SECTION 1 IDENTIFICATION OF THE SUBSTANCE / MIXTURE AND OF THE COMPANY / UNDERTAKING

Product Identifier

<table>
<thead>
<tr>
<th>Product name</th>
<th>2P EXPRESS CLEAR</th>
</tr>
</thead>
<tbody>
<tr>
<td>Synonyms</td>
<td>2PEXC</td>
</tr>
<tr>
<td>Proper shipping name</td>
<td>PAINT (including paint, lacquer, enamel, stain, shellac, varnish, polish, liquid filler and liquid lacquer base) or PAINT RELATED MATERIAL (including paint thinning or reducing compound)</td>
</tr>
<tr>
<td>Other means of identification</td>
<td>Not Available</td>
</tr>
</tbody>
</table>

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

Relevant identified uses

Use according to manufacturer's directions.

Details of the supplier of the safety data sheet

Registered company name
HiChem Paint Technologies Pty Ltd

Address
73 Hallam South Road Hallam Victoria 3803 Australia

Telephone
+61 3 9796 3400

Fax
+61 3 9796 4500

Website
www.hichem.com.au

Email
info@hichem.com.au

Registered company name
Rust-Oleum Australia

Address
Unit 12, 4 Southridge St, Eastern Creek NSW 2766 Australia

Telephone
+61 2 8808 0600

Fax
+61 2 9680 0111

Website
www.rustoleum.com.au

Email
sales@rustoleum.com.au

Registered company name
Chemcare

Address

Telephone

Fax

Website

Email

Emergency telephone number

Association / Organisation
HiChem Paint Technologies

Emergency telephone numbers
Not Available

Other emergency telephone numbers
Not Available

Association / Organisation
Not Available

Emergency telephone numbers
Not Available

Other emergency telephone numbers
Not Available

CHEMWATCH EMERGENCY RESPONSE

Primary Number
1800 039 008

Alternative Number 1
1800 039 008

Alternative Number 2
+612 9186 1132

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

SECTION 2 HAZARDS IDENTIFICATION

Classification of the substance or mixture

Continued...
HAZARDOUS CHEMICAL. DANGEROUS GOODS. According to the WHS Regulations and the ADG Code.

### CHEMWATCH HAZARD RATINGS

<table>
<thead>
<tr>
<th>Min</th>
<th>Max</th>
</tr>
</thead>
<tbody>
<tr>
<td>0</td>
<td>1</td>
</tr>
</tbody>
</table>

**Legend:**
- 0 = Minimum
- 1 = Low
- 2 = Moderate
- 3 = High
- 4 = Extreme

#### Poisons Schedule

**Classification [1]**
- Flammable Liquid Category 2
- Specific target organ toxicity - single exposure Category 3 (narcotic effects)

**Legend:**

### Label elements

#### GHS label elements

**SIGNAL WORD**
- DANGER

**Hazard statement(s)**
- H225 Highly flammable liquid and vapour.
- H336 May cause drowsiness or dizziness.
- AUH066 Repeated exposure may cause skin dryness and cracking

**Precautionary statement(s) Prevention**
- P210 Keep away from heat/sparks/open flames/hot surfaces. - No smoking.
- P271 Use only outdoors or in a well-ventilated area.
- P240 Ground/bond container and receiving equipment.
- P241 Use explosion-proof electrical/ventilating/lighting/intrinsically safe equipment.
- P242 Use only non-sparking tools.
- P243 Take precautionary measures against static discharge.
- P261 Avoid breathing mist/vapours/spray.
- P280 Wear protective gloves/protective clothing/eye protection/face protection.

**Precautionary statement(s) Response**
- P370+P378 In case of fire: Use alcohol resistant foam or normal protein foam for extinction.
- P312 Call a POISON CENTER or doctor/physician if you feel unwell.
- P303+P361+P353 IF ON SKIN (or hair): Remove/Take off immediately all contaminated clothing. Rinse skin with water/shower.
- P304+P340 IF INHALED: Remove victim to fresh air and keep at rest in a position comfortable for breathing.

**Precautionary statement(s) Storage**
- P403+P235 Store in a well-ventilated place. Keep cool.
- P405 Store locked up.

**Precautionary statement(s) Disposal**
- P501 Dispose of contents/container in accordance with local regulations.

### SECTION 3 COMPOSITION / INFORMATION ON INGREDIENTS

#### Substances

See section below for composition of Mixtures

<table>
<thead>
<tr>
<th>CAS No</th>
<th>%[weight]</th>
<th>Name</th>
</tr>
</thead>
<tbody>
<tr>
<td>123-86-4</td>
<td>30-60</td>
<td>n-buty l acetate</td>
</tr>
<tr>
<td>108-65-6</td>
<td>10-30</td>
<td>propylene glycol monomethyl ether acetate, alpha-isomer</td>
</tr>
<tr>
<td>763-69-9</td>
<td>1-10</td>
<td>ethyl-3-ethoxypropionate</td>
</tr>
</tbody>
</table>

**Ingredients determined not to be hazardous**
## Description of first aid measures

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

<table>
<thead>
<tr>
<th>Skin Contact</th>
<th>If skin contact occurs:</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Immediately remove all contaminated clothing, including footwear.</td>
</tr>
<tr>
<td></td>
<td>Flush skin and hair with running water (and soap if available).</td>
</tr>
<tr>
<td></td>
<td>Seek medical attention in event of irritation.</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Inhalation</th>
<th>If fumes or combustion products are inhaled:</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Lay patient down. Keep warm and rested.</td>
</tr>
<tr>
<td></td>
<td>Prostheses such as false teeth, which may block airway, should be removed, where possible, prior to initiating first aid procedures.</td>
</tr>
<tr>
<td></td>
<td>Apply artificial respiration if not breathing, preferably with a demand valve resuscitator, bag-valve mask device, or pocket mask as trained. Perform CPR if necessary.</td>
</tr>
<tr>
<td></td>
<td>Transport to hospital, or doctor.</td>
</tr>
</tbody>
</table>

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

**Indication of any immediate medical attention and special treatment needed**

Treat symptomatically.

