HiChem Paint Technologies Pty Ltd
Chemwatch: 5206-11
Version No: 3.1.1.1
Safety Data Sheet according to WHS and ADG requirements

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

Product Identifier

<table>
<thead>
<tr>
<th>Product Identifier</th>
<th>2P Hardener Fast</th>
</tr>
</thead>
<tbody>
<tr>
<td>Synonyms</td>
<td>Not Available</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. 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.

Details of the supplier of the safety data sheet

<table>
<thead>
<tr>
<th>Registered company name</th>
<th>HiChem Paint Technologies Pty Ltd</th>
<th>Rust-Oleum Australia</th>
<th>Chemcare</th>
</tr>
</thead>
<tbody>
<tr>
<td>Address</td>
<td>73 Hallam South Road Hallam Victoria 3803 Australia</td>
<td>Unit 12, 4 Southbridge St, Eastern Creek NSW 2766 Australia</td>
<td>New Zealand</td>
</tr>
<tr>
<td>Telephone</td>
<td>+61 3 9796 3400</td>
<td>+61 2 8808 0600</td>
<td>Not Available</td>
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<tr>
<td>Fax</td>
<td>+61 3 9796 4500</td>
<td>+61 2 9680 0111</td>
<td>Not Available</td>
</tr>
<tr>
<td>Email</td>
<td><a href="mailto:info@hichem.com.au">info@hichem.com.au</a></td>
<td><a href="mailto:sales@rustoleum.com.au">sales@rustoleum.com.au</a></td>
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</table>

<table>
<thead>
<tr>
<th>Registered company name</th>
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</tr>
</thead>
<tbody>
<tr>
<td>Address</td>
<td>2 Link Drive, Rolleston Christchurch 7675 New Zealand</td>
</tr>
<tr>
<td>Telephone</td>
<td>+64 347 7770</td>
</tr>
<tr>
<td>Fax</td>
<td>+64 347 7789</td>
</tr>
<tr>
<td>Website</td>
<td><a href="http://www.haydn.co.nz">www.haydn.co.nz</a></td>
</tr>
<tr>
<td>Email</td>
<td><a href="mailto:mail@haydn.co.nz">mail@haydn.co.nz</a></td>
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</table>

Emergency telephone number

Association / Organisation
HiChem Paint Technologies

Emergency telephone numbers
Not Available

Other emergency telephone numbers
1800 039 008
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

Continued...
Classification of the substance or mixture

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

<table>
<thead>
<tr>
<th>CHEMWATCH HAZARD RATINGS</th>
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<tbody>
<tr>
<td><strong>Flammability</strong></td>
</tr>
<tr>
<td>Max</td>
</tr>
<tr>
<td>Min</td>
</tr>
</tbody>
</table>

**Poisons Schedule S6**

**Classification**

| Flammable Liquid Category 2, Acute Toxicity (Inhalation) Category 4, Skin Corrosion/Irritation Category 2, Eye IRRITATION Category 2A, Respiratory Sensitizer Category 1, Skin Sensitizer Category 1, Reproductive Toxicity Category 2, Specific target organ toxicity - single exposure Category 3 (narcotic effects), Specific target organ toxicity - repeated exposure Category 2, Aspiration Hazard Category 1 |

**Legend:**


**Label elements**

**GHS label elements**

**SIGNAL WORD**

DANGER

**Hazard statement(s)**

- H225 Highly flammable liquid and vapour.
- H332 Harmful if inhaled.
- H315 Causes skin irritation.
- H319 Causes serious eye irritation.
- H334 May cause allergy or asthma symptoms or breathing difficulties if inhaled.
- H317 May cause an allergic skin reaction.
- H361 Suspected of damaging fertility or the unborn child.
- H336 May cause drowsiness or dizziness.
- H317 May cause damage to organs through prolonged or repeated exposure.
- H304 May be fatal if swallowed and enters airways.
- AUH066 Repeated exposure may cause skin dryness and cracking

**Precautionary statement(s)**

**Prevention**

- P201 Obtain special instructions before use.
- P210 Keep away from heat/sparks/open flames/hot surfaces. - No smoking.
- P260 Do not breathe dust/lumeigas/mist/vapours/spray.
- P271 Use only outdoors or in a well-ventilated area.
- P280 Wear protective gloves/protective clothing/eye protection/face protection.
- P281 Use personal protective equipment as required.
- P285 In case of inadequate ventilation wear respiratory protection.
- 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.
- P272 Contaminated work clothing should not be allowed out of the workplace.

**Precautionary statement(s)**

**Response**

- P301+P310 IF SWALLOWED: Immediately call a POISON CENTER or doctor/physician.
- P304+P340 IF INHALED: Remove victim to fresh air and keep at rest in a position comfortable for breathing.
- P306+P333 IF exposed or concerned: Get medical advice/attention.
- P311 Do NOT induce vomiting.
- P342+P311 If experiencing respiratory symptoms: Call a POISON CENTER or doctor/physician.
- P362 Take off contaminated clothing and wash before reuse.
- P363 Wash contaminated clothing before reuse.
- P370+P378 In case of fire: Use alcohol resistant foam or normal protein foam for extinction.
- P362+P353 IF ON SKIN: Wash with plenty of soap and water.
- P305+P351+P338 IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing.
**SECTION 3 COMPOSITION / INFORMATION ON INGREDIENTS**

### Substances
See section below for composition of Mixtures

### Mixtures

<table>
<thead>
<tr>
<th>CAS No</th>
<th>%[weight]</th>
<th>Name</th>
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<tbody>
<tr>
<td>28182-81-2</td>
<td>20-40</td>
<td>hexamethylene diisocyanate polymer</td>
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<tr>
<td>123-86-4</td>
<td>10-30</td>
<td>n-butyl acetate</td>
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<tr>
<td>108-88-3</td>
<td>10-30</td>
<td>toluene</td>
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<td>141-78-6</td>
<td>10-30</td>
<td>ethyl acetate</td>
</tr>
<tr>
<td>64742-95-6</td>
<td>0-10</td>
<td>naphtha petroleum, light aromatic solvent</td>
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</tbody>
</table>

### SECTION 4 FIRST AID MEASURES

#### Description of first aid measures

**Eye Contact**
- If this product comes in contact with the eyes:
  - Wash out immediately with fresh running water.
  - Ensure complete irrigation of the eye by keeping eyelids apart and away from eye and moving the eyelids by occasionally lifting the upper and lower lids.
  - Seek medical attention without delay; if pain persists or recurs seek medical attention.
  - Removal of contact lenses after an eye injury should only be undertaken by skilled personnel.

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

**Inhalation**
- If fumes or combustion products are inhaled remove from contaminated area.
- Lay patient down. Keep warm and rested.
- Prostheses such as false teeth, which may block airway, should be removed, where possible, prior to initiating first aid procedures.
- Apply artificial respiration if not breathing, preferably with a demand valve resuscitator, bag-valve mask device, or pocket mask as trained. Perform CPR if necessary.
- Transport to hospital, or doctor. Following uptake by inhalation, move person to an area free from risk of further exposure. Oxygen or artificial respiration should be administered as needed. Asthmatic-type symptoms may develop and may be immediate or delayed up to several hours. Treatment is essentially symptomatic. A physician should be consulted.

**Ingestion**
- If swallowed do NOT induce vomiting.
- If vomiting occurs, lean patient forward or place on left side (head-down position, if possible) to maintain open airway and prevent aspiration.
- Observe the patient carefully.
- Never give liquid to a person showing signs of being sleepy or with reduced awareness; i.e. becoming unconscious.
- Give water to rinse out mouth, then provide liquid slowly and as much as casualty can comfortably drink.
- Seek medical advice.
- Avoid giving milk or oils.
- Avoid giving alcohol.
- If spontaneous vomiting appears imminent or occurs, hold patient’s head down, lower than their hips to help avoid possible aspiration of vomitus.

