

1. IDENTIFICATION OF THE SUBSTRATE/PREPARATION AND OF THE COMPANY/UNDERTAKING

1.1 Product identifier

Trade name/designation: Caltech FCP Epoxy Primer

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

Relevant identified uses: Two-component, epoxy-based adhesive.

Recommended restrictions: Reserved for industrial and professional use.

1.3 Supplier details

Alumasc Building Products Ltd
White House Works, Bold Road, Sutton, St Helens, Merseyside, United Kingdom, WA9 4JG
Tel: +44 (0)1744 648400
e-mail: technical@alumascroofing.com

1.4 Emergency telephone number

Association / Organisation: National Poisons Information Service
Emergency telephone numbers: 0344 892 0111 (Healthcare professionals only)
Other emergency telephone numbers Alumasc Building Products: +44 17 4464 8400
(Mon-Thurs – 08.30-17.00 Fri – 08.30-16.00)

2. HAZARDS IDENTIFICATION

2.1 Classification of the substance or mixture

Classification according to Regulation (EC) No. 1272/2008 [CLP][1]:

H225 - Flammable Liquids Category 2, H302 - Acute Toxicity (Oral) Category 4, H317 - Sensitisation (Skin) Category 1, H319 - Serious Eye, Damage/Eye Irritation Category 2, H334 - Sensitisation (Respiratory) Category 1, H336 - Specific Target Organ Toxicity - Single Exposure, (Narcotic Effects) Category 3, H351 - Carcinogenicity Category 2

2.2 Label elements

Hazard pictures:



Signal word:

Danger.

Hazardous component(s) to be indicated on label:

Material contains bisphenol A/ diglycidyl ether resin, liquid, naphtha petroleum, light aromatic solvent, xylene, n-butanol.

Hazard statements:

H226: Flammable liquid and vapour.
H315: Causes skin irritation.
H317: May cause an allergic skin reaction.
H318: Causes serious eye damage.
H336: May cause drowsiness or dizziness.
H400: Very toxic to aquatic life.
H411: Toxic to aquatic life with long lasting effects.

Precautionary statements prevention:

P210: Keep away from heat, hot surfaces, sparks, open flames and other ignition sources. No smoking.
P271: Use only a well-ventilated area.
P240: Ground and bond container and receiving equipment.
P280: Wear protective gloves/protective clothing/eye protection/face protection/hearing protection.

Precautionary statements response:	P305+P351+P338: IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing. P310: Immediately call a POISON CENTER/doctor/physician/first aider. P370+P378: In case of fire: Use alcohol resistant foam or normal protein foam to extinguish. P302+P352: IF ON SKIN: Wash with plenty of water and soap.
Precautionary statement(s) Storage	P403+P235 Store in a well-ventilated place. Keep cool. P405: Store locked up.
Precautionary statements disposal:	P501: Dispose of contents/container to authorised hazardous or special waste collection point in accordance with any local regulation.

2.3 Other hazards

bisphenol A/ diglycidyl ether resin, liquid xylene	Determined to have endocrine-disrupting properties according to Europe Regulation (EU) 528/2012, Europe Regulation (EU) 2017/2100, and Europe Regulation (EU) 2018/605. Listed in the Europe Regulation (EC) No 1907/2006 - Annex XVII (Restrictions may apply) Listed in the Europe Regulation (EC) No 1907/2006 - Annex XVII (Restrictions may apply)
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This substance/mixture does not meet the criteria for classification as Persistent, Bioaccumulative, and Toxic (PBT) in accordance with Annex XIII, Commission Delegated Regulation (EU) 2017/2100, and Commission Regulation (EU) 2018/605.

This substance/mixture does not meet the criteria for classification as very Persistent and very Bioaccumulative (vPvB) in accordance with Annex XIII, Commission Delegated Regulation (EU) 2017/2100, and Commission Regulation (EU) 2018/605.

This substance/mixture does not meet the criteria for classification as Persistent, Mobile and Toxic (PMT) in accordance with Commission Delegated Regulation (EU) 2023/707.

This substance/mixture does not meet the criteria for classification as very Persistent and very Mobile (vPvM) in accordance with Commission Delegated Regulation (EU) 2023/707.

The substance/mixture does not contain components considered to have endocrine disrupting properties in accordance with the criteria set out in Commission Delegated Regulation (EU) 2017/2100 or Commission Regulation (EU) 2018/605, nor is it included in the list established under REACH Article 59(1), at concentrations equal to or greater than 0.1% (w/w).

No further product hazard information.

3. COMPOSITION AND INFORMATION ABOUT THE COMPONENTS

3.1 Substances

See 'Composition on ingredients' in Section 3.2.

3.2 Mixtures

1.CAS No 2.EC No 3.Index No 4.REACH No	% [weight]	Name	Classified according to GB-CLP Regulation, UK SI 2019/720 and UK SI 2020/1567	SCL / M-Factor	Nanoform Particle Characteristics
1. 25068-38-6 2.500-033-5 3.603-074-00-8 4.01-2119456619-26-0016	10-30	bisphenol A diglycidyl ether resin, liquid[e]	Skin Corrosion/Irritation Category 2, Sensitisation(Skin) Category 1, Serious Eye Damage/Eye Irritation Category 2, Hazardous to the Aquatic Environment Long-Term Hazard Category 2; H315, H317, H319, H411 [2]	SCL: Not Available Acute M factor: Not Applicable Chronic M factor: Not Applicable	Not available

1. 64742-95-6. 2.265-199-0 3.649-356-00-4 4.01-2119455851-35-0000	10-30	naphtha petroleum, light aromatic solvent	Flammable Liquids Category 3, Specific Target Organ Toxicity - Single Exposure (Narcotic Effects) Category 3, Hazardous to the Aquatic Environment Long-Term Hazard Category 2; H226, H336, H411, EUH066 [1]	SCL: Not Available Acute M factor: Not Applicable Chronic M factor: Not Applicable	Not available
1. 1330-20-7 2.215-535-7 3. Not Available 4.01-2119488216-32-0030	5-10	xylene *	Flammable Liquids Category 3, Acute Toxicity (Dermal) Category 4, Skin Corrosion/Irritation Category 2, Acute Toxicity (inhalation) Category 4; H226, H312, H315, H332 [2]	SCL: Not Available Acute M factor: Not Applicable Chronic M factor: Not Applicable	Not available
1. 7779-90-0 2.231-944-3 3.030-011-00-6 4.01-2119485044-40-0000	5-10	zinc phosphate	Hazardous to the Aquatic Environment Acute Hazard Category 1, Hazardous to the Aquatic Environment Long-Term Hazard Category 1; H400, H410 [2]	SCL: Not Available Acute M factor: 10 Chronic M factor: 1	Not available
1. 71-36-3 2.200-751-6 3.603-004-00-6 4.01-2119484630-38-0000	5-10	n-butanol	Flammable Liquids Category 3, Acute Toxicity (Oral) Category 4, Skin Corrosion/Irritation Category 2, Serious Eye Damage/Eye Irritation Category 1, Specific Target Organ Toxicity - Single Exposure (Respiratory Tract Irritation) Category 3, Specific Target Organ Toxicity - Single Exposure (Narcotic Effects) Category 3; H226, H302, H315, H318, H335, H336 [2]	SCL: Not Available Acute M factor: Not Applicable Chronic M factor: Not Applicable	Not available
1. 112-07-2 2.203-933-3 3.607-038-00-2 4.01-2119475112-47-0000	1-5	ethylene glycol monobutyl ether acetate * -	Acute Toxicity (Dermal) Category 4, Acute Toxicity (Inhalation) Category 4; H312, H332 [2]	SCL: Not Available Acute M factor: Not Applicable Chronic M factor: Not Applicable	Not available
1. 1314-13-2 2.215-222-5 3.030-013-00-7 4.01-2119463881-32-0000	<1	zinc oxide	Hazardous to the Aquatic Environment Acute Hazard Category 1, Hazardous to the Aquatic Environment Long-Term Hazard Category 1; H400, H410 [2]	SCL: Not Available Acute M factor: 10 Chronic M factor: 1	Not available
Legend:	1. Classified by Chemwatch; 2. Classification drawn from GB-CLP Regulation, UK SI 2019/720 and UK SI 2020/1567; 3. Classification drawn from C&L; * EU IOELVs available; [e] Substance identified as having endocrine disrupting properties.				

4. FIRST AID MEASURES

4.1 Description of first aid measures

Eye contact: 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.

Removal of contact lenses after an eye injury should only be undertaken by skilled personnel.

Skin contact:	If skin contact occurs: Immediately remove all contaminated clothing, including footwear. Flush skin and hair with running water (and soap if available). Seek medical attention in event of irritation.
Inhalation:	If fumes or combustion products are inhaled remove from contaminated area. Other measures are usually unnecessary.
Ingestion:	Immediately give a glass of water. First aid is not generally required. If in doubt, contact a Poisons Information Centre or a doctor. If spontaneous vomiting appears imminent or occurs, hold patient's head down, lower than their hips to help avoid possible aspiration of vomitus.

4.2 Most important symptoms and effects, both acute and delayed

See Section 11.

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

for phosphate salts intoxication:

All treatments should be based on observed signs and symptoms of distress in the patient. Consideration should be given to the possibility that overexposure to materials other than this product may have occurred.

Ingestion of large quantities of phosphate salts (over 1.0 grams for an adult) may cause an osmotic catharsis resulting in diarrhoea and probable abdominal cramps. Larger doses such as 4-8 grams will almost certainly cause these effects in everyone. In healthy individuals most of the ingested salt will be excreted in the faeces with the diarrhoea and, thus, not cause any systemic toxicity. Doses greater than 10 grams hypothetically may cause systemic toxicity.

Treatment should take into consideration both anionic and cation portion of the molecule.

All phosphate salts, except calcium salts, have a hypothetical risk of hypocalcaemia, so calcium levels should be monitored. Treat symptomatically.

For petroleum distillates

In case of ingestion, gastric lavage with activated charcoal can be used promptly to prevent absorption - decontamination (induced emesis or lavage) is controversial and should be considered on the merits of each individual case; of course the usual precautions of an endotracheal tube should be considered prior to lavage, to prevent aspiration.

Individuals intoxicated by petroleum distillates should be hospitalized immediately, with acute and continuing attention to neurologic and cardiopulmonary function.

Positive pressure ventilation may be necessary.

Acute central nervous system signs and symptoms may result from large ingestions of aspiration-induced hypoxia.

After the initial episode, individuals should be followed for changes in blood variables and the delayed appearance of pulmonary oedema and chemical pneumonitis. Such patients should be followed for several days or weeks for delayed effects, including bone marrow toxicity, hepatic and renal impairment. Individuals with chronic pulmonary disease will be more seriously impaired, and recovery from inhalation exposure may be complicated.

Gastrointestinal symptoms are usually minor and pathological changes of the liver and kidneys are reported to be uncommon in acute intoxications.

Chlorinated and non-chlorinated hydrocarbons may sensitize the heart to epinephrine and other circulating catecholamines so that arrhythmias may occur. Careful consideration of this potential adverse effect should precede administration of epinephrine or other cardiac stimulants and the selection of bronchodilators.

For acute or short term repeated exposures to ethylene glycol:

Early treatment of ingestion is important. Ensure emesis is satisfactory.

Test and correct for metabolic acidosis and hypocalcaemia.