## SECTION 5 FIREFIGHTING MEASURES

### Extinguishing media
- Alcohol stable foam.
- Dry chemical powder.
- BCF (where regulations permit).
- Carbon dioxide.
- Water spray or fog - Large fires only.

### Special hazards arising from the substrate or mixture

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

### Advice for firefighters

#### Fire Fighting
- Alert Fire Brigade and tell them location and nature of hazard. |
- May be violently or explosively reactive. |
- Wear breathing apparatus plus protective gloves. |
- Prevent, by any means available, spillage from entering drains or water course. |
- If safe, switch off electrical equipment until vapour fire hazard removed. |
- Use water delivered as a fine spray to control fire and cool adjacent area. |
- Avoid spraying water onto liquid pools. |
- **DO NOT** approach containers suspected to be hot. |
- Cool fire exposed containers with water spray from a protected location. |
- If safe to do so, remove containers from path of fire. |

#### Fire/Explosion Hazard
- 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. |
- Vapour may travel a considerable distance to source of ignition. |
- Heating may cause expansion or decomposition leading to violent rupture of containers. |
- On combustion, may emit toxic fumes of carbon monoxide (CO). |
- Combustion products include; carbon dioxide (CO2) other pyrolysis products typical of burning organic material

### HAZCHEM
- 3YE

## SECTION 6 ACCIDENTAL RELEASE MEASURES

### Personal precautions, protective equipment and emergency procedures

See section 8

### Environmental precautions

See section 12

### Methods and material for containment and cleaning up

#### Minor Spills
- Remove all ignition sources. |
- Clean up all spills immediately. |
- Avoid breathing vapours and contact with skin and eyes. |
- Control personal contact with the substance, by using protective equipment. |
- Contain and absorb small quantities with vermiculite or other absorbent material. |
- Wipe up. |
- Collect residues in a flammable waste container.
### Precautions for safe handling

- Containers, even those that have been emptied, may contain explosive vapours.
- DO NOT cut, drill, grind, weld or perform similar operations on or near containers.
- DO NOT allow clothing wet with material to stay in contact with skin.
- 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 enter confined spaces until atmosphere has been checked.
- Avoid smoking, naked lights or ignition sources.
- Avoid generation of static electricity.
- DO NOT use plastic buckets.

### Safe handling

- Earth all lines and equipment.
- Use spark-free tools when handling.
- Avoid contact with incompatible materials.
- When handling, DO NOT eat, drink or smoke.
- Keep containers securely sealed when not in use.
- Avoid physical damage to containers.
- Always wash hands with soap and water after handling.
- Work clothes should be laundered separately.
- Use good occupational work practice.
- Observe manufacturer's storage and handling recommendations contained within this SDS.
- Atmosphere should be regularly checked against established exposure standards to ensure safe working conditions.

### 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.
- Storage areas should be clearly identified, well illuminated, clear of obstruction and accessible only to trained and authorised personnel - adequate security must be provided so that unauthorised personnel do not have access.
- Store according to applicable regulations for flammable materials for storage tanks, containers, piping, buildings, rooms, cabinets, allowable quantities and minimum storage distances.
- Use non-sparking ventilation systems, approved explosion proof equipment and intrinsically safe electrical systems.
- Have appropriate extinguishing capability in storage area (e.g. portable fire extinguishers - dry chemical, foam or carbon dioxide) and flammable gas detectors.
- Keep adsorbents for leaks and spills readily available.
- Protect containers against physical damage and check regularly for leaks.
- Observe manufacturer's storage and handling recommendations contained within this SDS.

### Conditions for safe storage, including any incompatibilities

- 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), approved explosion proof equipment and intrinsically safe electrical systems.
- Have appropriate extinguishing capability in storage area (e.g. portable fire extinguishers - dry chemical, foam or carbon dioxide) and flammable gas detectors.
- Keep adsorbents for leaks and spills readily available.
- Protect containers against physical damage and check regularly for leaks.
- Observe manufacturer's storage and handling recommendations contained within this SDS.

### Storage compatibility

- n-Butyl acetate:
  - reacts with water on standing to form acetic acid and n-butyl alcohol
  - reacts violently with strong oxidisers and potassium tert-butoxide
  - is incompatible with caustics, strong acids and nitrates
  - dissolves rubber, many plastics, resins and some coatings

---

Personal Protective Equipment advice is contained in Section 8 of the SDS.
SECTION 8 EXPOSURE CONTROLS / PERSONAL PROTECTION

Control parameters

OCCUPATIONAL EXPOSURE LIMITS (OEL)