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

Any material aspirated during vomiting may produce lung injury. Therefore emesis should not be induced mechanically or pharmacologically. Mechanical means should be used if it is considered necessary to evacuate the stomach contents; these include gastric lavage after endotracheal intubation. If spontaneous vomiting has occurred after ingestion, the patient should be monitored for difficult breathing, as adverse effects of aspiration into the lungs may be delayed up to 48 hours for simple esters:

**BASIC TREATMENT**

- Establish a patent airway with suction where necessary.
- Watch for signs of respiratory insufficiency and assist ventilation as necessary.
- Administer oxygen by non-rebreather mask at 10 to 15 l/min.
- Monitor and treat, where necessary, for pulmonary oedema.
- Monitor and treat, where necessary, for shock.
- DO NOT use emetics. Where ingestion is suspected rinse mouth and give up to 200 ml water (5 ml/kg recommended) for dilution where patient is able to swallow, has a strong gag reflex and does not drool.
- Give activated charcoal.
Isocyanates cause airway restriction in naive individuals with the degree of response dependent on the concentration and duration of exposure. They induce smooth muscle contraction.

- **0.05 mg/L:** End of shift
- **0.5 mg/L:** Prior to last shift of workweek

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

**EMERGENCY DEPARTMENT**
- **Laboratory analysis of complete blood count, serum electrolytes, BUN, creatinine, glucose, urinalysis, baseline for serum aminotransferases (ALT and AST), calcium, phosphorus and magnesium, may assist in establishing a treatment regime. Other useful analyses include urinalysis and osmolar gaps, arterial blood gases (ABGs), chest radiographs and electrocardiograph.
- **Positive end-expiratory pressure (PEEP):** Assistant ventilation may be required for acute myocardial injury or adult respiratory distress syndrome.
- **Consult a toxicologist as necessary.**

**BRONSTEIN, A.C. and CURRANCE, P.L. EMERGENCY CARE FOR HAZARDOUS MATERIALS EXPOSURE: 2nd Ed 1994**

For sub-chronic and chronic exposures to isocyanates:
- This may be a potent pulmonary sensitiser which causes bronchospasm even in patients without prior airway hyperreactivity.
- Clinical symptoms of exposure involve mucosal irritation of respiratory and gastrointestinal tracts.
- Conjunctival irritation, skin inflammation (erythema, pain, vesication) and gastrointestinal disturbances occur soon after exposure.
- Pulmonary symptoms include cough, burning, substernal pain and dyspnoea.
- Some cross-sensitivity occurs between different isocyanates.
- Nonpulmonary pulmonary oedema and bronchospasm are the most serious consequences of exposure. Markedly symptomatic patients should receive oxygen, ventilatory support and an i.v.
  - There is no effective therapy for sensitised workers.

**NOTE:** Isocyanates cause airway restriction in naive individuals with the degree of response dependent on the concentration and duration of exposure. They induce smooth muscle contraction which leads to bronchoconstrictive episodes. Acute changes in lung function, such as decreased FEV1, may not represent sensitivty.

**[Ellenhorn and Barceloux; Medical Toxicology]**

Personnel who work with isocyanates, isocyanate prepolymers or polyisocyanates should have a pre-placement medical examination and periodic examinations thereafter, including a pulmonary function test. Anyone with a medical history of chronic respiratory disease, asthmatic or bronchial attacks, indications of allergic responses, recurrent eczema or sensitisation conditions of the skin should not handle or work with isocyanates. Anyone who develops chronic respiratory distress when working with isocyanates should be removed from exposure and examined by a physician.

Further exposure must be avoided if a sensitivity to isocyanates or polyisocyanates has developed.

**BIOLOGICAL EXPOSURE INDEX - BEI**

These represent the determinants observed in specimens collected from a healthy worker exposed at the Exposure Standard (ES or TLV):

<table>
<thead>
<tr>
<th>Determinant</th>
<th>Index</th>
<th>Sampling Time</th>
<th>Comments</th>
</tr>
</thead>
<tbody>
<tr>
<td>o-Cresol in urine</td>
<td>0.5 mg/L</td>
<td>End of shift</td>
<td>B</td>
</tr>
<tr>
<td>Hippuric acid in urine</td>
<td>1.6 g/g creatinine</td>
<td>End of shift</td>
<td>B, NS</td>
</tr>
<tr>
<td>Toluene in blood</td>
<td>0.05 mg/L</td>
<td>Prior to last shift of workweek</td>
<td></td>
</tr>
</tbody>
</table>

NS: Non-specific determinant; also observed after exposure to other material

**SECTION 5 FIREFIGHTING MEASURES**

**Extinguishing media**
- Small quantities of water in contact with hot liquid may react violently with generation of a large volume of rapidly expanding hot sticky semi-solid foam.
- Presents additional hazard when fire fighting in a confined space.
- Cooling with flooding quantities of water reduces this risk.
- Water spray or fog may cause frothing and should be used in large quantities.
- 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 in the event of a fire.
- Prevent, by any means available, spillage from entering drains or water course.
- Consider evacuation (or protect in place).
- Fight fire from a safe distance, with adequate cover.
- If safe, switch off electrical equipment until vapour fire hazard removed.
- Use water delivered as a fire spray to control the 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 highly flammable.
- Severe fire hazard when exposed to heat, flame and/or oxidisers.
- Vapour may travel a considerable distance to source of ignition.
- Heating may cause expansion or decomposition leading to violent rupture of containers.
- On combustion, may emit toxic fumes of carbon monoxide (CO).

Combustion products include: carbon dioxide (CO₂), isocyanates and minor amounts of hydrogen cyanide nitrogen oxides (NOₓ) other pyrolysis products typical of burning organic materials. Closed containers may rupture due to pressure buildup under fire conditions. When heated at high temperatures many isocyanates decompose rapidly generating a vapour which pressurises containers, possibly to the point of rupture. Release of toxic and/or flammable isocyanate vapours may then occur:
- Burns with acrid black smoke.

### SECTION 6 ACCIDENTAL RELEASE MEASURES

#### Environmental precautions

See section 8

#### Personal precautions, protective equipment and emergency procedures

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.
- Container and absorb small quantities with vermiculite or other absorbent material.
- Wipe up.
- Collect residues in a flammable waste container.

For isocyanate spills of less than 40 litres (2 m²):
- Evacuate area from everybody not dealing with the emergency, keep them upwind and prevent further access, remove ignition sources and, if inside building, ventilate area as well as possible.
- Notify supervision and others as necessary.
- Put on personal protective equipment (suitable respiratory protection, face and eye protection, protective suit, gloves and impermeable boots).
- Dike the spill to prevent spreading and to contain additions of decontaminating solution.
- Prevent the material from entering drains.
- Estimate spill pool volume or area.
- Absorb and decontaminate. - Completely cover the spill with wet sand, wet earth, vermiculite or other similar absorbent. - Add neutraliser (for suitable formulations: see below) to the absorbent materials (equal to that of estimated spill pool volume). Intensify contact between spill, absorbent and neutraliser by carefully mixing with a rake and allow to react for 15 minutes.
- Shovel absorbent/decontaminant solution mixture into a steel drum.

Decontamination surface. - Pour an equal amount of neutralising solution over contaminated surface. - Scrub area with a stiff bristle brush, using moderate pressure. - Completely cover decontaminant with vermiculite or other similar absorbent. - After 5 minutes, shovel absorbent/decontaminant solution mixture into the same steel drum used above.
- Monitor for residual isocyanate. If surface is decontaminated, proceed to next step. If contamination persists, repeat decontamination procedure immediately above.
- Place loosely covered drum (release of carbon dioxide) outside for at least 72 hours. Label waste-containing drum appropriately. Remove waste materials for incineration.

##### Major Spills
- Decontaminate and remove personal protective equipment.
- Return to normal operation.
- Conduct accident investigation and consider measures to prevent recurrence.

Decontamination:

Treat isocyanate spills with sufficient amounts of isocyanate decontaminant preparation ("neutralising fluid"). Isocyanates and polyisocyanates are generally not miscible with water. Liquid surfactants are necessary to allow better dispersion of isocyanate and neutralising fluids/ preparations. Alkaline neutralisers react faster than water/surfactant mixtures alone.

Typically, such a preparation may consist of:

- Sawdust: 20 parts by weight Kieselguhr 40 parts by weight plus a mixture of (ammonia (s.g. 0.886) 8% v/v non-ionic surfactant 2% v/v water 90% v/v).

