA Class:	3	ICAO/IATA Subrisk:	8
UN/ID Number:	3469	Packing Group:	III
Special provisions:	A3		
Cargo Only			
Packing Instructions:	365	Maximum Qty/Pack:	60 L
Passenger and Cargo		Passenger and Cargo	
Packing Instructions:	354	Maximum Qty/Pack:	5 L
Passenger and Cargo Limited Quantity		Passenger and Cargo Limited Quantity	
Packing Instructions:	Y342	Maximum Qty/Pack:	1 L

Shipping name:PAINT RELATED MATERIAL, FLAMMABLE, CORROSIVE

Maritime Transport IMDG:

IMDG Class:	3	IMDG Subrisk:	8
UN Number:	3469	Packing Group:	III
EMS Number:	F-E,S-C	Special provisions:	163 223
Limited Quantities:	5 L		

Shipping name:PAINT RELATED MATERIAL, FLAMMABLE, CORROSIVE

Section 15 - REGULATORY INFORMATION

EPA Approval number

This substance is to be managed in accordance with the classification and controls specified in the Hazardous Substances Transfer Notice, 2004, (see table below). This substance may alternatively be managed under the conditions imposed by an applicable Group Standard.

HSR No.	HSR Name
HSR002496	Additives, Process Chemicals and Raw Materials (Flammable, Corrosive) Group Standard 2006
HSR002529	Cleaning Products (Flammable, Corrosive) Group Standard 2006
HSR002620	N.O.S. (Flammable, Corrosive) Group Standard 2006
HSR002642	Polymers (Flammable, Corrosive) Group Standard 2006
HSR100425	Pharmaceutical Active Ingredients Group Standard 2010

REGULATIONS

Carboguard 504 Part B (CAS:) is found on the following regulatory lists;

"GESAMP/EHS Composite List - GESAMP Hazard Profiles", "IMO IBC Code Chapter 17: Summary of minimum requirements", "IMO Provisional Categorization of Liquid Substances - List 2: Pollutant only mixtures containing at least 99% by weight of components already assessed by IMO", "IMO Provisional Categorization of Liquid Substances - List 3: (Trade-named) mixtures containing at least 99% by weight of components already assessed by IMO, presenting safety hazards", "International Agency for Research on Cancer (IARC) - Agents Reviewed by the IARC Monographs", "International Fragrance Association (IFRA) Survey: Transparency List", "International Maritime Dangerous Goods Requirements (IMDG Code) - Substance Index", "New Zealand Inventory of Chemicals (NZIoC)", "New Zealand Workplace Exposure Standards (WES)", "OECD List of High Production Volume (HPV) Chemicals", "OSPAR National List of Candidates for Substitution – Norway"

Regulations for ingredients

aromatic hydrocarbon solvent (CAS: 64742-95-6) is found on the following regulatory lists;

"GESAMP/EHS Composite List - GESAMP Hazard Profiles", "IMO IBC Code Chapter 17: Summary of minimum requirements", "IMO MARPOL 73/78 (Annex II) - List of Noxious Liquid Substances Carried in Bulk", "IMO Provisional Categorization of Liquid Substances - List 2: Pollutant only mixtures containing at least 99% by weight of components already assessed by IMO", "IMO Provisional Categorization of Liquid Substances - List 3: (Trade-named) mixtures containing at least 99% by weight of components already assessed by IMO, presenting safety hazards", "International Agency for Research on Cancer (IARC) - Agents Reviewed by the IARC Monographs", "International Council of Chemical Associations (ICCA) - High Production Volume List", "International Fragrance Association (IFRA) Survey: Transparency List", "International Maritime Dangerous Goods Requirements (IMDG Code) - Substance Index", "New Zealand Hazardous Substances and New Organisms (HSNO) Act - Classification of Chemicals - Classification Data", "New Zealand Inventory of Chemicals (NZIoC)", "New Zealand Workplace Exposure Standards (WES)", "OECD List of High Production Volume (HPV) Chemicals", "OSPAR List of Chemicals for Priority Action", "OSPAR National List of Candidates for Substitution – Norway", "WHO Guidelines for Drinking-water Quality - Guideline values for chemicals that are of health significance in drinking-water"

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oleic acid/ triethylenetetramine amide (CAS: 68412-09-9) is found on the following regulatory lists;

"New Zealand Inventory of Chemicals (NZIoC)"

n-butanol (CAS: 71-36-3) is found on the following regulatory lists;

"GESAMP/EHS Composite List - GESAMP Hazard Profiles", "IMO IBC Code Chapter 17: Summary of minimum requirements", "IMO IBC Code Chapter 18: List of products to which the Code does not apply", "IMO MARPOL 73/78 (Annex II) - List of Other Liquid Substances", "International Council of Chemical Associations (ICCA) - High Production Volume List", "International Fragrance Association (IFRA) Survey: Transparency List", "New Zealand Hazardous Substances and New Organisms (HSNO) Act - Chemicals (single components)", "New Zealand Hazardous Substances and New Organisms (HSNO) Act - Classification of Chemicals", "New Zealand Hazardous Substances and New Organisms (HSNO) Act - Classification of Chemicals - Classification Data", "New Zealand Hazardous Substances and New Organisms (HSNO) Act - Dangerous Goods", "New Zealand Inventory of Chemicals (NZIoC)", "New Zealand Workplace Exposure Standards (WES)", "OECD List of High Production Volume (HPV) Chemicals", "OSPAR National List of Candidates for Substitution – Norway"

Specific advice on controls required for materials used in New Zealand can be found at
www.epa.govt.nz/search-databases/Pages/controls-search.aspx

Section 16 - OTHER INFORMATION

NEW ZEALAND POISONS INFORMATION CENTRE
0800 POISON (0800 764 766)
NZ EMERGENCY SERVICES: 111

■ Classification of the preparation and its individual components has drawn on official and authoritative sources using available literature references.

■ The (M)SDS is a Hazard Communication tool and should be used to assist in the Risk Assessment. Many factors determine whether the reported Hazards are Risks in the workplace or other settings.

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