Apply sustained diuresis when possible with hypertonic mannitol.

Evaluate renal status and begin haemodialysis if indicated. [I.L.O.]

Rapid absorption is an indication that emesis or lavage is effective only in the first few hours. Cathartics and charcoal are generally not effective.

Correct acidosis, fluid/electrolyte balance and respiratory depression in the usual manner. Systemic acidosis (below 7.2) can be treated with intravenous sodium bicarbonate solution.

Ethanol therapy prolongs the half-life of ethylene glycol and reduces the formation of toxic metabolites.

Pyridoxine and thiamine are cofactors for ethylene glycol metabolism and should be given (50 to 100 mg respectively) intramuscularly, four times per day for 2 days.

Magnesium is also a cofactor and should be replenished. The status of 4-methylpyrazole, in the treatment regime, is still uncertain. For clearance of the material and its metabolites, haemodialysis is much superior to peritoneal dialysis.

[Ellenhorn and Barceloux: Medical Toxicology]

It has been suggested that there is a need for establishing a new biological exposure limit before a workshift that is clearly below 100 mmol ethoxy-acetic acids per mole creatinine in morning urine of people occupationally exposed to ethylene glycol ethers. This arises from the finding that an increase in urinary stones may be associated with such exposures. Laitinen J., et al: Occupational & Environmental Medicine 1996; 53, 595-600

5. FIRE-FIGHTING MEASURES

5.1 Extinguishing media

Suitable extinguishing media:

- Alcohol stable foam.
- Dry chemical powder.
- BCF (where regulations permit).
- Carbon dioxide.

5.2 Special hazards arising from the substance or mixture

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

Fire Fighting 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.
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)
metal oxides
other pyrolysis products typical of burning organic material.
Contains low boiling substance: Closed containers may rupture due to pressure buildup under fire conditions.

6. ACCIDENTAL RELEASE MEASURES

6.1 Personal precautions, protective equipment and emergency procedures

See section 8

6.2 Environmental Precautions

See section 12

6.3 Methods and material for containment and cleaning up

Minor Spills

- 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 full body protective clothing with breathing apparatus.

6.4 Reference to other sections

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

7. HANDLING AND STORAGE

7.1 Precautions for safe handling

Safe handling:

The conductivity of this material may make it a static accumulator. A liquid is typically considered nonconductive if its conductivity is below 100 pS/m and is considered semi-conductive if its conductivity is below 10 000 pS/m. Whether a liquid is nonconductive or semi-conductive, the precautions are the same. A number of factors, for example liquid temperature, presence of contaminants, and anti-static additives can greatly influence the conductivity of a liquid.

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.

Contains low boiling substance:

Storage in sealed containers may result in pressure buildup causing violent rupture of containers not rated appropriately.

Check for bulging containers.

Vent periodically

Always release caps or seals slowly to ensure slow dissipation of vapours. Avoid all personal contact, including inhalation.

Wear protective clothing when risk of overexposure occurs.

Use in a well-ventilated area.

Prevent concentration in hollows and sumps.

DO NOT allow clothing wet with material to stay in contact with skin

Fire and explosion protection

See section 5

Other information

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.

7.2 Conditions for safe storage, including any incompatibilities

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.

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.

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.

Oxidation in the presence of transition metal salts not only accelerates but also selectively decomposes the hydroperoxides.

Alcohols

are incompatible with strong acids, acid chlorides, acid anhydrides, oxidising and reducing agents.

reacts, possibly violently, with alkaline metals and alkaline earth metals to produce hydrogen

react with strong acids, strong caustics, aliphatic amines, isocyanates, acetaldehyde, benzoyl peroxide, chromic acid, chromium oxide, dialkylzincs, dichlorine oxide, ethylene oxide, hypochlorous acid, isopropyl chlorocarbonate, lithium tetrahydroaluminate, nitrogen dioxide, pentafluoroguanidine, phosphorus halides, phosphorus pentasulfide, tangerine oil, triethylaluminium, triisobutylaluminium

should not be heated above 49 deg. C. when in contact with aluminium equipment

Avoid reaction with amines, mercaptans, strong acids and oxidising agents

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

attack some forms of plastics, coatings, and rubber

Hazard categories in accordance with Regulation (EC) No 2012/18/EU (Seveso III)

P5a: Flammable Liquids,

P5b: Flammable Liquids,

P5c: Flammable Liquids,

E1: Hazardous to the Aquatic Environment in Category Acute 1 or Chronic 1,

E2: Hazardous to the Aquatic Environment in Category Chronic 2

Qualifying quantity (tonnes) of dangerous substances as referred to in Article 3(10) for the application of:

P5a Lower- / Upper-tier requirements: 10 / 50

P5b Lower- / Upper-tier requirements: 50 / 200

P5c Lower- / Upper-tier requirements: 5 000 / 50 000

E1 Lower- / Upper-tier requirements: 100 / 200

E2 Lower- / Upper-tier requirements: 200 / 500

7.3. Specific end use(s)

See section 1.2

8. EXPOSURE CONTROLS/PERSONAL PROTECTION

8.1 Control parameters

Ingredient	DNELs Exposure Pattern Worker	PNECs Compartment
E1 Lower- / Upper-tier requirements: 100 / 200	Inhalation 1.9 mg/m ³ (Systemic, Chronic) Inhalation 837.5 mg/m ³ (Local, Chronic) Inhalation 1286.4 mg/m ³ (Systemic, Acute) Inhalation 1066.67 mg/m ³ (Local, Acute) Inhalation 0.41 mg/m ³ (Systemic, Chronic) * Inhalation 178.57 mg/m ³ (Local, Chronic) * Inhalation 1152 mg/m ³ (Systemic, Acute) * Inhalation 640 mg/m ³ (Local, Acute) *	Not Available
xylene	Dermal 212 mg/kg bw/day (Systemic, Chronic) Inhalation 221 mg/m ³ (Systemic, Chronic) Inhalation 221 mg/m ³ (Local, Chronic) Inhalation 442 mg/m ³ (Systemic, Acute) Inhalation 442 mg/m ³ (Local, Acute) Dermal 125 mg/kg bw/day (Systemic, Chronic) * Inhalation 65.3 mg/m ³ (Systemic, Chronic) * Oral 5 mg/kg bw/day (Systemic, Chronic) * Inhalation 65.3 mg/m ³ (Local, Chronic) * Inhalation 260 mg/m ³ (Systemic, Acute) * Inhalation 260 mg/m ³ (Local, Acute) *	0.044 mg/L (Water (Fresh)) 0.01 mg/L (Water - Intermittent release) 0.004 mg/L (Water (Marine)) 2.52 mg/kg sediment dw (Sediment (Fresh Water)) 0.252 mg/kg sediment dw (Sediment (Marine)) 0.852 mg/kg soil dw (Soil) 1.6 mg/L (STP)

zinc phosphate	Not Available	0.0144 mg/L (Water (Fresh)) 0.0072 mg/L (Water (Marine)) 146.9 mg/kg sediment dw (Sediment (Fresh Water)) 162.2 mg/kg sediment dw (Sediment (Marine)) 83.1 mg/kg soil dw (Soil) 0.1 mg/L (STP)
n-butanol	Inhalation 310 mg/m ³ (Local, Chronic) Dermal 3.125 mg/kg bw/day (Systemic, Chronic) * Inhalation 55.357 mg/m ³ (Systemic, Chronic) * Oral 1.562 mg/kg bw/day (Systemic, Chronic) * Inhalation 155 mg/m ³ (Local, Chronic) *	0.082 mg/L (Water (Fresh)) 2.25 mg/L (Water - Intermittent release) 0.008 mg/L (Water (Marine)) 0.324 mg/kg sediment dw (Sediment (Fresh Water)) 0.032 mg/kg sediment dw (Sediment (Marine)) 0.017 mg/kg soil dw (Soil) 2476 mg/L (STP)
ethylene glycol monobutyl ether acetate	Dermal 169 mg/kg bw/day (Systemic, Chronic) Inhalation 133 mg/m ³ (Systemic, Chronic) Dermal 120 mg/kg bw/day (Systemic, Acute) Inhalation 333 mg/m ³ (Local, Acute) Dermal 102 mg/kg bw/day (Systemic, Chronic) * Inhalation 80 mg/m ³ (Systemic, Chronic) * Oral 8.6 mg/kg bw/day (Systemic, Chronic) * Dermal 72 mg/kg bw/day (Systemic, Acute) * Oral 36 mg/kg bw/day (Systemic, Acute) * Inhalation 200 mg/m ³ (Local, Acute) *	0.304 mg/L (Water (Fresh)) 0.56 mg/L (Water - Intermittent release) 0.03 mg/L (Water (Marine)) 2.03 mg/kg sediment dw (Sediment (Fresh Water)) 0.203 mg/kg sediment dw (Sediment (Marine)) 0.415 mg/kg soil dw (Soil) 90 mg/L (STP) 60 mg/kg food (Oral)
zinc oxide	Dermal 0.112 mg/kg bw/day (Systemic, Chronic) Inhalation 0.005 mg/m ³ (Systemic, Chronic) Inhalation 0.004 mg/m ³ (Local, Chronic) Inhalation 2 mg/m ³ (Systemic, Acute) Dermal 0.112 mg/kg bw/day (Systemic, Chronic) * Inhalation 0.0025 mg/m ³ (Systemic, Chronic) * Oral 0.001 mg/kg bw/day (Systemic, Chronic) * Inhalation 1 mg/m ³ (Systemic, Acute) *	0.00019 mg/L (Water (Fresh)) 0.0012 mg/L (Water - Intermittent release) 0.00114 mg/L (Water (Marine)) 18 mg/kg sediment dw (Sediment (Fresh Water)) 6.4 mg/kg sediment dw (Sediment (Marine)) 0.7 mg/kg soil dw (Soil) 0.02 mg/L (STP) 0.16 mg/kg food (Oral)

* Values for General Population

Occupational Exposure Limits (OEL) INGREDIENT DATA

Source	Ingredient	Material name	TWA	STEL	Peak	Notes
EU Consolidated List of Indicative Occupational Exposure Limit Values (IOELVs)	xylene	Xylene (mixed isomers, pure)	50 ppm / 221 mg/m ³	442 mg/m ³ / 100 ppm	Not Available	Skin
UK Workplace Exposure Limits (WELs)	xylene	Xylene, o-,m-,p- or mixed isomers	50 ppm / 220 mg/m ³	441 mg/m ³ / 100 ppm	Not Available	Sk, BMGV
UK Workplace Exposure Limits (WELs)	n-butanol	Butan-1-ol	Not Available	154 mg/m ³ / 50 ppm	Not Available	Sk
EU Consolidated List of Indicative Occupational Exposure Limit Values (IOELVs)	ethylene glycol monobutyl ether acetate	2-Butoxyethyl acetate	20 ppm / 133 mg/m ³	333 mg/m ³ / 50 ppm	Not Available	Skin
UK Workplace Exposure Limits (WELs)	ethylene glycol monobutyl ether acetate	2-Butoxyethyl acetate	20 ppm / 133 mg/m ³	332 mg/m ³ / 50 ppm	Not Available	Sk