Let stand for 24 hours

Three commonly used neutralising fluids each exhibit advantages in different situations.

**Formulation A**
- liquid surfactant: 0.2-2%
- sodium carbonate: 5-10%
- water to: 100%

**Formulation B**
- liquid surfactant: 0.2-2%
- concentrated ammonia: 3-8%
- water to: 100%

**Formulation C**
- liquid surfactant: 0.2-2%
- sodium carbonate: 5-10%
- water to: 100%
Formulation B reacts faster than Formulation A. However, ammonia-based neutralisers should be used only under well-ventilated conditions to avoid overexposure to ammonia or if members of the emergency team wear suitable respiratory protection. Formulation C is especially suitable for cleaning of equipment from unreacted isocyanate and neutralizing under freezing conditions. Regard has to be taken to the flammability of the alcoholic solution.

DO NOT

- Contamination with water, alkanes and detergent solutions.
- Material reacts with water and generates gas, pressurises containers with even drum rupture resulting.
- DO NOT reseal container if contamination is suspected.
- Open all containers with care.
- Clear area of personnel and move upwind.
- Alert Fire Brigade and tell them location and nature of hazard.
- May be violently or explosively reactive.
- Wear breathing apparatus plus protective gloves.
- Prevent, by any means available, spillage from entering drains or water course.
- Consider evacuation (or protect in place).
- No smoking, naked lights or ignition sources.
- Increase ventilation.
- Stop leak if safe to do so.
- Water spray or fog may be used to disperse/absorb vapour.
- Contain spill with sand, earth or vermiculite.
- Use only spark-free shovels and explosion proof equipment.
- Collect recoverable product into labelled containers for recycling.
- Absorb remaining product with sand, earth or vermiculite.
- Collect solid residues and seal in labelled drums for disposal.
- Wash area and prevent runoff into drains.
- If contamination of drains or waterways occurs, advise emergency services.

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

SECTION 7 HANDLING AND STORAGE

Precautions for safe handling

- 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.
    - DO NOT allow clothing wet with material to stay in contact with skin.
    - Electrostatic discharge may be generated during pumping - this may result in fire.
    - Ensure electrical continuity by bonding and grounding (earthing) all equipment.
    - Restrict line velocity during pumping in order to avoid generation of electrostatic discharge (<=1 m/sec until fill pipe submerged to twice its diameter, then => 7 m/sec).
    - Avoid splash filling.
    - Do NOT use compressed air for filling, discharging or handling operations.
    - Avoid personal contact, including inhalation.
    - Wear protective clothing when risk of exposure 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, heat or ignition sources.
    - When handling, DO NOT eat, drink or smoke.
    - Vapour may ignite on pumping or pouring due to static electricity.
    - DO NOT use plastic buckets.
    - Earth and secure metal containers when dispensing or pouring product.
    - Use spark-free tools when handling.
    - Avoid contact with incompatible materials.
    - Keep containers securely sealed.
    - 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.

Safe handling

For commercial quantities of isocyanates:

- Isocyanates should be stored in adequately bunded areas. Nothing else should be kept within the same bunding. Pre-polymers need not be segregated.
- Drums of isocyanates should be stored under cover, out of direct sunlight, protected from rain, protected from physical damage and well away from moisture, acids and alkalies.
- Where isocyanates are stored at elevated temperatures to prevent solidifying, adequate controls should be installed to prevent the high temperatures and precautions against fire should be taken.
- Where stored in tanks, the more reactive isocyanates should be blanket with a non-reactive gas such as nitrogen and equipped with absorptive type breather valve (to prevent vapour emissions).
- Transfer systems for isocyanates in bulk storage should be fully enclosed and use pump or vacuum systems. Warning signs, in appropriate languages, should be posted where necessary.
- Areas in which polyurethane foam products are stored should be supplied with good general ventilation. Residual amounts of unreacted isocyanate may be present in the finished foam, resulting in hazardous atmospheric concentrations.
- Store in original containers in approved flame-proof area.
- No smoking, naked lights, heat or ignition sources.
- DO NOT store in pits, depressions, basements or areas where vapours may be trapped.

For work clothes:

- Isocyanates react with water and generate gas.
- DO NOT wash work clothes in washing machines.
- Use separate washing machines.
- Wash separately with non-agitating washers.
- Wash clothes before reusing.

For equipment:

- Isocyanates are flammable.
- Ensure that fire extinguishing equipment is available.
- Do not use water.
- Fire extinguishers should be of dry chemical, carbon dioxide, or foam type.

Other information
Conditions for safe storage, including any incompatibilities

- Keep containers securely sealed.
- Store away from incompatible materials in a cool, dry well ventilated area.
- Protect containers against physical damage and check regularly for leaks.
- Observe manufacturer's storage and handling recommendations contained within this SDS.

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 2600 cSt (23 deg. C).
- For manufactured product having a viscosity of at least 250 cSt (23 deg. C).
- Manufactured product that requires stirring before use and having a viscosity of at least 20 cSt (25 deg. C): (i) Removable head packaging; (ii) Cans with friction closures and (iii) low pressure tubes and cartridges may be used.
- Where combination packages are used, and the inner packages are of glass, there must be sufficient inert cushioning material in contact with inner and outer packages.
- In addition, where inner packagings are glass and contain liquids of packing group I there must be sufficient inert absorbent to absorb any spillage, unless the outer packaging is a close fitting moulded plastic box and the substances are not incompatible with the plastic.

Storage incompatibility

- Avoid reaction with oxidising agents
- Avoid strong acids, bases.
- Avoid reaction with water, alcohols and detergent solutions.
- Isocyanates and thioisocyanates are incompatible with many classes of compounds, reacting exothermically to release toxic gases. Reactions with amines, strong bases, aldehydes, alcohols, alkali metals, ketones, mercaptans, strong oxidisers, hydrides, phenols, and peroxides can cause vigorous releases of heat. Acids and bases initiate polymerisation reactions in these materials.
- Isocyanates easily form adducts with carbodiimides, isothiocyanates, ketenes, or with substrates containing activated C=C or CN bonds.
- Some isooyanates react with water to form amines and liberate carbon dioxide. This reaction may also generate large volumes of foam and heat. Foaming in confined spaces may produce pressure in confined spaces or containers. Gas generation may pressure drums to the point of rupture.
- Do NOT reseal container if contamination is expected
- Open all containers with care
- Base-catalysed reactions of isooyanates with alcohols should be carried out in inert solvents. Such reactions in the absence of solvents often occur with explosive violence.
- Isocyanates will attack and embrittle some plastics and rubbers.
- A range of exothermic decomposition energies for isooyanates is given as 20-30 kJ/mol.
- The relationship between energy of decomposition and processing hazards has been the subject of discussion; it is suggested that values of energy released per unit of mass, rather than on a molar basis (J/g) be used in the assessment.
- For example, in "open vessel processes" (with man-hole size openings, in an industrial setting), substances with exothermic decomposition energies below 500 J/g are unlikely to present a danger, whilst those in "closed vessel processes" (opening is a safety valve or bursting disk) present some danger where the decomposition energy exceeds 150 J/g.