<table>
<thead>
<tr>
<th>Source</th>
<th>Ingredient</th>
<th>Material name</th>
<th>TWA</th>
<th>STEL</th>
<th>Peak</th>
<th>Notes</th>
</tr>
</thead>
<tbody>
<tr>
<td>Australia Exposure Standards</td>
<td>n-butyl acetate</td>
<td>n-Butyl acetate</td>
<td>713 mg/m³ / 150 ppm</td>
<td>950 mg/m³ / 200 ppm</td>
<td>Not Available</td>
<td>Not Available</td>
</tr>
<tr>
<td>Australia Exposure Standards</td>
<td>propylene glycol monomethyl ether acetate, alpha-isomer</td>
<td>1-Methoxy-2-propanol acetate</td>
<td>274 mg/m³ / 50 ppm</td>
<td>548 mg/m³ / 100 ppm</td>
<td>Not Available</td>
<td>Sk</td>
</tr>
</tbody>
</table>

EMERGENCY LIMITS

<table>
<thead>
<tr>
<th>Ingredient</th>
<th>Material name</th>
<th>TEEL-1</th>
<th>TEEL-2</th>
<th>TEEL-3</th>
</tr>
</thead>
<tbody>
<tr>
<td>n-butyl acetate</td>
<td>Butyl acetate, n-</td>
<td>Not Available</td>
<td>Not Available</td>
<td>Not Available</td>
</tr>
<tr>
<td>propylene glycol monomethyl ether acetate, alpha-isomer</td>
<td>Propylene glycol monomethyl ether acetate, alpha-isomer; (1-Methoxypropyl-2-acetate)</td>
<td>Not Available</td>
<td>Not Available</td>
<td>Not Available</td>
</tr>
<tr>
<td>propylene glycol monomethyl ether acetate, alpha-isomer</td>
<td>Propylene glycol monomethyl ether acetate, beta-isomer; (2-Methoxypropyl-1-acetate)</td>
<td>Not Available</td>
<td>Not Available</td>
<td>Not Available</td>
</tr>
</tbody>
</table>

Personal protection

Avoid strong acids, bases.

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

For flammable liquids and flammable gases, local exhaust ventilation or a process enclosure ventilation system may be required. Ventilation equipment should be explosion-resistant.

Air contaminants generated in the workplace possess varying "escape" velocities which, in turn, determine the "capture velocities" of fresh circulating air required to effectively remove the contaminant.

<table>
<thead>
<tr>
<th>Type of Contaminant:</th>
<th>Air Speed:</th>
</tr>
</thead>
<tbody>
<tr>
<td>solvent, vapours, degreasing etc., evaporating from tank (in still air).</td>
<td>0.25-0.5 m/s (50-100 f/min.)</td>
</tr>
<tr>
<td>aerosols, fumes from pouring operations, intermittent container filling, low speed conveyor transfers, welding, spray drift, plating acid fumes, pickling (released at low velocity into zone of active generation)</td>
<td>0.5-1 m/s (100-200 f/min.)</td>
</tr>
<tr>
<td>direct spray, spray painting in shallow booths, drum filling, conveyor loading, crusher dusts, gas discharge (active generation into zone of rapid air motion)</td>
<td>1-2.5 m/s (200-500 f/min.)</td>
</tr>
</tbody>
</table>

Within each range the appropriate value depends on:

- Lower end of the range
- Upper end of the range
  1: Room air currents minimal or favourable to capture 1: Disturbing room air currents
  2: Contaminants of low toxicity or of nuisance value only. 2: Contaminants of high toxicity
  3: Intermittent, low production. 3: High production, heavy use
  4: Large hood or large air mass in motion 4: Small hood-local control only

Simple theory shows that air velocity falls rapidly with distance away from the opening of a simple extraction pipe. Velocity generally decreases with the square of distance from the extraction point (in simple cases). Therefore the air speed at the extraction point should be adjusted, accordingly, after reference to distance from the contaminating source. The air velocity at the extraction fan, for example, should be a minimum of 1-2 m/s (200-400 f/min.) for extraction of solvents generated in a tank 2 meters distant from the extraction point. Other mechanical considerations, producing performance deficits within the extraction apparatus, make it essential that theoretical air velocities are multiplied by factors of 10 or more when extraction systems are installed or used.
Eye and face protection

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

Skin protection

See Hand protection below

Hands/feet protection

Body protection

See Other protection below

Other protection

Thermal hazards

Not Available

GLOVE SELECTION INDEX

Glove selection is based on a modified presentation of the "Forsberg Clothing Performance Index".
The effect(s) of the following substance(s) are taken into account in the computer-generated selection:

<table>
<thead>
<tr>
<th>Material</th>
<th>CPI</th>
</tr>
</thead>
<tbody>
<tr>
<td>BUTYL</td>
<td>C</td>
</tr>
<tr>
<td>BUTYL/NEOPRENE</td>
<td>C</td>
</tr>
<tr>
<td>HYDAPOL</td>
<td>C</td>
</tr>
<tr>
<td>NATURAL RUBBER</td>
<td>C</td>
</tr>
<tr>
<td>NEOPRENE</td>
<td>C</td>
</tr>
<tr>
<td>NITRILE</td>
<td>C</td>
</tr>
<tr>
<td>NITRILE+PVC</td>
<td>C</td>
</tr>
<tr>
<td>PE</td>
<td>C</td>
</tr>
<tr>
<td>PE/EVALPE</td>
<td>C</td>
</tr>
<tr>
<td>PVA</td>
<td>C</td>
</tr>
</tbody>
</table>

Respiratory protection

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

Where the concentration of gas/particulates in the breathing zone, approaches or exceeds the "Exposure Standard" (or ES), respiratory protection is required.

Degree of protection varies with both face-piece and Class of filter; the nature of protection varies with Type of filter.