Ingredient	Original IDLH	Revised IDLH
bisphenol A/ diglycidyl ether resin, liquid	Not Available	Not Available
naphtha petroleum, light aromatic solvent	Not Available	Not Available
xylene	900 ppm	Not Available
zinc phosphate	Not Available	Not Available
n-butanol	1,400 ppm	Not Available
ethylene glycol monobutyl ether acetate	Not Available	Not Available

8.2 Exposure controls

8.2.1. Appropriate 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.
8.2.2. Personal protection:	
Eye and face protection:	Safety glasses with side shields. Chemical goggles. [AS/NZS 1337.1, EN166 or national equivalent] Contact lenses may pose a special hazard; soft contact lenses may absorb and concentrate irritants. A written policy document, describing the wearing of lenses or restrictions on use, should be created for each workplace or task.
Skin protection:	See Hand protection below.
Hands/feet protection:	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 suitable gloves does not only depend on the material, but also on further marks of quality which vary from manufacturer to manufacturer. Where the chemical is a preparation of several substances, the resistance of the glove material can not be calculated in advance and has therefore to be checked prior to the application. The exact break through time for substances has to be obtained from the manufacturer of the protective gloves and has to be observed when making a final choice. Personal hygiene is a key element of effective hand care. When handling liquid-grade epoxy resins wear chemically protective gloves , boots and aprons. The performance, based on breakthrough times ,of: · Ethyl Vinyl Alcohol (EVAL laminate) is generally excellent · Butyl Rubber ranges from excellent to good · Nitrile Butyl Rubber (NBR) from excellent to fair. · Neoprene from excellent to fair · Polyvinyl (PVC) from excellent to poor As defined in ASTM F-739-96 · Excellent breakthrough time > 480 min · Good breakthrough time > 20 min · Fair breakthrough time < 20 min · Poor glove material degradation Gloves should be tested against each resin system prior to making a selection of the most suitable type. Systems include both the resin and any hardener, individually and collectively)

	· DO NOT use cotton or leather (which absorb and concentrate the resin), natural rubber (latex), medical or polyethylene gloves (which absorb the resin).
Body protection:	See Other protection below
Other protection	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 or conductive footwear should be considered. Conductive footwear describes a boot or shoe with a sole made from a conductive compound chemically bound to the bottom components, for permanent control to electrically ground the foot and shall dissipate static electricity from the body to reduce the possibility of ignition of volatile compounds.
Respiratory protection	Respiratory protection is only required in the likelihood that relevant exposure limits may be approached or exceeded, e.g. application in enclosed spaces with restricted air exchange. Concentrations of potentially hazardous substances in air will remain low during normal outdoor application and will not pose a risk to the applicator. Type AX-P Filter of sufficient capacity. (AS/NZS 1716 & 1715, EN 143:2000 & 149:2001, ANSI Z88 or national equivalent) Cartridge respirators should never be used for emergency ingress or in areas of unknown vapour concentrations or oxygen content. The wearer must be warned to leave the contaminated area immediately on detecting any odours through the respirator. The odour may indicate that the mask is not functioning properly, that the vapour concentration is too high, or that the mask is not properly fitted. Because of these limitations, only restricted use of cartridge respirators is considered appropriate. Cartridge performance is affected by humidity. Cartridges should be changed after 2 hr of continuous use unless it is determined that the humidity is less than 75%, in which case, cartridges can be used for 4 hr. Used cartridges should be discarded daily, regardless of the length of time used

8.2.3. Environmental exposure controls

See section 12

9. PHYSICAL AND CHEMICAL PROPERTIES

9.1 Important health, safety and environmental information

Physical state:	Liquid	Relative density (Water = 1)	1.6
Colour:	Coloured	Partition coefficient n-octanol / water	Not Available
Odour:	Not Available	Auto-ignition temperature (°C)	>340
Odour threshold:	Not Available	Decomposition temperature (°C)	Not Available
pH (as supplied):	Not available	Viscosity (cSt)	Kinematic viscosity > 20.5 mm ² /s.
Melting point/freezing point (°C):	Not Available	Molecular weight (g/mol)	Not Available
Boiling point (°C):	37 °C	Taste	Not Available
Flash point (°C):	34 °C	Oxidising properties	Not Available
Evaporation rate [kg/(s m ²)]:	Not Available	Surface Tension (dyn/cm or mN/m)	Not Available
Flammability	FLAMMABLE.	Volatile Component (%vol)	Not Available
Upper Explosive Limit (%):	5.19%	Gas group	Not Available
Lower Explosive Limit (%):	0.99%	pH as a solution (1%)	Not Available
Vapour pressure (kPa)	Not Available	VOC g/L	Not Available
Solubility in water	Immiscible	Ignition Distance (cm)	Not Available
Vapour density (Air = 1)	Not Available	Flame Duration (s)	Not Available

Heat of Combustion (kJ/g)	Not Available	Enclosed Space Ignition Deflagration Density (g/m3)	Not Available
Flame Height (cm)	Not Available	Nanoform Particle Characteristics	Not Available
Enclosed Space Ignition Time Equivalent (s/m3)	Not Available	Explosive properties	Not Available
Nanoform Solubility	Not Available		
Particle Size Not Available	Not Available		

9.2 Other information

Not Available

10. STABILITY AND REACTIVITY

10.1.Reactivity

See section 7.2

10.2. Chemical stability

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

10.3 Possibility of hazardous reactions

See section 7.2

10.4 Conditions to avoid

See section 7.2

10.5 Incompatible materials

See section 7.2

10.6. Hazardous decomposition products

See section 5.3

11. TOXICOLOGICAL INFORMATION

11.1 Information on hazard classes as defined in Regulation (EC) No 1272/2008

a) Acute Toxicity	Based on available data, the classification criteria are not met.
b) Skin Irritation/Corrosion	There is sufficient evidence to classify this material as skin corrosive or irritating.
c) Serious Eye Damage/Irritation	There is sufficient evidence to classify this material as eye damaging or irritating.
d) Respiratory or Skin sensitisation	There is sufficient evidence to classify this material as sensitising to skin or the respiratory system.
e) Mutagenicity	Based on available data, the classification criteria are not met.
f) Carcinogenicity	Based on available data, the classification criteria are not met.
g) Reproductivity	Based on available data, the classification criteria are not met.
h) STOT - Single Exposure	There is sufficient evidence to classify this material as toxic to specific organs through single exposure.
i) STOT - Repeated Exposure	Based on available data, the classification criteria are not met
j) Aspiration Hazard	Based on available data, the classification criteria are not met.

Inhaled:	The material is not thought to produce adverse health effects or irritation of the respiratory tract (as classified by EC Directives using animal models). Nevertheless, good hygiene practice requires that exposure be kept to a minimum and that suitable control measures be used in an occupational setting. 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. Exposure to n-butanol causes dose dependent irritation and headaches in humans, but CNS depression and prostration in mice. Though the offensive odour may forewarn, the smell sense may become fatigued. Aliphatic alcohols with more than 3-carbons cause headache, dizziness, drowsiness, muscle weakness and delirium, central depression, coma, seizures and behavioural changes. Secondary respiratory depression and failure, as well as low blood pressure and irregular heart rhythms, may follow. 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. 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 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. The acute toxicity of inhaled alkylbenzene is best described by central nervous system depression. These compounds may also act as general anaesthetics. Whole body symptoms of poisoning include light-headedness, nervousness, apprehension, a feeling of well-being, confusion, dizziness, drowsiness, ringing in the ears, blurred or double vision, vomiting and sensations of heat, cold or numbness, twitching, tremors, convulsions, unconsciousness, depression of breathing, and arrest. Heart stoppage may result from cardiovascular collapse. Material is highly volatile and may quickly form a concentrated atmosphere in confined or unventilated areas. The vapour may displace and replace air in breathing zone, acting as a simple asphyxiant. This may happen with little warning of overexposure. The use of a quantity of material in an unventilated or confined space may result in increased exposure and an irritating atmosphere developing. Before starting consider control of exposure by mechanical ventilation. Headache, fatigue, tiredness, irritability and digestive disturbances (nausea, loss of appetite and bloating) are the most common symptoms of xylene overexposure. Injury to the heart, liver, kidneys and nervous system has also been noted amongst workers. Xylene is a central nervous system depressant
Ingestion:	Reactive diluents exhibit a range of ingestion hazards. Small amounts swallowed incidental to normal handling operations are not likely to cause injury. However, swallowing larger amounts may cause injury. Overexposure to non-ring alcohols causes nervous system symptoms. These include headache, muscle weakness and inco-ordination, giddiness, confusion, delirium and coma. Animal testing showed that a single dose of bisphenol A diglycidyl ether (BADGE) given by mouth, caused an increase in immature sperm. Swallowing of n-butanol may cause breathing difficulties, headache, nausea, vomiting, irritation of the airway and mucous membranes as well as depression of the central nervous system. 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. 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, weakness, dizziness, slow and shallow breathing, abdominal swelling, unconsciousness and convulsions. Considered an unlikely route of entry in commercial/industrial environments. The liquid may produce gastrointestinal discomfort and may be harmful if swallowed. Accidental ingestion of the material may be damaging to the health of the individual.

Skin contact:	This material can cause inflammation of the skin on contact in some persons. The material may accentuate any pre-existing dermatitis condition 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. Bisphenol A diglycidyl ether (BADGE) may produce contact dermatitis characterized by redness and swelling, with weeping followed by crusting and scaling. A liquid resin with a molecular weight of 350 produced severe skin irritation when applied daily for 4 hours over 20 days. 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. Most liquid alcohols appear to act as primary skin irritants in humans. Significant percutaneous absorption occurs in rabbits but not apparently in man. 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.
Eye:	If applied to the eyes, this material causes severe eye damage. N-butanol can cause eye damage, burning sensation, blurring of vision, excessive tear formation and discomfort to bright light. 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.
Chronic:	Repeated or long-term occupational exposure is likely to produce cumulative health effects involving organs or biochemical systems. Skin contact with the material is more likely to cause a sensitisation reaction in some persons compared to the general population. Toxic: danger of serious damage to health by prolonged exposure through inhalation, in contact with skin and if swallowed. 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. Ample evidence exists from experimentation that reduced human fertility is directly caused by exposure to the material. Bisphenol A diglycidyl ethers (BADGEs) produce a sensitization dermatitis (skin inflammation) characterized by eczema with blisters and papules, with considerable itching of the back of the hand. This may persist for 10-14 days after withdrawal from exposure and recur immediately on re-exposure. The dermatitis may last longer following each exposure, but is unlikely to become more intense. Lower molecular weight species produce sensitization more readily. For some reactive diluents, prolonged or repeated skin contact may result in absorption of potentially harmful amounts or allergic skin reactions. Exposure to some reactive diluents (notably, neopentylglycol diglycidyl ether, CAS RN: 17557-23-2) has caused cancer in some animal testing. Bisphenol A may have effects similar to female sex hormones and when administered to pregnant women, may damage the foetus. It may also damage male reproductive organs and sperm. 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. Hearing and balance loss have been reported with exposure to n-butanol, especially with concomitant long term unprotected exposure to high noise. Glycidyl ethers can cause genetic damage and cancer. Welding or flame cutting of metals with zinc or zinc dust coatings may result in inhalation of zinc oxide fume; high concentrations of zinc oxide fume may result in 'metal fume fever'; also known as 'brass chills', an industrial disease of short duration. [I.L.O] Symptoms include malaise, fever, weakness, nausea and may appear quickly if operations occur in enclosed or poorly ventilated areas. There has been some concern that this material can cause cancer or mutations but there is not enough data to make an assessment. 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. Prolonged or repeated skin contact may cause drying with cracking, irritation and possible dermatitis following.