SECTION 8 EXPOSURE CONTROLS / PERSONAL PROTECTION

Control parameters

**OCCUPATIONAL EXPOSURE LIMITS (OEL)**

| INGREDIENT DATA |
|-----------------|-----------------|-----------------|-----------------|-----------------|-----------------|-----------------|
| **Source**      | **Ingredient**  | **Material name** | **TWA** | **STEL** | **Peak** | **Notes** |
| Australia Exposure Standards | hexamethylene disocyanate polymer | Isocyanates, all (as-NCO) | 0.02 mg/m3 | 0.07 mg/m3 | Not Available | Sen |
| Australia Exposure Standards | n-butyl acetate | n-Butyl acetate | 713 mg/m3 / 150 ppm | 950 mg/m3 / 200 ppm | Not Available | Not Available |
| Australia Exposure Standards | toluene | Toluene | 191 mg/m3 / 50 ppm | 574 mg/m3 / 150 ppm | Not Available | Sk |
| Australia Exposure Standards | ethyl acetate | Ethyl acetate | 720 mg/m3 / 200 ppm | 1440 mg/m3 / 400 ppm | Not Available | Not Available |

**EMERGENCY LIMITS**

<table>
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<th>Material name</th>
<th>TEEL-1</th>
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<td>hexamethylene disocyanate polymer</td>
<td>Hexamethylene disocyanate polymer</td>
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<td>86 mg/m3</td>
<td>510 mg/m3</td>
</tr>
<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>Toluene</td>
<td>Toluene</td>
<td>Not Available</td>
<td>Not Available</td>
<td>Not Available</td>
</tr>
<tr>
<td>Ethyl acetate</td>
<td>Ethyl acetate</td>
<td>400 ppm</td>
<td>400 ppm</td>
<td>10000 ppm</td>
</tr>
<tr>
<td>Naphtha petroleum, light aromatic solvent</td>
<td>Aromatic hydrocarbon solvents, (High flash naphtha distillates; Solvent naphtha (petroleum), light aromatic)</td>
<td>3.1 ppm</td>
<td>34 ppm</td>
<td>410 ppm</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Ingredient</th>
<th>Original IDLH</th>
<th>Revised IDLH</th>
</tr>
</thead>
<tbody>
<tr>
<td>hexamethylene disocyanate polymer</td>
<td>Not Available</td>
<td>Not Available</td>
</tr>
<tr>
<td>n-butyl acetate</td>
<td>10,000 ppm</td>
<td>1,700 [LEL]ppm</td>
</tr>
<tr>
<td>Toluene</td>
<td>2,000 ppm</td>
<td>500 ppm</td>
</tr>
<tr>
<td>Ethyl acetate</td>
<td>10,000 ppm</td>
<td>2,000 [LEL]ppm</td>
</tr>
<tr>
<td>Naphtha petroleum, light aromatic solvent</td>
<td>Not Available</td>
<td>Not Available</td>
</tr>
</tbody>
</table>

Exposure controls

**Appropriate engineering**

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.
Isocyanate vapours will not be adequately absorbed by organic vapour respirators. Air contaminants generated in the workplace possess varying toxicity, with different control strategies being required. The risk analysis, which is based on the workplace conditions, will determine the type of respiratory protection needed. For flammable liquids and flammable materials, local exhaust ventilation or a process enclosure ventilation system may be required. Ventilation equipment should be explosion-resistant.

### Personal protection

- **Eye and face protection**
  - Safety glasses with side shields.
  - Chemical goggles.
  - Contact lenses may pose a special hazard; soft contact lenses may absorb and concentrate irritants. A written policy document, describing the wearing of lenses or restrictions on use, should be created for each workplace or task. This should include a review of lens absorption and adhesion 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 lenses as soon as practicable. Lens should be removed at the first signs of eye redness or irritation - lens should be removed in a clean environment only after workers have washed hands thoroughly. [CDC NIOSH Current Intelligence Bulletin 59], [AS/NZS 1336 or national equivalent]

## Skin protection

- **Hands/feet protection**
  - 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.
  - For esters:
    - Do NOT use natural rubber, butyl rubber, EPDM or polystyrene-containing materials.
  - 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. Gloves must only be worn on clean hands. After using gloves, hands should be washed and dried thoroughly. Application of a non-perfumed moisturizer is recommended.
  - Suitability and durability of glove type is dependent on usage. Important factors in the selection of gloves include:
    - Frequency and duration of contact,
    - Chemical resistance of glove material,
    - Glove thickness and dexterity.
  - Select gloves tested to a relevant standard (e.g. Europe EN 374, US F793, AS/NZS 2161.1 or national equivalent).
  - When prolonged or frequently repeated contact may occur, a glove with a protection class of 5 or higher (breakthrough time greater than 240 minutes according to EN 374, AS/NZS 2161.10.1 or national equivalent) is recommended.
  - When only brief contact is expected, a glove with a protection class of 3 or higher (breakthrough time greater than 60 minutes according to EN 374, AS/NZS 2161.10.1 or national equivalent) is recommended.
  - Some glove polymer types are less affected by movement and this should be taken into account when considering gloves for long-term use.
  - Contaminated gloves should be replaced.
  - For general applications, gloves with a thickness typically greater than 0.35 mm are recommended. It should be emphasised that glove thickness is not necessarily a good predictor of glove resistance to a specific chemical, as the permeation efficiency of the glove will be dependent on the exact composition of the glove material. Therefore, glove selection should also be based on consideration of the task requirements and knowledge of breakthrough times.
  - Glove thickness may also vary depending on the glove manufacturer, the glove type and the glove model. Therefore, the manufacturers’ technical data should be consulted.
always be taken into account to ensure selection of the most appropriate glove for the task.

Note: Depending on the activity being conducted, gloves of varying thickness may be required for specific tasks. For example:

- Thinner gloves (down to 0.1 mm or less) may be required where a high degree of manual dexterity is needed. However, these gloves are only likely to give short duration protection and would normally be just for single use applications, then disposed of.
- Thicker gloves (up to 3 mm or more) may be required where there is a mechanical (as well as a chemical) risk i.e. where there is abrasion or puncture potential

Gloves must only be worn on clean hands. After using gloves, hands should be washed and dried thoroughly. Application of a non-perfumed moisturiser is recommended.

- Do NOT wear natural rubber (latex gloves).
- Isocyanate resistant materials include Teflon, Viton, nitrile rubber and some PVA gloves.
- Protective gloves and overalls should be worn as specified in the appropriate national standard.
- Contaminated garments should be removed promptly and should not be re-used until they have been decontaminated.
- NOTE: Natural rubber, neoprene, PVC can be affected by isocyanates.
- DO NOT use skin cream unless necessary and then use only minimum amount.

- Isocyanate vapour may be absorbed into skin cream and this increases hazard.

Gloves of varying thickness may be required for specific tasks. For example:

- Overalls.
- PVC Apron.
- PVC protective suit may be required if exposure severe.
- Eyewash unit.
- Ensure there is ready access to a safety shower.
- Airline
- 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 an shall dissipate static electricity from the body to reduce the possibility of ignition of volatile compounds. Electrical resistance must range between 0 to 500,000 ohms. Conductive shoes should be stored in lockers close to the room in which they are worn. Personnel who have been issued conductive footwear should not wear them from their place of work to their homes and return.

- Use skin cream unless necessary and then use only minimum amount.

Body protection

All employees working with isocyanates must be informed of the hazards from exposure to the contaminant and the precautions necessary to prevent damage to their health. They should be made aware of the need to carry out their work so that as little contamination as possible is produced, and of the importance of the proper use of all safeguards against exposure to themselves and their fellow workers. Adequate training, both in the proper execution of the task and in the use of all associated engineering controls, as well as of any personal protective equipment, is essential.

Employees exposed to contamination hazards should be educated in the need for, and proper use of, facilities, clothing and equipment and thereby maintain a high standard of personal cleanliness. Special attention should be given to ensuring that all personnel understand instructions, especially newly recruited employees and those with local-language difficulties, where they are known.

Employees exposed to contamination hazards should be educated in the need for, and proper use of, facilities, clothing and equipment and thereby maintain a high standard of personal cleanliness. Special attention should be given to ensuring that all personnel understand instructions, especially newly recruited employees and those with local-language difficulties, where they are known.

Electrical resistance must range between 0 to 500,000 ohms. Conductive shoes should be stored in lockers close to the room in which they are worn. Personnel who have been issued conductive footwear should not wear them from their place of work to their homes and return.