<table>
<thead>
<tr>
<th>Material</th>
<th>Protection Factor</th>
</tr>
</thead>
<tbody>
<tr>
<td>up to 10 x ES</td>
<td>A-AUS / Class 1</td>
</tr>
<tr>
<td>up to 50 x ES</td>
<td>Air-line*</td>
</tr>
<tr>
<td>up to 100 x ES</td>
<td>A-3</td>
</tr>
<tr>
<td>100+ x ES</td>
<td>Air-line**</td>
</tr>
</tbody>
</table>

* Continuous flow: ** Continuous flow or positive pressure demand

A(All classes) = Organic vapours, B = Acid gasses, B2 = Acid gas or hydrogen cyanide(HCN), B3 = Acid gas or hydrogen cyanide(HCN), E = Sulfur dioxide(SO2), G = Agricultural chemicals, K = Ammonia(NH3), Hg = Mercury, NO = Oxides of nitrogen, MB = Methyl bromide, AX = Low boiling point organic compounds(below 65 degC)

Cartridge respirators should never be used for emergency ingress or in areas of unknown vapour concentrations or oxygen content. The wearer must be warned to leave the contaminated area immediately.
SECTION 9 PHYSICAL AND CHEMICAL PROPERTIES

Information on basic physical and chemical properties

<table>
<thead>
<tr>
<th>Property</th>
<th>Value</th>
</tr>
</thead>
<tbody>
<tr>
<td>Appearance</td>
<td>Highly flammable clear liquid.</td>
</tr>
<tr>
<td>Physical state</td>
<td>Liquid</td>
</tr>
<tr>
<td>Relative density (Water = 1)</td>
<td>Not Available</td>
</tr>
<tr>
<td>Odour</td>
<td>Not Available</td>
</tr>
<tr>
<td>Odour threshold</td>
<td>Not Available</td>
</tr>
<tr>
<td>pH (as supplied)</td>
<td>Not Available</td>
</tr>
<tr>
<td>Melting point / freezing point</td>
<td>Not Available</td>
</tr>
<tr>
<td>Initial boiling point and boiling range (°C)</td>
<td>Not Available</td>
</tr>
<tr>
<td>Flash point (°C)</td>
<td>*22 (butyl acetate)</td>
</tr>
<tr>
<td>Evaporation rate</td>
<td>Not Available</td>
</tr>
<tr>
<td>Flammability</td>
<td>HIGHLY FLAMMABLE.</td>
</tr>
<tr>
<td>Oxidising properties</td>
<td>Not Available</td>
</tr>
<tr>
<td>Upper Explosive Limit (%)</td>
<td>Not Available</td>
</tr>
<tr>
<td>Lower Explosive Limit (%)</td>
<td>Not Available</td>
</tr>
<tr>
<td>Vapour pressure (kPa)</td>
<td>Not Available</td>
</tr>
<tr>
<td>Solubility in water (g/L)</td>
<td>Not Available</td>
</tr>
<tr>
<td>Vapour density (Air = 1)</td>
<td>Not Available</td>
</tr>
<tr>
<td>Molecular weight (g/mol)</td>
<td>Not Available</td>
</tr>
<tr>
<td>Surface Tension (dyn/cm or mN/m)</td>
<td>Not Available</td>
</tr>
<tr>
<td>Gas group</td>
<td>Not Available</td>
</tr>
<tr>
<td>pH as a solution (1%)</td>
<td>Not Available</td>
</tr>
<tr>
<td>VOC g/L</td>
<td>570.92</td>
</tr>
</tbody>
</table>

SECTION 10 STABILITY AND REACTIVITY

Reactivity
- See section 7

Chemical stability

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

Possibility of hazardous reactions
- See section 7

Conditions to avoid
- See section 7

Incompatible materials
- See section 7

Hazardous decomposition products
- See section 5

SECTION 11 TOXICOLOGICAL INFORMATION

Information on toxicological effects

**Inhaled**
Inhalation of vapours may cause drowsiness and dizziness. This may be accompanied by sleepiness, reduced alertness, loss of reflexes, lack of co-ordination, and vertigo. Inhalation of vapours or aerosols (mists, fumes), generated by the material during the course of normal handling, may be damaging to the health of the individual.

Prolonged exposure may cause headache, nausea and ultimately loss of consciousness.

**Ingestion**
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.

**Skin Contact**
Repeated exposure may cause skin cracking, flaking or drying following normal handling and use.

There is some evidence to suggest that the material may cause moderate inflammation of the skin either following direct contact or after a delay of some time.

Repeated exposure can cause contact dermatitis which is characterised by redness, swelling and blistering.

Open cuts, abraded or irritated skin should not be exposed to this material.

**Eye**
There is some evidence that material may produce eye irritation in some persons and produce eye damage 24 hours or more after instillation. Severe inflammation may be expected with redness.