Caltech FCP Epoxy Primer - Base

Toxicity	Irritation
Not available	Not available

bisphenol A/ diglycidyl ether resin, liquid

Toxicity	Irritation
dermal (rat) LD50: >1200 mg/kg[2]	Eye (Rodent - rabbit): 100mg - Mild
Oral (Mouse) LD50: >500 mg/kg[2]	Eye (Rodent - rabbit): 100mg - Mild
	Eye (Rodent - rabbit): 100mg - Mild
	Eye (Rodent - rabbit): 20mg/24H - Moderate
	Eye (Rodent - rabbit): 5mg/24H - Severe
	Skin (Rodent - guinea pig): 2750mg/55D (intermittent)
	Skin (Rodent - rabbit): 2mg/24H - Severe
	Skin (Rodent - rabbit): 500uL/24H - Moderate

naphtha petroleum, light aromatic solvent

Toxicity	Irritation
Dermal (rabbit) LD50: >1900 mg/kg[1]	Eye (Rodent - rabbit): 100uL/24H - Mild
Inhalation (Rat) LC50: >4.42 mg/L4h[1]	Eye: no adverse effect observed (not irritating)[1]
Oral (Rat) LD50: >4500 mg/kg[1]	Skin: adverse effect observed (irritating)[1]

xylene

Toxicity	Irritation
Dermal (rabbit) LD50: >1700 mg/kg[2]	Eye (Human): 200ppm
Inhalation (Rat) LC50: 5000 ppm4h[2]	Eye (Rodent - rabbit): 5mg/24H - Severe
Oral (Mouse) LD50: 2119 mg/kg[2]	Eye (Rodent - rabbit): 87mg - Mild
	Eye: adverse effect observed (irritating)[1]
	Skin (Rodent - rabbit): 100% - Moderate
	Skin (Rodent - rabbit): 500mg/24H - Moderate
	Skin (Rodent - rat): 60uL/8H - Mild
	Skin: adverse effect observed (irritating)[1]

zinc phosphate

Toxicity	Irritation
Inhalation (Rat) LC50: >5.7 mg/L4h[1]	Eye: no adverse effect observed (not irritating)[1]
Oral (Rat) LD50: >5000 mg/kg[2]	Skin: no adverse effect observed (not irritating)[1]

n-butanol

Toxicity	Irritation
Dermal (rabbit) LD50: 3400 mg/kg[2]	Eye (Human): 50ppm
Inhalation (Rat) LC50: 8000 ppm4h[2]	Eye (Human): 990ppm/1H
Oral (Rat) LD50: 790 mg/kg[2]	Eye (Rodent - rabbit): 0.005mL - Severe
	Eye (Rodent - rabbit): 0.1mL
	Eye (Rodent - rabbit): 1.62mg - Severe
	Eye (Rodent - rabbit): 2mg/24H - Severe
	Eye: adverse effect observed (irreversible damage)[1]
	Skin (Human): 20uL/20M
	Skin (Rodent - rabbit): 20mg/24H - Moderate
	Skin: adverse effect observed (irritating)[1]

ethylene glycol monobutyl ether acetate

Toxicity	Irritation
Dermal (rabbit) LD50: 1500 mg/kg[2]	Eye (Rodent - rabbit): 500mg/24H - Mild
Oral (Rat) LD50: 2400 mg/kg[2]	Eye: no adverse effect observed (not irritating)[1]
	Skin (Rodent - rabbit): 500mg - Mild
	Skin: no adverse effect observed (not irritating)[1]

zinc oxide

Toxicity	Irritation
dermal (rat) LD50: >2000 mg/kg[1]	Eye (Rodent - rabbit): 500mg/24H - Mild
Inhalation (Rat) LC50: >1.79 mg/l4h[1]	Eye: no adverse effect observed (not irritating)[1]
Oral (Rat) LD50: >5000 mg/kg[1]	Skin (Human): 300ug/3D (intermittent) - Mild
	Skin (Rodent - rabbit): 500mg/24H - Mild
	Skin: no adverse effect observed (not irritating)[1]

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

Caltech FCP Epoxy Primer - Base	Data demonstrate that during inhalation exposure, aromatic hydrocarbons undergo substantial partitioning into adipose tissues. Following cessation of exposure, the level of aromatic hydrocarbons in body fats rapidly declines. Thus, the aromatic hydrocarbons are unlikely to bioaccumulate in the body. Selective partitioning of the aromatic hydrocarbons into the non-adipose tissues is unlikely. The various members of the bisphenol family produce hormone like effects, seemingly as a result of binding to estrogen receptor-related receptors (ERRs; not to be confused with estrogen receptors) A suspected estrogen-related receptors (ERR) binding agent: Estrogen-related receptors (ERR, oestrogen-related receptors) are so named because of sequence homology with estrogen receptors but do not appear to bind estrogens or other tested steroid hormones. The ERR family have been demonstrated to control energy homeostasis. oxidative metabolism and mitochondrial biogenesis, while effecting mammalian physiology in the heart, brown adipose tissue, white adipose tissue, placenta, macrophages, and demonstrated additional roles in diabetes and cancer. ERRs bind enhancers throughout the genome where they exert effects on gene regulation. Although their overall functions remain uncertain, they also share DNA-binding sites, co-regulators, and target genes with the conventional estrogen receptors ERalpha and ERbeta and may function to modulate estrogen signaling pathways. -ERR-alpha has wide tissue distribution but it is most highly expressed in tissues that preferentially use fatty acids as energy sources such as kidney, heart, brown adipose tissue, cerebellum, intestine, and skeletal muscle. ERRalpha has been detected in normal adrenal cortex tissues, in which its expression is possibly related to adrenal development, with a possible role in fetal adrenal function, in dehydroepiandrosterone (DHEAS) production in adrenarche, and also in steroid production of post-adrenarche/adult life. DHEA and other adrenal androgens such as androstenedione, although relatively weak androgens, are responsible for the androgenic effects of adrenarche, such as early pubic and axillary hair growth, adult-type body odor, increased oiliness of hair and skin, and mild acne. -ERR-beta is a nuclear receptor. Oxiranes (including glycidyl ethers and alkyl oxides, and epoxides) share many common characteristics with respect to animal toxicology. One such oxirane is ethyloxirane; data presented here may be taken as representative
BISPHENOL A/ DIGLYCIDYL ETHER RESIN, LIQUID	Foototoxicity has been observed in animal studies Oral (rabbit, female) NOEL 180 mg/kg (teratogenicity; NOEL (maternal 60 mg/kg
NAPHTHA PETROLEUM, LIGHT AROMATIC SOLVENT	Inhalation (rat) TClO: 1320 ppm/6h/90D-I * [Devoe] Most Low Boiling Point Naphthas (LBPNS) have low acute toxicity to oral, dermal and inhalation routes of exposure, and mild to moderate skin and eye irritating effects. However, some heavier 'cracked' LBPNS (LKBPNs with greater olefinic content) have been found to be more irritating to the skin and eyes compared to non-cracked LBPNS. LBPNS are not known to be sensitising to the skin. Animal studies examined the effects of short-term and longer-term exposure to LBPNS through inhalation or oral routes. In male rats specifically, exposure to LBPNS resulted in kidney-related issues like increased kidney weight, kidney lesions, and hyaline droplet

	formation. However, the same effects were not seen in female rats, mice, or humans due to a mechanism of action involving a particular enzyme only found in male rats. For C9 aromatics (typically trimethylbenzenes – TMBs) Acute toxicity: Animal testing shows that semi-lethal concentrations and doses vary amongst this group. The semilethal concentrations for inhalation range from 6000 to 10000 mg/cubic metre for C9 aromatic naphtha and 18000-24000 mg/cubic metre for 1,2,4- and 1,3,5-TMB, respectively. Irritation and sensitization: Results from animal testing indicate that C9 aromatic hydrocarbon solvents are mildly to moderately irritating to the skin, minimally irritating to the eye, and have the potential to irritate the airway and cause depression of breathing rate. There is no evidence that it sensitizes skin. Repeated dose toxicity: Animal studies show that chronic inhalation toxicity for C9 aromatic hydrocarbon solvents is slight. Similarly, oral exposure does not appear to pose a high toxicity hazard for pure trimethylbenzene isomers. Mutation-causing ability: No evidence of mutation-causing ability and genetic toxicity was found in animal and laboratory testing. Reproductive and developmental toxicity: No definitive effects on reproduction were seen, although reduction in weight in developing animals may be seen at concentrations that are toxic to the mother. Petroleum contains aromatic (benzene, toluene, ethyl benzene, naphthalene) and aliphatic hydrocarbons (n-hexane), which can result in many detrimental health effects, including, cancer, tumour formation, hearing loss, and nervous system toxicity. Animal testing shows breathing in petroleum causes tumours of the liver and kidney; these are however not considered to be relevant in humans. Similarly, exposure to gasoline over a lifetime can cause kidney cancer in animals, but the relevance in humans is questionable. Most studies involving gasoline have shown that gasoline does not cause genetic mutation, including all recent studies in living human subjects (such as in petrol service station attendants). Animal studies show concentrations of toluene (>0.1%) can cause developmental effects such as lower birth weight and developmental toxicity to the nervous system of the foetus. Other studies show no adverse effects on the foetus. Prolonged contact with petroleum may result in skin inflammation and make the skin more sensitive to irritation and penetration by other materials.
XYLENE	Reproductive effector in rats
N-BUTANOL	Asthma-like symptoms may continue for months or even years after exposure to the material ends. This may be due to a non-allergic condition known as reactive airways dysfunction syndrome (RADS) which can occur after exposure to high levels of highly irritating compound. Main criteria for diagnosing RADS include the absence of previous airways disease in a non-atopic individual, with sudden onset of persistent asthma-like symptoms within minutes to hours of a documented exposure to the irritant. Other criteria for diagnosis of RADS include a reversible airflow pattern on lung function tests, moderate to severe bronchial hyperreactivity on methacholine challenge testing, and the lack of minimal lymphocytic inflammation, without eosinophilia. For n-butanol: Acute toxicity: In animal testing, n-butanol (BA) was only slightly toxic, following exposure by swallowing, skin contact or irritation. Animal testing and human experience suggest that n-butanol is moderately irritating to the skin but severely irritating to the eye. Human studies show that BA is not likely to cause skin sensitization. Warning of exposure occurs before irritation of the nose, because n-butanol has an odour which can be detected below concentration levels cause irritation. Repeat dose toxicity: Animal testing showed temporarily reduction in activity and food intake following repeated exposure to BA, but otherwise there was no evidence of chronic toxicity. Reproductive toxicity: Several animal studies indicate BA does not possess reproductive toxicity, and does not affect fertility. Developmental toxicity: BA only caused developmental changes and toxic effects on the foetus near or at levels that were toxic to the mother. Genetic toxicity: Testing shows that BA does not possess genetic toxicity. Cancer-causing potential: Based on negative results from testing for potential of n-butanol to cause mutations and chromosomal aberrations, BA has a very small potential for causing cancer.