Other protection

Thermal hazards

Not Available

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>CPI</th>
<th>Required Minimum Protection Factor</th>
<th>Half-Face Respirator</th>
<th>Full-Face Respirator</th>
<th>Powered Air Respirator</th>
</tr>
</thead>
<tbody>
<tr>
<td>Butyl</td>
<td>C</td>
<td>up to 10 x ES</td>
<td>A-US / Class 1</td>
<td>-</td>
<td>A-PAPR-US / Class 1</td>
</tr>
<tr>
<td>Butyl/Nitrile</td>
<td>C</td>
<td>up to 50 x ES</td>
<td>Air-line*</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td>CPE</td>
<td>C</td>
<td>up to 100 x ES</td>
<td>-</td>
<td>A-3</td>
<td>-</td>
</tr>
<tr>
<td>Hypalon</td>
<td>C</td>
<td>100+ x ES</td>
<td>-</td>
<td>Air-line**</td>
<td>-</td>
</tr>
<tr>
<td>Natural Rubber</td>
<td>C</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Natural+Nitrile</td>
<td>C</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Nitrile</td>
<td>C</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Nitrile+PVC</td>
<td>C</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>PE</td>
<td>C</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>TFE</td>
<td>C</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>PVC</td>
<td>C</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Saranex 23</td>
<td>C</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Saranex 23 2 Ply</td>
<td>C</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Teflon</td>
<td>C</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Viton</td>
<td>C</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Viton/Butyl</td>
<td>C</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Viton/Chlorobutyl</td>
<td>C</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Viton/Nitrile</td>
<td>C</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>hexamethylene</td>
<td>C</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

- * - Continuous-flow; ** - Continuous-flow or positive pressure demand
A(All classes) = Organic vapours, B, AUS or B1 = Acid gasses, B2 = Acid gas or hydrogen cyanide(HCN), B3 = Acid gas or hydrogen cyanide(HCN), E = Sulfur dioxide(SO2), G = Agricultural chemicals, K = Ammonia(NH3), Hg = Mercury, NO = Oxides of nitrogen, MB = Methyl bromide, AX = Low boiling point organic compounds(below 65 degC)

* CPI - Chemwatch Performance Index
A: Best Selection
B: Satisfactory; may degrade after 4 hours continuous immersion
C: Poor to Dangerous Choice for other than short term immersion

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:

2P Hardener Fast

<table>
<thead>
<tr>
<th>Material</th>
<th>CPI</th>
<th>Protection Factor</th>
</tr>
</thead>
<tbody>
<tr>
<td>Butyl</td>
<td>C</td>
<td>up to 10 x ES</td>
</tr>
<tr>
<td>Butyl/Nitrile</td>
<td>C</td>
<td>up to 50 x ES</td>
</tr>
<tr>
<td>Hypalon</td>
<td>C</td>
<td>up to 100 x ES</td>
</tr>
<tr>
<td>Natural Rubber</td>
<td>C</td>
<td>100+ x ES</td>
</tr>
<tr>
<td>Natural+Nitrile</td>
<td>C</td>
<td></td>
</tr>
<tr>
<td>Nitrile</td>
<td>C</td>
<td></td>
</tr>
<tr>
<td>Nitrile+PVC</td>
<td>C</td>
<td></td>
</tr>
<tr>
<td>PE</td>
<td>C</td>
<td></td>
</tr>
<tr>
<td>TFE</td>
<td>C</td>
<td></td>
</tr>
<tr>
<td>PVC</td>
<td>C</td>
<td></td>
</tr>
<tr>
<td>Saranex 23</td>
<td>C</td>
<td></td>
</tr>
<tr>
<td>Saranex 23 2 Ply</td>
<td>C</td>
<td></td>
</tr>
<tr>
<td>Teflon</td>
<td>C</td>
<td></td>
</tr>
<tr>
<td>Viton</td>
<td>C</td>
<td></td>
</tr>
<tr>
<td>Viton/Butyl</td>
<td>C</td>
<td></td>
</tr>
<tr>
<td>Viton/Chlorobutyl</td>
<td>C</td>
<td></td>
</tr>
<tr>
<td>Viton/Nitrile</td>
<td>C</td>
<td></td>
</tr>
<tr>
<td>hexamethylene</td>
<td>C</td>
<td></td>
</tr>
</tbody>
</table>

* CPI - Chemwatch Performance Index
A: Best Selection
B: Satisfactory; may degrade after 4 hours continuous immersion
C: Poor to Dangerous Choice for other than short term immersion
NOTE: As a series of factors will influence the actual performance of the glove, a final selection must be based on detailed observation. - Where the glove is to be used on a short term, casual or infrequent basis, factors such as "feel" or convenience (e.g. disposability), may dictate a choice of gloves which might otherwise be unsuitable following long-term or frequent use. A qualified practitioner should be consulted.

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:

- In certain circumstances, personal protection of the individual employee is necessary. Personal protective devices should be regarded as being supplementary to substitution and engineering control and should not be used in preference to them as they do nothing to eliminate the hazard.
- However, in some situations, minimising exposure to isocyanates by enclosure and ventilation is not possible, and occupational exposure standards may be exceeded, particularly during on-site mixing of paints, spray-painting, foaming and maintenance of machine and ventilation systems. In these situations, air-line respirators or self-contained breathing apparatus complying with the appropriate national standard must be used.
- Organic vapour respirators with particulate pre-filters and powered, air-purifying respirators are NOT suitable.
- Personal protective equipment must be appropriately selected, individually fitted and workers trained in their correct use and maintenance. Personal protective equipment must be regularly checked and maintained to ensure that the worker is being protected.
- Air-line respirators or self-contained breathing apparatus complying with the appropriate national standard should be used during the clean-up of spills and the repair or clean-up of contaminated equipment and similar situations which cause emergency exposures to hazardous atmospheric concentrations of isocyanate.

### 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 liquid; does not mix with water</td>
</tr>
<tr>
<td>Physical state</td>
<td>Liquid</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 (°C)</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>&lt;23</td>
</tr>
<tr>
<td>Evaporation rate</td>
<td>Not Available</td>
</tr>
<tr>
<td>Flammability</td>
<td>HIGHLY FLAMMABLE.</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>Immiscible</td>
</tr>
<tr>
<td>Vapour density (Air = 1)</td>
<td>Not Available</td>
</tr>
<tr>
<td>Relative density (Water = 1)</td>
<td>Not Available</td>
</tr>
<tr>
<td>Partition coefficient n-octanol / water</td>
<td>Not Available</td>
</tr>
<tr>
<td>Auto-ignition temperature (°C)</td>
<td>Not Available</td>
</tr>
<tr>
<td>Decomposition temperature</td>
<td>Not Available</td>
</tr>
<tr>
<td>Viscosity (cSt)</td>
<td>Not Available</td>
</tr>
<tr>
<td>Molecular weight (g/mol)</td>
<td>Not Available</td>
</tr>
<tr>
<td>Taste</td>
<td>Not Available</td>
</tr>
<tr>
<td>Explosive properties</td>
<td>Not Available</td>
</tr>
<tr>
<td>Oxidising properties</td>
<td>Not Available</td>
</tr>
<tr>
<td>Surface Tension (dyn/cm or mN/m)</td>
<td>Not Available</td>
</tr>
<tr>
<td>Volatile Component (%vol)</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 Applicable</td>
</tr>
<tr>
<td>VOC g/L</td>
<td>969.9</td>
</tr>
</tbody>
</table>

### SECTION 10 STABILITY AND REACTIVITY

<table>
<thead>
<tr>
<th>Property</th>
<th>Value</th>
</tr>
</thead>
<tbody>
<tr>
<td>Reactivity</td>
<td>See section 7</td>
</tr>
<tr>
<td>Chemical stability</td>
<td>Unstable in the presence of incompatible materials.</td>
</tr>
<tr>
<td></td>
<td>Product is considered stable.</td>
</tr>
<tr>
<td></td>
<td>Hazardous polymerisation will not occur.</td>
</tr>
<tr>
<td>Possibility of hazardous reactions</td>
<td>See section 7</td>
</tr>
<tr>
<td>Conditions to avoid</td>
<td>See section 7</td>
</tr>
<tr>
<td>Incompatible materials</td>
<td>See section 7</td>
</tr>
<tr>
<td>Hazardous decomposition products</td>
<td>See section 5</td>
</tr>
</tbody>
</table>

### SECTION 11 TOXICOLOGICAL INFORMATION

Information on toxicological effects

**Inhaled**

- Inhalation of vapours or aerosols (mists, fumes), generated by the material during the course of normal handling, may be harmful.
- 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.
- There is some evidence to suggest that the material can cause respiratory irritation in some persons. The body’s response to such irritation can cause further lung damage.
- The vapour mist may be highly irritating to the upper respiratory tract and lungs; the response may be severe enough to produce bronchitis and pulmonary oedema. Possible neurological symptoms arising from isocyanate exposure include headache, insomnia, euphoria, ataxia, anxiety neurosis, depression and...
paranoia. Gastrointestinal disturbances are characterised by nausea and vomiting. Pulmonary sensitisation may produce asthmatic reactions ranging from minor breathing difficulties to severe allergic attacks; this may occur following a single acute exposure or may develop without warning for several hours after exposure. Sensitized people can react to very low doses, and should not be allowed to work in situations allowing exposure to this material. Continued exposure of sensitised persons may lead to possible long term respiratory impairment. Inhalation hazard is increased at higher temperatures. At sufficiently high doses the material may be neurotoxic (i.e. poisonous to the nervous system).