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

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

**In vitro**

Eye (rabbit): 500mg/24h - mild

Eye (rabbit): 20 mg (open)-SEVERE

Not Available

Eye (rabbit): 20 mg/24h - moderate

Eye (human): 300 mg

Skin (rabbit): 10 mg/24h open mild

Nil reported

**Skin (rabbit): 10 mg/24h open mild**

**TOXICITY**

**n-butyl acetate**

<table>
<thead>
<tr>
<th>Route</th>
<th>LD50</th>
<th>Response</th>
</tr>
</thead>
<tbody>
<tr>
<td>Dermal (rat) LD50</td>
<td>&gt;14080 mg/kg</td>
<td>* [IPPG]</td>
</tr>
<tr>
<td>Inhalation (rat) LC50</td>
<td>2000 ppm/4hr</td>
<td>Eye (human): 300 mg</td>
</tr>
<tr>
<td>Inhalation (rat) LC50</td>
<td>390 ppm/4hr</td>
<td>Eye (rabbit): 20 mg (open)-SEVERE</td>
</tr>
<tr>
<td>Oral (rat) LD50</td>
<td>10736 mg/kg</td>
<td>Eye (rabbit): 20 mg/24h - moderate</td>
</tr>
<tr>
<td>Oral (rat) LD50</td>
<td>&gt;14.1 mg/l</td>
<td>Skin (rabbit): 500 mg/24h-moderate</td>
</tr>
</tbody>
</table>

**propylene glycol monomethyl ether acetate, alpha-isomer**

**TOXICITY**

<table>
<thead>
<tr>
<th>Route</th>
<th>LD50</th>
<th>Response</th>
</tr>
</thead>
<tbody>
<tr>
<td>Dermal (rat) LD50</td>
<td>&gt;2000 mg/kg</td>
<td>* [CCINFO]</td>
</tr>
<tr>
<td>Inhalation (rat) LC50</td>
<td>4345 ppm/4hr</td>
<td>Nil reported</td>
</tr>
<tr>
<td>Oral (rat) LD50</td>
<td>&gt;14.1 mg/l</td>
<td></td>
</tr>
</tbody>
</table>

**ethyl-3-ethoxypropionate**

**TOXICITY**

<table>
<thead>
<tr>
<th>Route</th>
<th>LD50</th>
<th>Response</th>
</tr>
</thead>
<tbody>
<tr>
<td>Dermal (rat) LD50</td>
<td>4075.5 mg/kg</td>
<td>Eye (rabbit): 500mg/24h - mild</td>
</tr>
<tr>
<td>Inhalation (rat) LC50</td>
<td>1250 ppm/4hr</td>
<td>Skin (rabbit): 10mg/24h open mild</td>
</tr>
<tr>
<td>Oral (rat) LD50</td>
<td>5139.5 mg/kg</td>
<td></td>
</tr>
</tbody>
</table>

**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

---

The material may produce severe irritation to the eye causing pronounced inflammation. Repeated or prolonged exposure to irritants may produce conjunctivitis.

For propylene glycol ethers (PGEs): Typical propylene glycol ethers include propylene glycol n-butyl ether (PnB); dipropylene glycol n-butyl ether (DPnB); dipropylene glycol methyl ether acetate (DPMA); tripropylene glycol methyl ether (TPM).

Testing of a wide variety of propylene glycol ethers (PGEs) has shown that propylene glycol-based ethers are less toxic than some ethers of the ethylene series. The common toxicities associated with the lower molecular weight homologues of the ethylene series, such as adverse effects on reproductive organs, the developing embryo and fetus, (haemolytic effects), or thymus, are not seen with the commercial-grade propylene glycol ethers. In the ethylene series, metabolism of the terminal hydroxyl group produces an alkoxyacetic acid. The reproductive and developmental toxicities of the lower molecular weight homologues in the ethylene series are due specifically to the formation of methoxyacetic and ethoxyacetic acids. Longer chain length homologues in the ethylene series are not associated with the reproductive toxicity but can cause haemolysis in sensitive species, also through formation of an alkoxyacetic acid. The predominant alpha isomer of all the PGEs (thermodynamically favored during manufacture of PGEs) is a secondary alcohol incapable of forming an alkoxyacetic acid. In contrast beta-isoamers are able to form the alkoxyacetic acids and these are linked to teratogenic effects (and possibly haemolytic effects).

This alpha isomer comprises greater than 95% of the isomeric mixture in the commercial product. Because the alpha isomer cannot form an alkoxyacetic acid, this is the likely reason for the lack of toxicity shown by the PGEs as distinct from the lower molecular weight ethylene glycol ethers. More importantly, however, very extensive empirical test data show that this class of commercial-grade glycol ether presents a low toxicity hazard. PGEs, whether mono, di- or tripropylene glycol-based (and no matter what the alcohol group), show a similar pattern of low to non-detectable toxicity of any type at doses or exposure levels greatly exceeding those showing pronounced effects from the ethylene series. One of the primary toxicities associated with the propylene glycol ethers is propylene glycol, which is of low toxicity and completely metabolised in the body. As a class, the propylene glycol ethers are rapidly absorbed and distributed throughout the body when introduced by inhalation or oral exposure. Dermal absorption is somewhat slower but subsequent distribution is rapid. Most excretion for PGEs is via the urine and expired air. A small portion is excreted in the feces.

As a group PGEs exhibit low acute toxicity by the oral, dermal, and inhalation routes. Oral LD50s range from >3,000 mg/kg (PnB) to >5,000 mg/kg (DPMA). Dermal LD50s are all >2,000 mg/kg (PnB & DPnB; where no deaths occurred), and ranging up to >15,000 mg/kg (TPM). Inhalation LC50 values were higher than 5,000 mg/m3 for DPMA (4-hour exposure), and TPM (1-hour exposure). For DPnB the 4-hour LC50 is >2,040 mg/m3. For PnB, the 4-hour LC50 was >651 ppm (>3,412 mg/m3), representing the highest practically attainable vapor level. No deaths occurred at these concentrations. PnB and TPM are moderately irritant to eyes while the remaining category members are only slightly irritating to nonirritating. PnB is moderately irritating to skin while the remaining category members are slightly to non-irritating. None are skin sensitisers.