ETHYLENE GLYCOL MONOBUTYL ETHER ACETATE	mae The material may be irritating to the eye, with prolonged contact causing inflammation. Repeated or prolonged exposure to irritants may produce conjunctivitis. For ethylene glycol: Ethylene glycol is quickly and extensively absorbed throughout the gastrointestinal tract. Limited information suggests that it is also absorbed through the airways; absorption through skin is apparently slow. Following absorption, it is distributed throughout the body. In humans, it is initially metabolized by alcohol dehydrogenase to form glycoaldehyde, which is rapidly converted to glycolic acid and glyoxal. For ethylene glycol monoalkyl ethers and their acetates (EGMAEs): Typical members of this category are ethylene glycol propylene ether (EGPE), ethylene glycol butyl ether (EGBE) and ethylene glycol hexyl ether (EGHE) and their acetates. EGMAEs are substrates for alcohol dehydrogenase isozyme ADH-3, which catalyzes the conversion of their terminal alcohols to aldehydes (which are transient metabolites). Further, rapid conversion of the aldehydes by aldehyde dehydrogenase produces alkoxyacetic acids, which are the predominant urinary metabolites of mono substituted glycol ethers. Acute Toxicity: Oral LD50 values in rats for all category members range from 739 (EGHE) to 3089 mg/kg bw (EGPE), with values increasing with decreasing molecular weight. Four to six hour acute inhalation toxicity studies were conducted for these chemicals in rats at the highest vapour concentrations practically achievable. Values range from LC0 > 85 ppm (508 mg/m3) for EGHE, LC50 > 400ppm (2620 mg/m3) for EGBEA to LC50 > 2132 ppm (9061 mg/m3) for EGPE.
Caltech FCP Epoxy Primer - Base & BISPHENOL A/ DIGLYCIDYL ETHER RESIN, LIQUID	The following information refers to contact allergens as a group and may not be specific to this product. Contact allergies quickly manifest themselves as contact eczema, more rarely as urticaria or Quincke's oedema. The pathogenesis of contact eczema involves a cell-mediated (T lymphocytes) immune reaction of the delayed type. Other allergic skin reactions, e.g. contact urticaria, involve antibody-mediated immune reactions. Animal testing over 13 weeks showed bisphenol A diglycidyl ether (BADGE) caused mild to moderate, chronic, inflammation of the skin. Reproductive and Developmental Toxicity: Animal testing showed BADGE given over several months caused reduction in body weight but had no reproductive effects. Cancer-causing potential: It has been concluded that bisphenol A diglycidyl ether cannot be classified with respect to its cancer-causing potential in humans. Genetic toxicity: Laboratory tests on genetic toxicity of BADGE have so far been negative. Immunotoxicity: Animal testing suggests regular injections of diluted BADGE may result in sensitization. Consumer exposure: Consumer exposure to BADGE is almost exclusively from migration of BADGE from can coatings into food. Testing has not found any evidence of hormonal disruption. The chemical structure of hydroxylated diphenylalkanes or bisphenols consists of two phenolic rings joined together through a bridging carbon. This class of endocrine disruptors that mimic oestrogens is widely used in industry, particularly in plastics. Bisphenol A (BPA) and some related compounds exhibit oestrogenic activity in human breast cancer cell line MCF-7, but there were remarkable differences in activity. Several derivatives of BPA exhibited significant thyroid hormonal activity towards rat pituitary cell line GH3, which releases growth hormone in a thyroid hormone-dependent manner. However, BPA and several other derivatives did not show such activity.
Caltech FCP Epoxy Primer - Base & NAPHTHA PETROLEUM, LIGHT AROMATIC SOLVENT	Animal studies indicate that normal, branched and cyclic paraffins are absorbed from the gastrointestinal tract and that the absorption of n-paraffins is inversely proportional to the carbon chain length, with little absorption above C30. With respect to the carbon chain lengths likely to be present in mineral oil, n-paraffins may be absorbed to a greater extent than iso- or cyclo-paraffins. The major classes of hydrocarbons are well absorbed into the gastrointestinal tract in various species. In many cases, the hydrophobic hydrocarbons are ingested in association with fats in the diet. Some hydrocarbons may appear unchanged as in the lipoprotein particles in the gut lymph, but most hydrocarbons partly separate from fats and undergo metabolism in the gut cell. For trimethylbenzenes: Absorption of 1,2,4-trimethylbenzene occurs after exposure by swallowing, inhalation, or skin contact. In the workplace, inhalation and skin contact are the most important routes of absorption; whole-body toxic effects from skin absorption are unlikely to occur as the

	skin irritation caused by the chemical generally leads to quick removal. The substance is fat-soluble and may accumulate in fatty tissues. It is also bound to red blood cells in the bloodstream.
BISPHENOL A/ DIGLYCIDYL ETHER RESIN, LIQUID & XYLENE	The substance is classified by IARC as Group 3: NOT classifiable as to its carcinogenicity to humans. Evidence of carcinogenicity may be inadequate or limited in animal testing.
XYLENE & N-BUTANOL	The material may produce severe irritation to the eye causing pronounced inflammation. Repeated or prolonged exposure to irritants may produce conjunctivitis.
XYLENE & N-BUTANOL & ETHYLENE GLYCOL MONOBUTYL ETHER ACETATE & ZINC OXIDE	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.

Acute Toxicity	✗	Carcinogenicity	✗
Skin Irritation/Corrosion	✓	Reproductivity	✗
Serious Eye Damage/Irritation	✓	STOT - Single Exposure	✓
Respiratory or Skin Sensitisation	✓	STOT - Repeated Exposure	✗
Mutagenicity	✗	Aspiration Hazard	✗

Legend:

- ✗ - Data either not available or does not fill the criteria for classification.
✓ - Data available to make classification.

11.2 Information on other hazards

11.2.1. Endocrine disrupting properties

Many chemicals may mimic or interfere with the body's hormones, known as the endocrine system. Endocrine disruptors are chemicals that can interfere with endocrine (or hormonal) systems. Endocrine disruptors interfere with the synthesis, secretion, transport, binding, action, or elimination of natural hormones in the body. Any system in the body controlled by hormones can be derailed by hormone disruptors. Specifically, endocrine disruptors may be associated with the development of learning disabilities, deformations of the body various cancers and sexual development problems. Endocrine disrupting chemicals cause adverse effects in animals. But limited scientific information exists on potential health problems in humans. Because people are typically exposed to multiple endocrine disruptors at the same time, assessing public health effects is difficult.

11.2.2. Other information

See Section 11.1

12. ECOLOGICAL INFORMATION

12.1 Toxicity

Toxicity to fish [mg/l]:

Hazardous ingredients:

Caltech FCP Epoxy Primer - Base				
End Point	Test Duration (hr)	Species	Value	Source
Not Available	Not Available	Not Available	Not Available	Not Available

bisphenol A/ diglycidyl ether resin, liquid				
End Point	Test Duration (hr)	Species	Value	Source
EC50(ECx)	48h	Crustacea	~2mg/l	2
EC50	48h	Crustacea	~2mg/l	2

naphtha petroleum, light aromatic solvent				
End Point	Test Duration (hr)	Species	Value	Source
EC50	72h	Algae or other aquatic plants	19mg/l	1
EC50	48h	Crustacea	6.14mg/l	1
EC50	96h	Algae or other aquatic plants	64mg/l	2
NOEC(ECx)	72h	Algae or other aquatic plants	1mg/l	1

xylene				
End Point	Test Duration (hr)	Species	Value	Source
EC50	72h	Algae or other aquatic plants	4.6mg/l	2
EC50	48h	Crustacea	1.8mg/l	2
NOEC(ECx)	73h	Algae or other aquatic plants	0.44mg/l	2
LC50	96h	Fish	2.6mg/l	2

zinc phosphate				
End Point	Test Duration (hr)	Species	Value	Source
EC50	72h	Algae or other aquatic plants	0.051mg/L	2
EC50	48h	Crustacea	0.105mg/L	2
EC50	96h	Algae or other aquatic plants	0.042mg/L	2
EC10(ECx)	168h	Algae or other aquatic plants	0.003mg/L	2
LC50	96h	Fish	0.09mg/L	4

n-butanol				
End Point	Test Duration (hr)	Species	Value	Source
EC50	72h	Algae or other aquatic plants	>500mg/l	1
EC50	48h	Crustacea	>500mg/l	1
EC50	96h	Algae or other aquatic plants	225mg/l	2
NOEC(ECx)	504h	Crustacea	4.1mg/l	2
LC50	96h	Fish	100-500mg/l	4

ethylene glycol monobutyl ether acetate				
End Point	Test Duration (hr)	Species	Value	Source
EC50	72h	Algae or other aquatic plants	>500mg/l	1
EC50	48h	Crustacea	37mg/l	1
EC10(ECx)	48h	Crustacea	6.9mg/l	2
LC50	96h	Fish	>20<40mg/l	2

zinc oxide				
End Point	Test Duration (hr)	Species	Value	Source
BCF	1344h	Fish	19-110	7
EC50	72h	Algae or other aquatic plants	0.022mg/L	2
EC50	48h	Crustacea	0.105mg/L	2
EC10(ECx)	168h	Algae or other aquatic plants	0.003mg/L	2
EC50	96h	Algae or other aquatic plants	0.042mg/L	2
LC50	96h	Fish	0.102mg/L	2
ErC50	72h	Algae or other aquatic plants	0.62mg/l	2

Legend:

Extracted from 1. IUCLID Toxicity Data 2. Europe ECHA Registered Substances - Ecotoxicological Information - Aquatic Toxicity 4. US EPA, Ecotox database - Aquatic Toxicity Data 5. ECETOC Aquatic Hazard Assessment Data 6. NITE (Japan) - Bioconcentration Data 7. METI (Japan)- Bioconcentration Data 8. Vendor Data

Very toxic to aquatic organisms, may cause long-term adverse effects in the aquatic environment.

Do NOT allow product to come in contact with surface waters or to intertidal areas below the mean high water mark. Do not contaminate water when cleaning equipment or disposing of equipment wash-waters.

Wastes resulting from use of the product must be disposed of on site or at approved waste sites. For 1,2,4 - Trimethylbenzene: Half-life (hr) air: 0.48-16;

Half-life (hr) H₂O surface water: 0.24 -672; Half-life (hr) H₂O ground: 336-1344;

Half-life (hr) soil: 168-672; Henry's Pa m³ /mol: 385 -627;

Bioaccumulation: not significant. 1,2,4-Trimethylbenzene is a volatile organic compound (VOC) substance.

Atmospheric Fate: 1,2,4-trimethylbenzene can contribute to the formation of photochemical smog in the presence of other VOCs. Degradation of 1,2,4-trimethylbenzene in the atmosphere occurs by reaction with hydroxyl radicals.

For Aromatic Substances Series:

Environmental Fate: Large, molecularly complex polycyclic aromatic hydrocarbons, or PAHs, are persistent in the environment longer than smaller PAHs.

Atmospheric Fate: PAHs are 'semi-volatile substances' which can move between the atmosphere and the Earth's surface in repeated, temperature-driven cycles of deposition and volatilization. Terrestrial Fate: BTEX compounds have the potential to move through soil and contaminate ground water, and their vapors are highly flammable and explosive. Ecotoxicity - Within an aromatic series, acute toxicity increases with increasing alkyl substitution on the aromatic nucleus.