**Ingestion**

Swallowing of the liquid may cause aspiration into the lungs with the risk of chemical pneumonitis; serious consequences may result. (ICSC13733) Accidental ingestion of the material may be harmful; animal experiments indicate that ingestion of less than 150 gram may be fatal or may produce serious damage to the health of the individual.

**Skin Contact**

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. Repeated exposure may cause skin cracking, flaking or drying following normal handling and use. Skin contact with the material may damage the health of the individual; systemic effects may result following absorption. Open cuts, abrasions or irritated skin should not be exposed to this material. Entry into the blood-stream, through, for example, cuts, abrasions or lesions, may produce systemic injury with harmful effects. Examine the skin prior to the use of the material and ensure that any external damage is suitably protected.

**Eye**

There is 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 pain. The liquid produces a high level of eye discomfort and is capable of causing pain and severe conjunctivitis. Corneal injury may develop, with possible permanent impairment of vision, if not promptly and adequately treated.

**Chronic**

Inhaling this product is more likely to cause a sensitisation reaction in some persons compared to the general population. Skin contact with the material is more likely to cause a sensitisation reaction in some persons compared to the general population. Harmful danger of serious damage to health by prolonged exposure through inhalation. This material can cause serious damage if one is exposed to it for long periods. It can be assumed that it contains a substance which can produce severe defects. Based on experience with animal studies, exposure to the material may result in toxic effects to the development of the fetus, at levels which do not cause significant toxic effects to the mother. Prolonged or repeated skin contact may cause drying with cracking, irritation and possible dermatitis following. There has been some concern that this material can cause cancer or mutations but there is not enough data to make an assessment. Substance accumulation, in the human body, may occur and may cause some concern following repeated or long-term occupational exposure.

Persons with a history of asthma or other respiratory problems or are known to be sensitised, should not be engaged in any work involving the handling of isocyanates. [CCTRADE-Bayer, APMF] Animal testing shows that polymeric MDI can damage the nasal cavities and lungs, causing inflammation and increased cell growth.

**CONTAINS** Free organic isocyanate. Mixing and application requires special precautions and use of personal protective gear [APMF]

**IRRITATION**

Eye (rabbit): 0.87 mg - mild

Skin (rabbit): 500 mg - moderate

**IRRITATION**

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

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

**IRRITATION**

Skin (rabbit): 500 mg/24h-moderate

**IRRITATION**

Skin (rabbit): 500 mg - moderate

**IRRITATION**

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

**IRRITATION**

Skin (rabbit): 20 mg - moderate
The following information refers to contact allergens as a group and may not be specific to this product. Contact allergy is an immune system reaction to substances to which the skin is exposed. The pathogenesis of contact eczema involves a cell-mediated (T lymphocytes) immune reaction of the delayed type. Other allergic skin reactions, e.g. contact urtica, involve antibody-mediated immune reactions.

The significance of the contact allergen is not simply determined by its sensitisation potential: the distribution of the substance and the opportunities for contact with it are equally important. A weakly sensitising substance which is widely distributed can be a more important allergen than one with stronger sensitising potential with few individuals come into contact. From a clinical point of view, substances are noteworthy if they produce an allergic test reaction in more than 1% of the persons tested.

**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

### TOLUENE

**Exposures to high levels of toluene can result in adverse effects in the developing human foetus.** Several studies have indicated that high levels of toluene can adversely effect the developing offspring in laboratory animals. Exposures to high levels of toluene can result in adverse effects in the developing human foetus. Several studies have indicated that high levels of toluene can adversely effect the developing offspring in laboratory animals. Exposures to high levels of toluene can result in adverse effects in the developing human foetus. Several studies have indicated that high levels of toluene can adversely effect the developing offspring in laboratory animals. Exposures to high levels of toluene can result in adverse effects in the developing human foetus. Several studies have indicated that high levels of toluene can adversely effect the developing offspring in laboratory animals.

**Developmental/Reproductive Toxicity**

Exposures to high levels of toluene can result in adverse effects in the developing human fetus. Several studies have indicated that high levels of toluene can adversely effect the developing offspring in laboratory animals. **Humans** - Variable growth, microcephaly, CNS dysfunction, attentional deficits, minor craniofacial and limb abnormalities, and developmental delay were seen. 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

**Toluene ingestion or inhalation can result in severe central nervous system depression.** Cloudy swelling of the kidneys was reported in rats following inhalation exposure to 1600 ppm toluene 6 hours/day for 3 days. Values for 3 days.

**Subchronic/Chronic Effects:**

Repeat doses of toluene cause adverse central nervous system effects and can damage the upper respiratory system, the liver, and the kidney. Adverse effects occur as a result from both oral and the inhalation exposures. A reported lowest-observed-effect level in humans for adverse neurobehavioural effects is 88 ppm.

**Humans** - Chronic occupational exposure and incidences of toluene abuse have resulted in hepatomegaly and liver function changes. It has also resulted in nephrotoxicity and, in one case, was a cardiac sensitizer and fatal cardiac toxidrome. Neural and cerebellar dystrophy were reported in several cases of habitual “glue sniffing.” An epidemiological study in France on workers chronically exposed to toluene fumes reported leukopenia and neuropathy. Exposure levels were not given in the secondary reference; however, the average urinary excretion of hippuric acid from individuals using toluene as a solvent was 4.5 mg/kg/day as compared to a normal level of 0.6 mg/kg/day.

**Animals** - The major target organs for the subchronic/toxicity of toluene are the nervous system, liver, and kidney. Depressed immune response has been reported in male mice given doses of 105 mg/kg/day for 28 days. Toluene in corn oil administered to F344 male and female rats by gavage 5 days/week for 13 weeks, induced prostration, hypeaesthesia, etc., and other lesions were seen. Some rats died at 500 mg/kg/day. Decreased foetal weight was reported, but there were no differences in the incidences of skeletal malformations or anomalies between the treated and control offspring.

**Absorption** - Studies in humans and animals have demonstrated that toluene is readily absorbed via the lungs and the gastrointestinal tract. Absorption through the skin is estimated at about 1% that absorbed by the lungs when exposed to toluene vapor. Dermal absorption is expected to be higher upon exposure to the liquid; however, exposure is limited by the rapid evaporation of toluene. Dermal absorption is expected to be higher upon exposure to the liquid; however, exposure is limited by the rapid evaporation of toluene. Dermal absorption is expected to be higher upon exposure to the liquid; however, exposure is limited by the rapid evaporation of toluene.

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Repeat doses of toluene cause adverse central nervous system effects and can damage the upper respiratory system, the liver, and the kidney. Adverse effects occur as a result from both oral and the inhalation exposures. A reported lowest-observed-effect level in humans for adverse neurobehavioural effects is 88 ppm.

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For trimethylenzines:

Absorption of 1,2,4-trimethylbenzene occurs after oral intake, inhalation, or dermal exposure. Occupationally, inhalation and dermal exposures are the most important routes of absorption although systemic intoxication from dermal absorption is not likely to occur due to the dermal irritation caused by the chemical promoting quick removal. Following parenteral administration of the chemical to rats, 62.6% of the dose was recovered from the urine and feces, with the major urinary metabolite indican indicating substantial absorption.