In repeated dose studies ranging in duration from 2 to 13 weeks, few adverse effects were found even at high exposure levels and effects that did occur were mild in nature. By the oral route of administration, NOAELs of 350 mg/kg/d (PnB – 13 wk) and 450 mg/kg/d (DPnB – 13 wk) were observed for liver and kidney weight increases (without accompanying histopathology). NOAELs for these two chemicals were 1000 mg/kg/d (highest dose tested). Dermal repeated-dose toxicity tests have been performed for many PGEs. For PnB, no effects were seen in a 13 wk study at doses as high as 1,000 mg/kg/d. A dose of 273 mg/kg/d constituted a NOACL increased organ weights without histopathology in a 13-week dermal study for DPnB. For TPM, increased kidney weights (no histopathology) and transiently decreased body weights were found at a dose of 2,950 mg/kg/d in a 90-day study in rabbits. By inhalation, no effects were observed in 2-week studies in rats at the highest tested concentrations of 5644 mg/m3 (600 ppm) for PnB and 2,010 mg/m3 (260 ppm) for DPnB. TPM caused increased liver weights without histopathology, by inhalation in a 2-week study at a NOACL of 360 mg/m3 (43 ppm). In this study, the highest tested TPM concentration, 1010 mg/m3 (120 ppm), also caused increased liver weights without accompanying histopathology. Although no repeated-dose studies are available for the oral route for TPM, and for any route for DPMA, it is anticipated that these chemicals would behave similarly to other category members. One and two-generation reproductive toxicity testing has been conducted in mice, rats, and rabbits via the oral or inhalation routes of exposure on PM and PMA. In an inhalation rat study using PM, the NOAEL for parental toxicity is 300 ppm (1106 mg/m3) with decreases in body and organ weights occurring at the LOAEL of 1000 ppm (3866 mg/m3). For offspring toxicity the NOAEL is 1000 ppm (3866 mg/m3), with decreased body weights occurring at 3000 ppm (11068 mg/m3). For PMA, the NOACL for parental and offspring toxicity is 1000 mg/kg/d, in a two-generation gavage study in rats. No adverse effects were found on organs, reproductive, fertility rates, or other indices commonly monitored in such studies. In addition, there is no evidence from histopathological data from repeated-dose studies for the category members that would indicate that these chemicals would pose a reproductive hazard to human health.

In developmental toxicity studies many PGEs have been tested by various routes of exposure and in various species at significant exposure levels and show no frank developmental effects. Due to the rapid hydrolysis of DPMA to TPM, DPMA would not be expected to show teratogenic effects. At high doses where maternal toxicity occurs (e.g., significant body weight loss), an increased incidence of some anomalies such as delayed skeletal ossification or increased 13th ribs, have been reported. Commercially available PGEs showed no teratogenicity.

The weight of evidence indicates that propylene glycol ethers are not likely to be genotoxic. In vitro, negative results have been seen in a number of assays for PnB, DPnB, DPMA and TPM. Positive results were only seen in 3 out of 5 chromosome aberration assays in mammalian cells with DPnB. However,

Continued...
negative results were seen in a mouse micronucleus assay with DPnB and PM. Thus, there is no evidence to suggest these PGEs would be genotoxic in vivo. In a 2-year bioassay on PM, there were no statistically significant increases in tumors in rats and mice. A BASF report (in ECETOC) showed that inhalation exposure to 545 ppm PGMEA (beta isomer) was associated with a teratogenic response in rabbits; but exposure to 145 ppm and 36 ppm had no adverse effects. The beta isomer of PGMEA comprises only 10% of the commercial material, the remaining 90% is alpha isomer. Hazard appears low but emphasizes the need for care in handling this chemical. 

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.

<table>
<thead>
<tr>
<th>ETHYL-3-ETHOXYPROPIONATE</th>
<th>* Union Carbide ** Endura Manufacturing</th>
</tr>
</thead>
<tbody>
<tr>
<td>N-BUTYL ACETATE &amp; Ethyl-3-ETHOXYPROPIONATE</td>
<td>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.</td>
</tr>
</tbody>
</table>