For bisphenol A and related bisphenols:

Environmental fate:

Biodegradability (28 d) 89% - Easily biodegradable Bioconcentration factor (BCF) 7.8 mg/l

Bisphenol A, its derivatives and analogues, can be released from polymers, resins and certain substances by metabolic products Substance does not meet the criteria for PBT or vPvB according to Regulation (EC) No 1907/2006, Annex XIII

As an environmental contaminant, bisphenol A interferes with nitrogen fixation at the roots of leguminous plants associated with the bacterial symbiont *Sinorhizobium meliloti*. Despite a half-life in the soil of only 1-10 days, its ubiquity makes it an important pollutant. According to Environment Canada, 'initial assessment shows that at low levels, bisphenol A can harm fish and organisms over time. Studies also indicate that it can currently be found in municipal wastewater.' However, a study conducted in the United States found that 91-98% of bisphenol A may be removed from water during treatment at municipal water treatment plants.

For petroleum distillates:

Environmental fate:

When petroleum substances are released into the environment, four major fate processes will take place: dissolution in water, volatilization, biodegradation and adsorption. These processes will cause changes in the composition of these UVCB substances. In the case of spills on land or water surfaces, photodegradation-another fate process-can also be significant. As noted previously, the solubility and vapour pressure of components within a mixture will differ from those of the component alone. For C₉ aromatics (typically trimethylbenzene - TMBs)

Chemicals in this category possess properties indicating a hazard for the environment (acute toxicity for fish, invertebrates, and algae from 1 to 10 mg/L). Category members are readily biodegradable, except 1,3,5-trimethylbenzene (CAS RN 108-67-8). Category members are not expected to be bioaccumulative.

Environmental Fate:

In the air, category member constituents have the potential to rapidly degrade through indirect photolytic processes mediated primarily by hydroxyl radicals with calculated degradation half-lives ranging from 0.54 to 2.81 days (based on a 12-hour day and a hydroxyl radical concentration of 5x10⁻⁵).

Significant environmental findings are limited. Oxiranes (including glycidyl ethers and alkyl oxides, and epoxides) exhibit common characteristics with respect to environmental fate and ecotoxicology. One such oxirane is ethyloxirane and data presented here may be taken as representative.

For 1,2-Butylene oxide (Ethyloxirane):

log Kow values of 0.68 and 0.86. BAF and BCF : 1 to 17 L./kg.

Aquatic Fate - Ethyloxirane is highly soluble in water and has a very low soil-adsorption coefficient, which suggests that, if released to water, adsorption of ethyloxirane to sediment and suspended solids is not expected. Volatilization of ethyloxirane from water surfaces would be expected.

For Xylenes:

log Koc : 2.05-3.08; Koc : 25.4-204; Half-life (hr) air : 0.24-42; Half-life (hr) H₂O surface water : 24-672; Half-life (hr) H₂O ground : 336-8640; Half-life (hr) soil : 52-672; Henry's Pa m³ /mol : 637-879; Henry's atm m³ /mol - 7.68E-03; BOD 5 if unstated - 1.4,1%; COD - 2.56,13% ThOD - 3.125 ; BCF : 23; log BCF : 1.17-2.41.

Environmental Fate: Most xylenes released to the environment will occur in the atmosphere and volatilisation is the dominant environmental fate process. Soil - Xylenes are expected to have moderate mobility in soil evaporating rapidly from soil surfaces. The extent of the degradation is expected to depend on its concentration, residence time in the soil, the nature of the soil, and whether resident microbial populations have been acclimated.

For Zinc and its Compounds: BCF: 4 to 24,000.

Environmental Fate: Zinc is capable of forming complexes with a variety of organic and inorganic groups and is an essential nutrient present in all organisms.

Atmospheric Fate: Zinc concentrations in the air are relatively low, except near industrial sources, such as smelters. There is no estimate for the atmospheric lifetime of zinc, but, since zinc is transported long distances in air, its lifetime in air is at least on the order of days.

DO NOT discharge into sewer or waterways.

12.2 Persistence and degradability

Ingredient	Persistence: Water/Soil	Persistence: Air
bisphenol A/ diglycidyl ether resin, liquid	HIGH	HIGH
xylene	HIGH (Half-life = 360 days)	LOW (Half-life = 1.83 days)
n-butanol	LOW (Half-life = 54 days)	LOW (Half-life = 3.65 days)
ethylene glycol monobutyl ether acetate	LOW	LOW

12.3 Bioaccumulation potential

Ingredient	Bioaccumulation
bisphenol A/ diglycidyl ether resin, liquid	LOW (LogKOW = 2.6835)
xylene	MEDIUM (BCF = 740)
n-butanol	LOW (BCF = 0.64)
ethylene glycol monobutyl ether acetate	LOW (BCF = 3.2)

12.4. Mobility in soil

Ingredient	Bioaccumulation
bisphenol A/ diglycidyl ether resin, liquid	LOW (Log KOC = 51.43)
n-butanol	MEDIUM (Log KOC = 2.443)
ethylene glycol monobutyl ether acetate	LOW (Log KOC = 10)

12.5 Results of PBT and vPvB assessment

	P	B	T	PBT criteria fulfilled?	vP	vB	vPvB criteria fulfilled?
Caltech FCP Epoxy Primer - Base	No data available	No data available	No data available	No	No data available	No data available	No
bisphenol A/ diglycidyl ether resin, liquid	✓	✗	✗	No	✗	✗	No
naphtha petroleum, light aromatic solvent	No data available	No data available	No data available	No	No data available	No data available	No
xylene	✗	✗	✓	No	✗	✗	No
zinc phosphate	No data available	No data available	No data available	No	No data available	No data available	No
n-butanol	No data available	No data available	No data available	No	No data available	No data available	No
ethylene glycol monobutyl ether acetate	No data available	No data available	No data available	No	No data available	No data available	No
zinc oxide	No data available	No data available	No data available	No	No data available	No data available	No

12.6. Endocrine disrupting properties

The evidence linking adverse effects to endocrine disruptors is more compelling in the environment than it is in humans. Endocrine disruptors profoundly alter reproductive physiology of ecosystems and ultimately impact entire populations. Some endocrine-disrupting chemicals are slow to break-down in the environment. That characteristic makes them potentially hazardous over long periods of time. Some well established adverse effects of endocrine disruptors in various wildlife species include; eggshell-thinning, displayed of characteristics of the opposite sex and impaired reproductive development. Other adverse changes in wildlife species that have been suggested, but not proven include; reproductive abnormalities, immune dysfunction and skeletal deformities.

12.7. Other adverse effects

No evidence of ozone depleting properties were found in the current literature.

13. DISPOSAL CONSIDERATIONS

13.1 Waste treatment methods

Disposal Considerations:	Disposal of this product and its packaging must comply with all applicable environmental protection and waste disposal legislation, including any requirements set by local authorities. Any unwanted or non-recyclable material should be disposed of through a licensed waste disposal contractor. Transportation of such waste may be subject to ADR (International Carriage of Dangerous Goods by Road) regulations and must be managed in accordance with those requirements.
Waste code:	Uncured product: 08 01 11* waste paint and varnish containing organic solvents or other hazardous substances. Cured product inert residue: 17 09 04 mixed construction and demolition wastes other than those mentioned in 17 09 01, 17 09 02 and 17 09 03 Empty metal paint tins with only hardened, inert residue: 15 01 04 metallic packaging.
Special precautions:	This material and its container must be disposed of in a safe way. Caution should be exercised when handling empty containers that have not been properly cleaned or rinsed, as they may retain hazardous residues. Spillage and wash water from cleaning tools must be prevented from entering soil, watercourses, drains, or sewer systems. Empty containers should be directed to authorised waste disposal or appropriate local recycling facilities. DO NOT seal or stopper drums being decontaminated as CO2 gas is generated and may pressurise containers.
Further information available via:	https://www.alumascroofing.com/downloads/disposal-guides/ 

14. TRANSPORT INFORMATION

Labels required:



Hazchem: ●3Y;●3YE

Land transport (ADR):

14.1 UN number	1263
14.2 UN proper shipping name	PAINT (including paint, lacquer, enamel, stain, shellac, varnish, polish, liquid filler and liquid lacquer base)
14.3 Transport hazard class(es)	Class: 3 Subsidiary Hazard: N/A
14.4 Packing group	III
14.5 Environmental hazard	Environmentally hazardous
14.6 Special precautions for user	Hazard identification (Kemler): 30 Classification code: F1 Hazard label: 3 Special provisions: 163 367 650 Limited quantity: 5 L Transport Category: 3 Tunnel restriction code: D/E

Air transport (ICAO-IATA/DGR):

14.1 UN number	1263
14.2 UN proper shipping name	PAINT (including paint, lacquer, enamel, stain, shellac, varnish, polish, liquid filler and liquid lacquer base)
14.3 Transport hazard class(es)	ICAO/IATA class: 3 ICAO/IATA Subsidiary Hazard: N/A ERG code: 3L
14.4 Packing group	III
14.5 Environmental hazard	Environmentally hazardous
14.6 Special precautions for user	Special provisions: A3 A72 A192 Cargo only packing instruction: 366 Cargo only maximum qty/pack: 220 L Passenger and cargo packing instruction: 355 Passenger and cargo maximum qty/pack: 60L Passenger and cargo limited qty packing instructions: Y334 Passenger and cargo limited maximum qty/pack: 10 L

Sea transport (IMDG-Code/GGVSee):

14.1 UN number	1263
14.2 UN proper shipping name	PAINT (including paint, lacquer, enamel, stain, shellac, varnish, polish, liquid filler and liquid lacquer base)
14.3 Transport hazard class(es)	IMDG class: 3 IMDG Subsidiary Hazard: Not applicable
14.4 Packing group	III
14.5 Environmental hazard	Environmentally hazardous
14.6 Special precautions for user	EMS number: F-E, S-E Special provisions: 163 223 367 955 Limited quantities: 5 L

Inland waterways transport (ADN):

14.1 UN number	1263
14.2 UN proper shipping name	PAINT (including paint, lacquer, enamel, stain, shellac, varnish, polish, liquid filler and liquid lacquer base)
14.3 Transport hazard class(es)	Class: 3 Subsidiary Hazard: N/A
14.4 Packing group	III
14.5 Environmental hazard	Environmentally hazardous
14.6 Special precautions for user	Classification code: F1 Special provisions: 163; 367; 650 Limited quantity: 5 L Equipment required: PP, EX, A Fire cones numbers: 0

14.7. Maritime transport in bulk according to IMO instruments

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

Not applicable.