1,2,4-Trimethylbenzene is lipophilic and may accumulate in fat and fatty tissues. In the blood stream, approximately 85% of the chemical is bound to red blood cells. Metabolism occurs by side-chain oxidation to form alcohols and carboxylic acids which are then conjugated with gluturic acid, glycine, or sulfates for urinary excretion. After a single oral dose to rats of 1200 mg/kg, urinary metabolites consisted of approximately 43.2% glycine, 6.6% gluturic, and 12.9% sulfuric acid conjugates. The preponderance of these two principal metabolites excreted by rabbits after ingestion of the mixture of trimethylbenzenes were 2, 4-dimethylenbzoic acid and 3,4-dimethylenhippuric acid. The major routes of excretion of 1,2,4-trimethylbenzene are exhalation of parent compound and elimination of urinary metabolites. Half-times for urinary metabolites were reported as 9.5 hours for glycin, 22.9 hours for gluturic, and 37.6 hours for sulfuric acid conjugates.

Acute Toxicity

Direct contact with liquid 1,2,4-trimethylbenzene is irritating to the skin and breathing the vapor is irritating to the respiratory tract causing:

- A three-generation reproductive study on the C9 fraction was conducted in CD rats (30/sex/group) were exposed by inhalation to concentrations of 0, 100, 500, or 1500 ppm; a no-observed-effect level was not established for developmental toxicity, including possible developmental neurotoxicity, was evident in rats in a 3-generation reproductive study.

- No effects on fecundity or fertility occurred in rats treated dermally with up to 0.3 mL/day of a mixture of trimethylbenzenes, 4-6 hours/day, 5 days/week over one generation

- For C9 aromatics (typically trimethylenzines - TMBs)

Acute Toxicity

Acute toxicity studies (oral, dermal and inhalation routes of exposure) have been conducted in rats using various solvent products containing predominantly mixed C9 aromatic hydrocarbons (CAS RN 64742-95-6). Inhalation LC50's range from 6,000 to 10,000 mg/m3 for C9 aromatic hydrocarbons and 18,000 to 24,000 mg/m3 for 1,2,4- and 1,3,5-TMB respectively. A rat and LD50 reported for 1,2,4-TMB is 5 g/kg bw and a rat and LD50 for the C9 aromatic naphtha is 4 mg/kg bw. These data indicate that C9 aromatic solvents show that LD50/LC50 values are greater than limit doses for acute toxicity studies established under OECD test guidelines.

Irritation and Sensitization

Several irritation studies, including skin, eye, and lung/respiratory system, have been conducted on members of the category. The results indicate that C9 aromatic hydrocarbon solvents are minimally irritating to the skin, minimally causing irritation to the eye and minimally causing irritation to the respiratory tract and cause depression of respiratory rates in mice. Respiratory irritation is a key endpoint in the current occupational exposure limits established for C9 aromatic hydrocarbon solvents and trimethylenzines. No evidence of skin sensitization was identified.

Repeated Dose Toxicity

Inhalation: The results from a subchronic (3 month) neurotoxicity study and a one-year chronic study (6 hr/day, 5 days/week) indicate that effects from inhalation exposure to C9 aromatic Hydrocarbon Solvents on systemic toxicity are slight. A battery of neurotoxicity and neurobehavioral endpoints were evaluated in the 3-month inhalation study on C9 aromatic naphtha tested at concentrations of 0, 100, 452, or 1320 ppm (0, 500, 2,220, or 6,500 mg/m3). In this study, other than a transient weight reduction in the high exposure group (not statistically significant at termination of exposures), no effects were reported on neurotoxicity or neurobehavioral parameters. The NOAEL for systemic and/or neurotoxicity was 6,500 mg/m3. In an inhalation study of a commercial blend, rats were exposed to C9 aromatic naphtha concentrations of 0, 96, 198, or 373 ppm (0, 470, 970, 1830 mg/m3) for 6 hr/day, 5 days/week, for 12 months. Liver and kidney weights were increased in the high exposure group but no accompanying histopathology was observed in these organs.

The NOAEL was considered to be the high exposure level of 373 ppm, or 1830 mg/m3. In two subchronic rat inhalation studies, both of three months duration, rats were exposed to the individual TMB isomers (1,2,4- and 1,3,5-TMB) to nominal concentrations of 0, 25, 100, or 250 ppm (0, 123, 492, or 1230 mg/m3).

Respiratory irritation was observed at 492 (100 ppm) and 1230 mg/m3 (250 ppm) and no systemic toxicity was observed in either study. For both pure isomers, the NOAELs are 25 ppm or 123 mg/m3 for respiratory irritation and 250 ppm or 1230 mg/m3 for systemic effects.

Oral: The C9 aromatic naphtha has not been tested via the oral route of exposure. Individual TMB isomers have been evaluated in a series of repeated-dose oral studies ranging from 14 days to 3 months over a wide range of doses. The effects observed in these studies included increased liver and kidney weights, changes in blood chemistry, increased salivation, and decreased weight gain at higher doses. Organ weight changes appeared to be adaptive as they were not accompanied by histopathological effects. Blood changes appeared sporadic and without pattern. One study reported hyaline droplet nephropathy in male rats at the highest dose (1000 mg/kg bw-day), an effect that is often associated with alpha-2mu-globulin induced nephropathy and not considered relevant to humans. The doses at which effects were detected were 100 mg/kg bw-day or above (an exception was the pilot 14 day oral study - LOAEL 150 mg/kg bw-day but the follow up three month study had a LOAEL of 600 mg/kg bw-day with a NOAEL of 200 mg/kg bw-day. Since effects generally were not severe and could not be considered adaptive or spurious, oral exposure does not appear to pose a high toxicity hazard for pure trimethylenzine isomers.

Mutagenicity

In vitro genotoxicity testing of a variety of C9 aromatics has been conducted in both bacterial and mammalian cells. In vitro point mutation tests were conducted with Salmonella typhimurium and Escherichia coli bacterial strains, as well as with cultured mammalian cells such as the Chinese hamster cell ovary cells (HF/GT) assay with and without metabolic activation. In addition, several types of in vitro chromosomal aberration test have been performed (chromosome aberration frequency in Chinese hamster ovary and lung cells, sister chromatid exchange in CHO cells). Results were negative both with and without metabolic activation for all category members. For the supporting chemical 1,2,3-TMB, a single in vitro chromosome aberration test was weakly positive. In vivo bone marrow cytokinesis tests, rats were exposed to C9 aromatic inhalation at concentrations of 100, 250, or 500 ppm (0, 790, 2310, or 5760 mg/m3) 6 hr/day, for 5 days. No evidence of in vivo somatic cell genotoxicity was detected. Based on the cumulative results of these assays, genetic toxicity is unlikely for substances in the C9 Aromatic Hydrocarbon Solvents Category.

Reproducibility and Developmental Toxicity

Results from the three-generation reproduction inhalation study in rats indicate limited effects from C9 aromatic naphtha. In each of three generations (F0, F1 and F2), rats were exposed to High Flash Aromatic Naphtha (CAS RN 64742-95-6) via whole body inhalation at target concentrations of 0, 100, 500 or 1500 mg/m3.
HEXAMETHYLENE DISOCYANATE POLYMER & N-BUTYL ACETATE & TOLUENE

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 available but does not fill the criteria for classification
☐ – Data required to make classification available
☒ – Data Not Available to make classification

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>hexamethylene diisocyanate polymer</td>
<td>LC50</td>
<td>96</td>
<td>Fish</td>
<td>0.015mg/L</td>
<td>3</td>
</tr>
<tr>
<td>hexamethylene diisocyanate polymer</td>
<td>EC50</td>
<td>72</td>
<td>Algae or other aquatic plants</td>
<td>&gt;1000mg/L</td>
<td>2</td>
</tr>
<tr>
<td>hexamethylene diisocyanate polymer</td>
<td>EC50</td>
<td>24</td>
<td>Crustacea</td>
<td>&gt;100mg/L</td>
<td>2</td>
</tr>
<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>&lt;32mg/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>toluene</td>
<td>LC50</td>
<td>96</td>
<td>Fish</td>
<td>0.0031704mg/L</td>
<td>4</td>
</tr>
<tr>
<td>toluene</td>
<td>EC50</td>
<td>48</td>
<td>Crustacea</td>
<td>0.0115750mg/L</td>
<td>4</td>
</tr>
<tr>
<td>toluene</td>
<td>EC50</td>
<td>72</td>
<td>Algae or other aquatic plants</td>
<td>12.5mg/L</td>
<td>4</td>
</tr>
<tr>
<td>toluene</td>
<td>BCF</td>
<td>24</td>
<td>Algae or other aquatic plants</td>
<td>10mg/L</td>
<td>4</td>
</tr>
<tr>
<td>toluene</td>
<td>EC50</td>
<td>3</td>
<td>Algae or other aquatic plants</td>
<td>0.1336030mg/L</td>
<td>4</td>
</tr>
<tr>
<td>toluene</td>
<td>NOEC</td>
<td>168</td>
<td>Crustacea</td>
<td>0.74mg/L</td>
<td>2</td>
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<tr>
<td>ethyl acetate</td>
<td>LC50</td>
<td>96</td>
<td>Fish</td>
<td>54.314mg/L</td>
<td>3</td>
</tr>
<tr>
<td>ethyl acetate</td>
<td>EC50</td>
<td>48</td>
<td>Crustacea</td>
<td>&gt;164mg/L</td>
<td>1</td>
</tr>
</tbody>
</table>
### 2P Hardener Fast