**SECTION 12 ECOLOGICAL INFORMATION**

### Toxicity

<table>
<thead>
<tr>
<th>Ingredient</th>
<th>Endpoint</th>
<th>Test Duration (hr)</th>
<th>Species</th>
<th>Value</th>
<th>Source</th>
</tr>
</thead>
<tbody>
<tr>
<td>n-butyl acetate</td>
<td>LC50</td>
<td>96</td>
<td>Fish</td>
<td>18mg/L</td>
<td>2</td>
</tr>
<tr>
<td>n-butyl acetate</td>
<td>EC50</td>
<td>48</td>
<td>Crustacea</td>
<td>≤30mg/L</td>
<td>1</td>
</tr>
<tr>
<td>n-butyl acetate</td>
<td>EC50</td>
<td>96</td>
<td>Algae or other aquatic plants</td>
<td>1.675mg/L</td>
<td>3</td>
</tr>
<tr>
<td>n-butyl acetate</td>
<td>EC50</td>
<td>96</td>
<td>Fish</td>
<td>18mg/L</td>
<td>2</td>
</tr>
<tr>
<td>n-butyl acetate</td>
<td>NOEC</td>
<td>504</td>
<td>Crustacea</td>
<td>23mg/L</td>
<td>2</td>
</tr>
<tr>
<td>propylene glycol monomethyl ether acetate, alpha-isomer</td>
<td>LC50</td>
<td>96</td>
<td>Fish</td>
<td>100mg/L</td>
<td>1</td>
</tr>
<tr>
<td>propylene glycol monomethyl ether acetate, alpha-isomer</td>
<td>EC50</td>
<td>48</td>
<td>Crustacea</td>
<td>373mg/L</td>
<td>2</td>
</tr>
<tr>
<td>propylene glycol monomethyl ether acetate, alpha-isomer</td>
<td>EC50</td>
<td>96</td>
<td>Algae or other aquatic plants</td>
<td>9.337mg/L</td>
<td>3</td>
</tr>
<tr>
<td>propylene glycol monomethyl ether acetate, alpha-isomer</td>
<td>EC50</td>
<td>504</td>
<td>Crustacea</td>
<td>&gt;100mg/L</td>
<td>2</td>
</tr>
<tr>
<td>propylene glycol monomethyl ether acetate, alpha-isomer</td>
<td>NOEC</td>
<td>336</td>
<td>Fish</td>
<td>47.5mg/L</td>
<td>2</td>
</tr>
<tr>
<td>ethyl-3-ethoxypropionate</td>
<td>LC50</td>
<td>96</td>
<td>Fish</td>
<td>45.3mg/L</td>
<td>2</td>
</tr>
<tr>
<td>ethyl-3-ethoxypropionate</td>
<td>EC50</td>
<td>48</td>
<td>Crustacea</td>
<td>&gt;95mg/L</td>
<td>1</td>
</tr>
<tr>
<td>ethyl-3-ethoxypropionate</td>
<td>EC50</td>
<td>96</td>
<td>Algae or other aquatic plants</td>
<td>5.289mg/L</td>
<td>3</td>
</tr>
<tr>
<td>ethyl-3-ethoxypropionate</td>
<td>EC50</td>
<td>96</td>
<td>Crustacea</td>
<td>&gt;95mg/L</td>
<td>1</td>
</tr>
<tr>
<td>ethyl-3-ethoxypropionate</td>
<td>NOEC</td>
<td>48</td>
<td>Crustacea</td>
<td>&gt;9.5mg/L</td>
<td>1</td>
</tr>
</tbody>
</table>

**Legend:**

- Data available but does not fill the criteria for classification
- Data required to make classification available
- Data Not Available to make classification

### Persistence and degradability

<table>
<thead>
<tr>
<th>Ingredient</th>
<th>Persistence: Water/Soil</th>
<th>Persistence: Air</th>
</tr>
</thead>
<tbody>
<tr>
<td>n-butyl acetate</td>
<td>LOW</td>
<td>LOW</td>
</tr>
<tr>
<td>propylene glycol monomethyl ether acetate, alpha-isomer</td>
<td>LOW</td>
<td>LOW</td>
</tr>
<tr>
<td>ethyl-3-ethoxypropionate</td>
<td>LOW</td>
<td>LOW</td>
</tr>
</tbody>
</table>

### Bioaccumulative potential

DO NOT discharge into sewer or waterways.
### Ingredient Bioaccumulation

<table>
<thead>
<tr>
<th>Ingredient</th>
<th>Bioaccumulation</th>
</tr>
</thead>
<tbody>
<tr>
<td>n-butyl acetate</td>
<td>LOW (BCF = 14)</td>
</tr>
<tr>
<td>propylene glycol monomethyl ether acetate, alpha-isomer</td>
<td>LOW (LogKOW = 0.56)</td>
</tr>
<tr>
<td>ethyl-3-ethoxypropionate</td>
<td>LOW (LogKOW = 1.0809)</td>
</tr>
</tbody>
</table>

### Ingredient Mobility

<table>
<thead>
<tr>
<th>Ingredient</th>
<th>Mobility</th>
</tr>
</thead>
<tbody>
<tr>
<td>n-butyl acetate</td>
<td>LOW (KOC = 20.86)</td>
</tr>
<tr>
<td>propylene glycol monomethyl ether acetate, alpha-isomer</td>
<td>HIGH (KOC = 1.838)</td>
</tr>
<tr>
<td>ethyl-3-ethoxypropionate</td>
<td>LOW (KOC = 10)</td>
</tr>
</tbody>
</table>

### SECTION 13 DISPOSAL CONSIDERATIONS

**Waste treatment methods**

Legislation addressing waste disposal requirements may differ by country, state and/or territory. Each user must refer to laws operating in their area. In some areas, certain wastes must be tracked. A Hierarchy of Controls seems to be common - the user should investigate:

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

This material may be recycled if unused, or if it has not been contaminated so as to make it unsuitable for its intended use. If it has been contaminated, it may be possible to reclaim the product by filtration, distillation or some other means. Shelf life considerations should also be applied in making decisions of this type.

Note that properties of a material may change in use, and recycling or reuse may not always be appropriate.

DO NOT allow wash water from cleaning or process equipment to enter drains. It may be necessary to collect all wash water for treatment before disposal. In all cases disposal to sewer may be subject to local laws and regulations and these should be considered first. Where in doubt contact the responsible authority.

Recycle wherever possible. Consult manufacturer for recycling options or consult local or regional waste management authority for disposal if no suitable treatment or disposal facility can be identified.

Dispose of by: burial in a land-fill specifically licenced to accept chemical and/or pharmaceutical wastes or incineration in a licenced apparatus (after admixture with suitable combustible material).

Decontaminate empty containers. Observe all label safeguards until containers are cleaned and destroyed.