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

Product name	Group
bisphenol A/ diglycidyl ether resin, liquid	Not Available
naphtha petroleum, light aromatic solvent	Not Available
xylene	Not Available
zinc phosphate	Not Available
n-butanol	Not Available
ethylene glycol monobutyl ether acetate	Not Available
zinc oxide	Not Available

14.7.3. Transport in bulk in accordance with the IGC Code

Product name	Ship Type
bisphenol A/ diglycidyl ether resin, liquid	Not Available
naphtha petroleum, light aromatic solvent	Not Available
xylene	Not Available
zinc phosphate	Not Available
n-butanol	Not Available
ethylene glycol monobutyl ether acetate	Not Available
zinc oxide	Not Available

15. REGULATORY INFORMATION

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

bisphenol A/ diglycidyl ether resin, liquid is found on the following regulatory lists

Chemical Footprint Project - Chemicals of High Concern List

Europe EC Inventory

Europe European Customs Inventory of Chemical Substances- ECICS

European Union (EU) Regulation (EC) No 1272/2008 on Classification, Labelling and Packaging of Substances and Mixtures - Annex VI

International WHO List of Proposed Occupational Exposure Limit (OEL) Values for Manufactured Nanomaterials (MNMS)

naphtha petroleum, light aromatic solvent is found on the following regulatory lists

Chemical Footprint Project - Chemicals of High Concern List

EU REACH Regulation (EC) No 1907/2006 - Annex XVII - Restrictions on the manufacture, placing on the market and use of certain dangerous substances, mixtures and articles

EU REACH Regulation (EC) No 1907/2006 - Annex XVII (Appendix 2) Carcinogens: Category 1 B

EU REACH Regulation (EC) No 1907/2006 - Annex XVII (Appendix 4) Germ cell mutagens: Category 1 B

Europe EC Inventory

Europe European Customs Inventory of Chemical Substances- ECICS

European Union - European Inventory of Existing Commercial Chemical Substances (EINECS)

European Union (EU) Regulation (EC) No 1272/2008 on Classification, Labelling and Packaging of Substances and Mixtures - Annex VI

xylene is found on the following regulatory lists

EU Consolidated List of Indicative Occupational Exposure Limit Values (IOELVs)

EU European Chemicals Agency (ECHA) Community Rolling Action Plan (CoRAP) List of Substances

EU REACH Regulation (EC) No 1907/2006 - Annex XVII - Restrictions on the manufacture, placing on the market and use of certain dangerous substances, mixtures and articles

Europe EC Inventory

Europe European Customs Inventory of Chemical Substances- ECICS

European Union - European Inventory of Existing Commercial Chemical Substances (EINECS)

European Union (EU) Regulation (EC) No 1272/2008 on Classification, Labelling and Packaging of Substances and Mixtures - Annex VI

International Agency for Research on Cancer (IARC) - Agents Classified by the IARC Monographs - Not Classified as Carcinogenic

zinc phosphate is found on the following regulatory lists

EU European Chemicals Agency (ECHA) Community Rolling Action Plan (CoRAP) List of Substances

Europe EC Inventory

European Union - European Inventory of Existing Commercial Chemical Substances (EINECS)

European Union (EU) Regulation (EC) No 1272/2008 on Classification, Labelling and Packaging of Substances and Mixtures - Annex VI

International WHO List of Proposed Occupational Exposure Limit (OEL) Values for Manufactured Nanomaterials (MNMS)

n-butanol is found on the following regulatory lists

EU European Chemicals Agency (ECHA) Community Rolling Action Plan (CoRAP) List of Substances

EU REACH Regulation (EC) No 1907/2006 - Annex XVII - Restrictions on the manufacture, placing on the market and use of certain dangerous substances, mixtures and articles

Europe EC Inventory

Europe European Customs Inventory of Chemical Substances- ECICS

European Union - European Inventory of Existing Commercial Chemical Substances (EINECS)
European Union (EU) Regulation (EC) No 1272/2008 on Classification, Labelling and Packaging of Substances and Mixtures - Annex VI

ethylene glycol monobutyl ether acetate is found on the following regulatory lists

EU Consolidated List of Indicative Occupational Exposure Limit Values (IOELVs)
Europe EC Inventory
Europe European Customs Inventory of Chemical Substances- ECICS
European Union - European Inventory of Existing Commercial Chemical Substances (EINECS)
European Union (EU) Regulation (EC) No 1272/2008 on Classification, Labelling and Packaging of Substances and Mixtures - Annex VI

zinc oxide is found on the following regulatory lists

EU European Chemicals Agency (ECHA) Community Rolling Action Plan (CoRAP) List of Substances
Europe EC Inventory
Europe European Customs Inventory of Chemical Substances- ECICS
European Union - European Inventory of Existing Commercial Chemical Substances (EINECS)
European Union (EU) Regulation (EC) No 1272/2008 on Classification, Labelling and Packaging of Substances and Mixtures - Annex VI
International WHO List of Proposed Occupational Exposure Limit (OEL) Values for Manufactured Nanomaterials (MNMS)

Additional Regulatory Information

Not Applicable

This safety data sheet is in compliance with the following EU legislation and its adaptations - as far as applicable - :

Directives 98/24/EC, - 92/85/EEC, - 94/33/EC, - 2008/98/EC, - 2010/75/EU; Commission Regulation (EU) 2020/878; Regulation (EC) No 1272/2008 as updated through ATPs.

Information according to 2012/18/EU (Seveso III):

Seveso Category: P5a, P5b, P5c, E1, E2

15.2 Chemical Safety Assessment

No Chemical Safety Assessment has been carried out for this substance/mixture by the supplier.

ECHA summary:

Ingredient	CAS number	Index No	ECHA Dossier
bisphenol A/ diglycidyl ether resin, liquid	25068-38-6	603-074-00-8	01-2119456619-26-0016

Harmonisation (C&L Inventory)	Hazard Class and Category Code(s)	Pictograms Signal Word Code(s)	Hazard Statement Code(s)
1	Skin Corrosion/Irritation Category 2; Sensitisation (Skin) Category 1; Serious Eye Damage/Eye Irritation Category 2; Hazardous to the Aquatic Environment Long-Term Hazard Category 2	GHS07; GHS09; Wng	H315; H317; H319; H411
2	Skin Corrosion/Irritation Category 2; Sensitisation (Skin) Category 1; Serious Eye Damage/Eye Irritation Category 2; Hazardous to the Aquatic Environment Acute Hazard Category 1; Hazardous to the Aquatic Environment Long-Term Hazard Category 1; Acute Toxicity (Oral) Category 4; Specific Target Organ Toxicity - Single Exposure (Respiratory Tract Irritation) Category 3	GHS09; Dgr; GHS08	H315; H317; H319; H400; H410; H372; H335
1	Skin Corrosion/Irritation Category 2; Sensitisation (Skin) Category 1; Serious Eye Damage/Eye Irritation Category 2; Hazardous to the Aquatic Environment Long-Term Hazard Category 2	GHS07; GHS09; Wng	H315; H317; H319; H411
2	Skin Corrosion/Irritation Category 2; Sensitisation (Skin) Category 1; Serious Eye Damage/Eye Irritation Category 2; Hazardous to the Aquatic Environment Long-Term Hazard Category 2; Sensitisation (Skin) Category 1B; Sensitisation (Skin) Category 1A	GHS07; GHS09; Wng	H315; H317; H319; H411
Harmonisation Code 1 = The most prevalent classification. Harmonisation Code 2 = The most severe classification.			

Ingredient	CAS number	Index No	ECHA Dossier
naphtha petroleum, light aromatic solvent	64742-95-6.	649-356-00-4	01-2119455851-35-0000

Harmonisation (C&L Inventory)	Hazard Class and Category Code(s)	Pictograms Signal Word Code(s)	Hazard Statement Code(s)
1	Flammable Liquids Category 3; Aspiration Hazard Category 1; Skin Corrosion/Irritation Category 2; Serious Eye Damage/Eye Irritation Category 2; Specific Target Organ Toxicity - Single Exposure (Respiratory Tract Irritation) Category 3; Hazardous to the Aquatic Environment Long-Term Hazard Category 2	GHS08; GHS02; GHS09; Dgr	H226; H304; H315; H319; H335; H336
2	Flammable Liquids Category 3; Aspiration Hazard Category 1; Skin Corrosion/Irritation Category 2; Serious Eye Damage/Eye Irritation Category 2; Specific Target Organ Toxicity - Single Exposure (Respiratory Tract Irritation) Category 3; Hazardous to the Aquatic Environment Long-Term Hazard Category 2	GHS08; GHS02; GHS09; Dgr	H226; H304; H315; H319; H335; H336; H411
1	Aspiration Hazard Category 1; Germ Cell Mutagenicity Category 1B; Carcinogenicity Category 1B	GHS08; Dgr	H304; H340; H350
2	Aspiration Hazard Category 1; Germ Cell Mutagenicity Category 1B; Carcinogenicity Category 1B; Flammable Liquids Category 1; Skin Corrosion/Irritation Category 2; Specific Target Organ Toxicity - Single Exposure (Narcotic Effects) Category 3; Reproductive Toxicity Category 2; Hazardous to the Aquatic Environment Long-Term Hazard Category 2; Serious Eye Damage/Eye Irritation Category 2; Specific Target Organ Toxicity - Single Exposure (Respiratory Tract Irritation) Category 3; Acute Toxicity (Oral) Category 4; Hazardous to the Aquatic Environment Acute Hazard Category 1; Specific Target Organ Toxicity - Repeated Exposure Category 1	GHS08; Dgr; GHS02; GHS09	H304; H340; H350; H224; H315; H336; H361; H411; H318; H335; H332; H302; H372

Harmonisation Code 1 = The most prevalent classification. Harmonisation Code 2 = The most severe classification.

Ingredient	CAS number	Index No	ECHA Dossier
xylene	1330-20-7	Not Available	01-2119488216-32-0030

Harmonisation (C&L Inventory)	Hazard Class and Category Code(s)	Pictograms Signal Word Code(s)	Hazard Statement Code(s)
1	Flammable Liquids Category 3; Acute Toxicity (Dermal) Category 4; Skin Corrosion/Irritation Category 2; Acute Toxicity (Inhalation) Category 4	GHS07; GHS02; Wng	H226; H312; H315; H332
2	Acute Toxicity (Oral) Category 4; Skin Corrosion/Irritation Category 2; Aspiration Hazard Category 1; Specific Target Organ Toxicity - Single Exposure (Respiratory Tract Irritation) Category 3; Flammable Liquids Category 2; Reproductive Toxicity Category 1B; Hazardous to the Aquatic Environment Long-Term Hazard Category 2; Specific Target Organ Toxicity - Single Exposure Category 1; Specific Target Organ Toxicity - Repeated Exposure Category 1; Reproductive Toxicity Effects on or via Lactation; Hazardous to the Aquatic Environment Acute Hazard Category 1; Sensitisation (Skin) Category 1; Serious Eye Damage/Eye Irritation Category 1	GHS08; Dgr; GHS01; GHS09; GHS05	H312; H315; H332; H304; H335; H225; H336; H360; H411; H370; H372; H302; H362; H400; H317; H318

Harmonisation Code 1 = The most prevalent classification. Harmonisation Code 2 = The most severe classification.

Ingredient	CAS number	Index No	ECHA Dossier
zinc phosphate	7779-90-0	030-011-00-6	01-2119485044-40-0000

Harmonisation (C&L Inventory)	Hazard Class and Category Code(s)	Pictograms Signal Word Code(s)	Hazard Statement Code(s)
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1	Hazardous to the Aquatic Environment Acute Hazard Category 1; Hazardous to the Aquatic Environment Long-Term Hazard Category 1	GHS09; Wng	H400; H410
2	Hazardous to the Aquatic Environment Acute Hazard Category 1; Hazardous to the Aquatic Environment Long-Term Hazard Category 1	GHS09; Wng	H400; H410
1	Hazardous to the Aquatic Environment Acute Hazard Category 1; Hazardous to the Aquatic Environment Long-Term Hazard Category 1	GHS09; Wng	H400; H410
2	Hazardous to the Aquatic Environment Acute Hazard Category 1; Hazardous to the Aquatic Environment Long-Term Hazard Category 1	GHS09; Wng	H400; H410
1	Hazardous to the Aquatic Environment Acute Hazard Category 1; Hazardous to the Aquatic Environment Long-Term Hazard Category 1	GHS09; Wng	H410
2	Hazardous to the Aquatic Environment Acute Hazard Category 1; Hazardous to the Aquatic Environment Long-Term Hazard Category 1	GHS09; Wng	H410; H400
Harmonisation Code 1 = The most prevalent classification. Harmonisation Code 2 = The most severe classification.			