**EC50 96 Algae or other aquatic plants 4.146mg/L 3**

**BCF 24 Algae or other aquatic plants 0.05mg/L 4**

**EC0 168 Algae or other aquatic plants 15mg/L 1**

**NOEC 504 Crustacea 2.4mg/L 2**

**EC50 48 Crustacea 6.14mg/L 1**

**EC50 72 Algae or other aquatic plants 3.29mg/L 1**

**EC10 72 Algae or other aquatic plants 1.13mg/L 1**

**NOEC 72 Algae or other aquatic plants 1mg/L 1**

**Legend:**

Extracted from 1. IUCLID Toxicity Data 2. Europe ECHA Registered Substances - Ecotoxicological Information - Aquatic Toxicity 3. EPIWIN Suite V3.12 - Aquatic Toxicity Data (Estimated) 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

Harmful 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.**

**DO NOT discharge into sewer or waterways.**

### Persistence and degradability

<table>
<thead>
<tr>
<th>Ingredient</th>
<th>Persistence: Water/Soil</th>
<th>Persistence: Air</th>
</tr>
</thead>
<tbody>
<tr>
<td>hexamethylene diisocyanate polymer</td>
<td>HIGH</td>
<td>HIGH</td>
</tr>
<tr>
<td>n-butyl acetate</td>
<td>LOW</td>
<td>LOW</td>
</tr>
<tr>
<td>toluene</td>
<td>LOW (Half-life = 28 days)</td>
<td>LOW (Half-life = 4.33 days)</td>
</tr>
<tr>
<td>ethyl acetate</td>
<td>LOW (Half-life = 14 days)</td>
<td>LOW (Half-life = 14.71 days)</td>
</tr>
</tbody>
</table>

### Bioaccumulative potential

<table>
<thead>
<tr>
<th>Ingredient</th>
<th>Bioaccumulation</th>
</tr>
</thead>
<tbody>
<tr>
<td>hexamethylene diisocyanate polymer</td>
<td>LOW (LogKOW = 7.5795)</td>
</tr>
<tr>
<td>n-butyl acetate</td>
<td>LOW (BCF = 14)</td>
</tr>
<tr>
<td>toluene</td>
<td>LOW (BCF = 90)</td>
</tr>
<tr>
<td>ethyl acetate</td>
<td>HIGH (BCF = 3300)</td>
</tr>
</tbody>
</table>

### Mobility in soil

<table>
<thead>
<tr>
<th>Ingredient</th>
<th>Mobility</th>
</tr>
</thead>
<tbody>
<tr>
<td>hexamethylene diisocyanate polymer</td>
<td>LOW (KOC = 18560000)</td>
</tr>
<tr>
<td>n-butyl acetate</td>
<td>LOW (KOC = 20.86)</td>
</tr>
<tr>
<td>toluene</td>
<td>LOW (KOC = 268)</td>
</tr>
<tr>
<td>ethyl acetate</td>
<td>LOW (KOC = 6.131)</td>
</tr>
</tbody>
</table>

### SECTION 13 DISPOSAL CONSIDERATIONS

#### Waste treatment methods

- Containers may still present a chemical hazard/ danger when empty.
- Return to supplier for reuse/ recycling if possible. Otherwise:
  - If container can not be cleaned sufficiently well to ensure that residuals do not remain or if the container cannot be used to store the same product, then puncture containers, to prevent re-use, and bury at an authorised landfill.
  - Where possible retain label warnings and SDS and observe all notices pertaining to the product.

Legislation addressing waste disposal requirements may differ by country, state and/ or territory. Each user must refer to laws operating in their area. 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 is available.

DO NOT allow wash water from cleaning or process equipment to enter drains.

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 is available.

Continued...
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

<table>
<thead>
<tr>
<th>Marine Pollutant</th>
<th>NO</th>
</tr>
</thead>
<tbody>
<tr>
<td>HAZCHEM</td>
<td>☑YE</td>
</tr>
</tbody>
</table>

#### 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: 163 367
  - 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
- **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

#### 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 3, IMDG Subrisk Not Applicable
- **Packing group**: II
- **Environmental hazard**: Not Applicable
- **Special precautions for user**:
  - EMS Number: F-E, S-E
  - 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

**HEXAMETHYLENE DIISOCYANATE POLYMER (28182-81-2) IS FOUND ON THE FOLLOWING REGULATORY LISTS**

- Australia Exposure Standards
- Australia Hazardous Substances Information System - Consolidated Lists
- Australia Inventory of Chemical Substances (AICS)
- Australia Work Health and Safety Regulations 2016 - Hazardous chemicals (other than lead) requiring health monitoring

**N-BUTYL ACETATE (123-86-4) IS FOUND ON THE FOLLOWING REGULATORY LISTS**

- Australia Exposure Standards
- Australia Hazardous Substances Information System - Consolidated Lists
- Australia Inventory of Chemical Substances (AICS)

**TOLUENE (108-88-3) IS FOUND ON THE FOLLOWING REGULATORY LISTS**

- Australia Exposure Standards
- Australia Hazardous Substances Information System - Consolidated Lists
- Australia Inventory of Chemical Substances (AICS)

**ETHYL ACETATE (141-78-6) IS FOUND ON THE FOLLOWING REGULATORY LISTS**

- Australia Exposure Standards
- Australia Hazardous Substances Information System - Consolidated Lists
- Australia Inventory of Chemical Substances (AICS)

**NAPHTHA PETROLEUM, LIGHT AROMATIC SOLVENT (64742-95-6) IS FOUND ON THE FOLLOWING REGULATORY LISTS**

- Australia Exposure Standards
- Australia Hazardous Substances Information System - Consolidated Lists
- Australia Inventory of Chemical Substances (AICS)

The table below shows the status of the substance or mixture in different countries:

<table>
<thead>
<tr>
<th>National Inventory</th>
<th>Status</th>
</tr>
</thead>
<tbody>
<tr>
<td>Australia - AICS</td>
<td>Y</td>
</tr>
<tr>
<td>Canada - DSL</td>
<td>Y</td>
</tr>
<tr>
<td>Canada - NDSL</td>
<td>N (toluene; n-butyl acetate; ethyl acetate; naphtha petroleum, light aromatic solvent)</td>
</tr>
<tr>
<td>China - IECSC</td>
<td>Y</td>
</tr>
<tr>
<td>Europe - EINEC / ELINCS / NLP</td>
<td>Y</td>
</tr>
<tr>
<td>Japan - ENCS</td>
<td>N (hexamethylene diisocyanate polymer)</td>
</tr>
<tr>
<td>Korea - KECI</td>
<td>Y</td>
</tr>
<tr>
<td>New Zealand - NZIoC</td>
<td>Y</td>
</tr>
<tr>
<td>Philippines - PICCS</td>
<td>Y</td>
</tr>
<tr>
<td>USA - TSCA</td>
<td>Y</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>hexamethylene diisocyanate polymer</td>
<td>28182-81-2, 58200-31-0, 1192214-73-5</td>
</tr>
<tr>
<td>naphtha petroleum, light aromatic solvent</td>
<td>64742-95-6, 25550-14-5.</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](http://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
- **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