### SECTION 14 TRANSPORT INFORMATION

**Labels Required**

- Marine Pollutant: NO
- HAZCHEM: ▲YE

**Land transport (ADG)**

- UN number: 1263
- UN proper shipping name: PAINT (including paint, lacquer, enamel, stain, shellac, varnish, polish, liquid filler and liquid lacquer base) or PAINT RELATED MATERIAL (including paint thinning or reducing compound)
- Transport hazard class(es): Class 3, Subrisk Not Applicable
- Packing group: II
- Environmental hazard: Not Applicable
- Special precautions for user: Special provisions: 163367, Limited quantity: 5 L

**Air transport (ICAO-IATA / DGR)**

- UN number: 1263
- UN proper shipping name: Paint (including paint, lacquer, enamel, stain, shellac, varnish, polish, liquid filler and liquid lacquer base); Paint related material (including paint thinning or reducing compounds)
- Transport hazard class(es): ICAO/IATA Class 3, ICAO / IATA Subrisk Not Applicable, ERG Code 3L
### Cargo Only Packing Instructions
- **Packing group**: II
- **Environmental hazard**: Not Applicable
- **Special precautions for user**:
  - Special provisions: A3 A72 A192
  - Cargo Only Packing Instructions: 364
  - Cargo Only Maximum Qty / Pack: 60 L
  - Passenger and Cargo Packing Instructions: 353
  - Passenger and Cargo Maximum Qty / Pack: 5 L
  - Passenger and Cargo Limited Quantity Packing Instructions: Y341
  - Passenger and Cargo Limited Maximum Qty / Pack: 1 L

### Passenger and Cargo Packing Instructions
- **Passenger and Cargo Maximum Qty / Pack**: 5 L

### Passenger and Cargo Limited Quantity Packing Instructions
- **Passenger and Cargo Limited Maximum Qty / Pack**: 1 L

### Sea transport (IMDG-Code / GGVSee)
- **UN number**: 1263
- **UN proper shipping name**: PAINT (including paint, lacquer, enamel, stain, shellac solutions, varnish, polish, liquid filler and liquid lacquer base) or PAINT RELATED MATERIAL (including paint thinning or reducing compound)
- **Transport hazard class(es)**: IMDG Class III
- **IMDG Subrisk**: Not Applicable
- **Packing group**: II
- **Environmental hazard**: Not Applicable
- **Special precautions for user**:
  - Special provisions: 163 367
- **Limited Quantities**: 5 L

### Transport in bulk according to Annex II of MARPOL and the IBC code
Not Applicable

## SECTION 15 REGULATORY INFORMATION

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

<table>
<thead>
<tr>
<th>Substance</th>
<th>National Inventory</th>
<th>Status</th>
</tr>
</thead>
<tbody>
<tr>
<td>N-BUTYL ACETATE/(123-86-4) IS FOUND ON THE FOLLOWING REGULATORY LISTS</td>
<td>Australia Exposure Standards</td>
<td>Australia Inventory of Chemical Substances (AICS)</td>
</tr>
<tr>
<td>PROPYLENE GLYCOL MONOMETHYL ETHER ACETATE, ALPHA-ISOMER/(108-65-6) IS FOUND ON THE FOLLOWING REGULATORY LISTS</td>
<td>Australia Exposure Standards</td>
<td>Australia Inventory of Chemical Substances (AICS)</td>
</tr>
<tr>
<td>ETHYL-3-ETHOXYPROPIONATE/(763-69-9) IS FOUND ON THE FOLLOWING REGULATORY LISTS</td>
<td>Australia Inventory of Chemical Substances (AICS)</td>
<td></td>
</tr>
<tr>
<td>National Inventory</td>
<td>Status</td>
<td></td>
</tr>
<tr>
<td>Australia - AICS</td>
<td>Y</td>
<td></td>
</tr>
<tr>
<td>Canada - DSL</td>
<td>Y</td>
<td></td>
</tr>
<tr>
<td>Canada - NSDLS</td>
<td>N (propylene glycol monomethyl ether acetate, alpha-isomer; n-butyl acetate; ethyl-3-ethoxypropionate)</td>
<td></td>
</tr>
<tr>
<td>China - IEGSC</td>
<td>Y</td>
<td></td>
</tr>
<tr>
<td>Europe - EINEC / ELINCS / NLP</td>
<td>Y</td>
<td></td>
</tr>
<tr>
<td>Japan - ENCS</td>
<td>Y</td>
<td></td>
</tr>
<tr>
<td>Korea - KECI</td>
<td>Y</td>
<td></td>
</tr>
<tr>
<td>New Zealand - NZIoC</td>
<td>Y</td>
<td></td>
</tr>
<tr>
<td>Philippines - PICCS</td>
<td>Y</td>
<td></td>
</tr>
<tr>
<td>USA - TSCA</td>
<td>Y</td>
<td></td>
</tr>
</tbody>
</table>

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

## SECTION 16 OTHER INFORMATION

### Other information

#### Ingredients with multiple cas numbers

<table>
<thead>
<tr>
<th>Name</th>
<th>CAS No</th>
</tr>
</thead>
<tbody>
<tr>
<td>propylene glycol monomethyl ether acetate, alpha-isomer</td>
<td>108-65-6, 84540-57-8, 142300-82-1</td>
</tr>
</tbody>
</table>
Classification of the preparation and its individual components has drawn on official and authoritative sources as well as independent review by the Chemwatch Classification committee using available literature references.

A list of reference resources used to assist the committee may be found at: www.chemwatch.net

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.

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
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

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