Ingredient	CAS number	Index No	ECHA Dossier
n-butanol	71-36-3	603-004-00-6	01-2119484630-38-0000

Harmonisation (C&L Inventory)	Hazard Class and Category Code(s)	Pictograms Signal Word Code(s)	Hazard Statement Code(s)
1	Flammable Liquids Category 3; Acute Toxicity (Oral) Category 4; Skin Corrosion/Irritation Category 2; Serious Eye Damage/Eye Irritation Category 1; Specific Target Organ Toxicity - Single Exposure (Respiratory Tract Irritation) Category 3; Specific Target Organ Toxicity - Single Exposure (Narcotic Effects) Category 3	GHS02; GHS05; Dgr	H226; H302; H315; H318; H335; H336
2	Acute Toxicity (Oral) Category 4; Skin Corrosion/Irritation Category 2; Serious Eye Damage/Eye Irritation Category 1; Specific Target Organ Toxicity - Single Exposure (Respiratory Tract Irritation) Category 3; Aspiration Hazard Category 1; Specific Target Organ Toxicity - Repeated Exposure Category 1; Flammable Liquids Category 2; Hazardous to the Aquatic Environment Acute Hazard Category 1; Hazardous to the Aquatic Environment Long-Term Hazard Category 2	GHS02; GHS05; Dgr; GHS08; GHS09	H302; H315; H318; H335; H336; H370; H332; H225; H304; H372; H400; H411
Harmonisation Code 1 = The most prevalent classification. Harmonisation Code 2 = The most severe classification.			

Ingredient	CAS number	Index No	ECHA Dossier
ethylene glycol monobutyl ether acetate	112-07-2	607-038-00-2	01-2119475112-47-0000

Harmonisation (C&L Inventory)	Hazard Class and Category Code(s)	Pictograms Signal Word Code(s)	Hazard Statement Code(s)
1	Acute Toxicity (Dermal) Category 4; Acute Toxicity (Inhalation) Category 4	GHS07; Wng	H312; H332
2	Acute Toxicity (Dermal) Category 4; Acute Toxicity (Inhalation) Category 4; Acute Toxicity (Oral) Category 4; Serious Eye Damage/Eye Irritation Category 2; Specific Target Organ Toxicity - Single Exposure (Respiratory Tract Irritation) Category 3	GHS07; Wng	H312; H332; H302; H319; H335; H412
Harmonisation Code 1 = The most prevalent classification. Harmonisation Code 2 = The most severe classification.			

Ingredient	CAS number	Index No	ECHA Dossier
zinc oxide	1314-13-2	030-013-00-7	01-2119463881-32-0000

Harmonisation (C&L Inventory)	Hazard Class and Category Code(s)	Pictograms Signal Word Code(s)	Hazard Statement Code(s)
1	Hazardous to the Aquatic Environment Acute Hazard Category 1; Hazardous to the Aquatic Environment Long-Term Hazard Category 1	GHS09; Wng	H410
2	Hazardous to the Aquatic Environment Acute Hazard Category 1; Hazardous to the Aquatic Environment Long-Term Hazard Category 1; Reproductive Toxicity Category 1A; Specific Target Organ Toxicity - Single Exposure (Respiratory Tract Irritation) Category 3; Specific Target Organ Toxicity - Single Exposure Category 1; Specific Target Organ Toxicity - Repeated Exposure Category 1; Acute Toxicity (Oral) Category 2; Sensitisation (Skin) Category 1; Serious Eye Damage/Eye Irritation Category 1; Germ Cell Mutagenicity Category 2; Carcinogenicity Category 1A; Skin Corrosion/Irritation Category 1B	GHS09; GHS08; Dgr; GHS06; GHS05	H410; H360; H400; H335; H370; H372; H300; H330; H317; H318; H341; H350; H314
1	Acute Toxicity (Oral) Category 4; Serious Eye Damage/Eye Irritation Category 1; Acute Toxicity (Inhalation) Category 4; Carcinogenicity Category 1A; Reproductive Toxicity Category 1A; Reproductive Toxicity Effects on or via Lactation; Specific Target Organ Toxicity - Repeated Exposure Category 1; Hazardous to the Aquatic Environment Acute Hazard Category 1; Hazardous to the Aquatic Environment Long-Term Hazard Category 1	GHS08; GHS09; GHS05; Dgr	H302; H332; H315; H318; H350; H360; H373; H410
2	Acute Toxicity (Oral) Category 4; Serious Eye Damage/Eye Irritation Category 1; Acute Toxicity (Inhalation) Category 4; Carcinogenicity Category 1A; Reproductive Toxicity Category 1A; Reproductive Toxicity Effects on or via Lactation; Specific Target Organ Toxicity - Repeated Exposure Category 1; Hazardous to the Aquatic Environment Acute Hazard Category 1; Hazardous to the Aquatic Environment Long-Term Hazard Category 1	GHS08; GHS09; GHS05; Dgr	H302; H332; H315; H318; H350; H360; H373; H410
1	Non Hazardous	Not Applicable	Not Applicable
2	Non Hazardous	Not Applicable	Not Applicable

Harmonisation Code 1 = The most prevalent classification. Harmonisation Code 2 = The most severe classification.

National Inventory Status

National Inventory	Status
Australia - AIIIC / Australia Non-Industrial Use	Yes
Canada - DSL	Yes
Canada - NDSL	No (bisphenol A/ diglycidyl ether resin, liquid; naphtha petroleum, light aromatic solvent; xylene; n-butanol; ethylene glycol monobutyl ether acetate)
China - IECSC	Yes
Europe - EINEC / ELINCS / NLP	Yes
Japan - ENCS	Yes
Korea - KECI	Yes
New Zealand - NZIoC	Yes
Philippines - PICCS	Yes
USA - TSCA	All chemical substances in this product have been designated as TSCA Inventory 'Active'
Taiwan - TCSI	Yes
Mexico - INSQ	No (zinc phosphate)
Vietnam - NCI	Yes

Russia - FBEPH	Yes
UAE - Control List (Banned/Restricted Substances)	No (bisphenol A/ diglycidyl ether resin, liquid; naphtha petroleum, light aromatic solvent; xylene; zinc phosphate; n-butanol; ethylene glycol monobutyl ether acetate; zinc oxide)
Legend:	Yes = All CAS declared ingredients are on the inventory. No = One or more of the CAS listed ingredients are not on the inventory and are not exempt from listing (see specific ingredients in brackets).

16. OTHER INFORMATION

SDS version summary:

Version	Date of Update	Section Updated
1.0	13/04/2026	Template Change

H224: Extremely flammable liquid and vapour.
H225: Highly flammable liquid and vapour.
H300: Fatal if swallowed.
H302: Harmful if swallowed.
H304: May be fatal if swallowed and enters airways.
H312: Harmful in contact with skin.
H314: Causes severe skin burns and eye damage.
H319: Causes serious eye irritation.
H330: Fatal if inhaled.
H332: Harmful if inhaled.
H335: May cause respiratory irritation.
H340: May cause genetic defects.
H341: Suspected of causing genetic defects.
H350: May cause cancer.
H360: May damage fertility or the unborn child.
H361: Suspected of damaging fertility or the unborn child.
H362: May cause harm to breast-fed children.
H370: Causes damage to organs.
H372: Causes damage to organs through prolonged or repeated exposure.
H373: May cause damage to organs through prolonged or repeated exposure.
H410: Very toxic to aquatic life with long lasting effects.
H412: Harmful to aquatic life with long lasting effects.

Other information

The SDS is a Hazard Communication tool and should be used to assist in the Risk Assessment. Many factors determine whether the reported Hazards are Risks in the workplace or other settings. Risks may be determined by reference to Exposures Scenarios. Scale of use, frequency of use and current or available engineering controls must be considered. For detailed advice on Personal Protective Equipment, refer to the following EU CEN Standards:

EN 166 Personal eye-protection
EN 340 Protective clothing
EN 374 Protective gloves against chemicals and micro-organisms
EN 13832 Footwear protecting against chemicals
EN 133 Respiratory protective devices

Definitions and abbreviations

PC—TWA: Permissible Concentration-Time Weighted Average
PC—STEL: Permissible Concentration-Short Term Exposure Limit
IARC: International Agency for Research on Cancer
ACGIH: American Conference of Governmental Industrial Hygienists
STEL: Short Term Exposure Limit
TEEL: Temporary Emergency Exposure Limit.
IDLH: Immediately Dangerous to Life or Health Concentrations
ES: Exposure Standard
OSF: Odour Safety Factor
NOAEL: No Observed Adverse Effect Level
LOAEL: Lowest Observed Adverse Effect Level
TLV: Threshold Limit Value

LOD: Limit Of Detection
OTV: Odour Threshold Value
BCF: BioConcentration Factors
BEI: Biological Exposure Index
DNEL: Derived No-Effect Level
PNEC: Predicted no-effect concentration
MARPOL: International Convention for the Prevention of Pollution from Ships
IMSBC: International Maritime Solid Bulk Cargoes Code
IGC: International Gas Carrier Code
IBC: International Bulk Chemical Code

AIIIC: Australian Inventory of Industrial Chemicals
DSL: Domestic Substances List
NDSL: Non-Domestic Substances List
IECSC: Inventory of Existing Chemical Substance in China
EINECS: European Inventory of Existing Commercial chemical Substances
ELINCS: European List of Notified Chemical Substances
NLP: No-Longer Polymers
ENCs: Existing and New Chemical Substances Inventory
KECI: Korea Existing Chemicals Inventory
NZIoC: New Zealand Inventory of Chemicals
PICCS: Philippine Inventory of Chemicals and Chemical Substances
TSCA: Toxic Substances Control Act
TCSI: Taiwan Chemical Substance Inventory
INSQ: Inventario Nacional de Sustancias Químicas
NCI: National Chemical Inventory
FBEPH: Russian Register of Potentially Hazardous Chemical and Biological Substances

Classification and procedure used to derive the classification for mixtures according to Regulation (EC) 1272/2008 [CLP]

Classification according to regulation (EC) No 1272/2008 [CLP] and amendments	Classification Procedure
Flammable Liquids Category 3, H226	On basis of test data
Skin Corrosion/Irritation Category 2, H315	Minimum classification
Sensitisation (Skin) Category 1, H317	Calculation method
Serious Eye Damage/Eye Irritation Category 1, H318	Calculation method
Specific Target Organ Toxicity - Single Exposure (Narcotic Effects) Category 3, H336	Calculation method
Hazardous to the Aquatic Environment Acute Hazard Category 1, H400	Calculation method
Hazardous to the Aquatic Environment Long-Term Hazard Category 2, H411	Calculation method

The contents and format of this Safety Data Sheet comply with UK REACH (UK Regulation (EC) No 1907/2006 as amended) and UK CLP Regulation (UK Regulation (EC) No 1272/2008 as amended), including the requirements of Annex II of UK REACH

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