

# F-190 PART A

## Barnes Products P/L

Chemwatch Hazard Alert Code: 3

Chemwatch: 72-8023

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Safety Data Sheet according to WHS Regulations (Hazardous Chemicals) Amendment 2020 and ADG requirements

S.GHS.AUS.EN.E

### SECTION 1 Identification of the substance / mixture and of the company / undertaking

#### Product Identifier

|                               |  |
|-------------------------------|--|
| Product name                  | F-190 PART A   |
| Chemical Name                 | Not Applicable   |
| Synonyms                      | F-190 REV 1 PART A   |
| Proper shipping name          | ENVIRONMENTALLY HAZARDOUS SUBSTANCE, LIQUID, N.O.S. (contains toluene diisocyanate, chlorinated paraffin, long chain grades, toluene-2,4-diisocyanate, solvent naphtha petroleum, heavy aromatic and toluene-2,6-diisocyanate) |
| Chemical formula              | Not Applicable   |
| Other means of identification | Not Available  |

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

|                          |                     |
|--------------------------|---------------------|
| Relevant identified uses | Polyurethane resin. |
|--------------------------|---------------------|

#### Details of the manufacturer or supplier of the safety data sheet

|                         |   |
|-------------------------|---|
| Registered company name | Barnes Products P/L   |
| Address                 | 5 Greenhills Avenue Moorebank NSW 2170 Australia                  |
| Telephone               | +61 2 9793 7555   |
| Fax                     | +61 2 9793 7091   |
| Website                 | <a href="http://www.barnes.com.au/">http://www.barnes.com.au/</a> |
| Email                   | sales@barnes.com.au   |

#### Emergency telephone number

|                                   |  |
|-----------------------------------|--|
| Association / Organisation        | Barnes Products Pty Ltd                        |
| Emergency telephone numbers       | +61 2 9793 7555 Business Hours                 |
| Other emergency telephone numbers | Poisons Information Centre 13 1126 after hours |

### SECTION 2 Hazards identification

#### Classification of the substance or mixture

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


#### Chemwatch Hazard Ratings

|              | Min | Max |
|--------------|-----|-----|
| Flammability | 1   | 1   |
| Toxicity     | 1   | 1   |
| Body Contact | 1   | 1   |
| Reactivity   | 1   | 1   |
| Chronic      | 3   | 3   |

0 = Minimum  
1 = Low  
2 = Moderate  
3 = High  
4 = Extreme

|                    |   |
|--------------------|---|
| Poisons Schedule   | Not Applicable  |
| Classification [1] | Reproductive Toxicity Category 1B, Hazardous to the Aquatic Environment Long-Term Hazard Category 2                                 |
| Legend:            | 1. Classified by Chemwatch; 2. Classification drawn from HCIS; 3. Classification drawn from Regulation (EU) No 1272/2008 - Annex VI |

#### Label elements

|                     |  |
|---------------------|--|
| Hazard pictogram(s) |  |
|---------------------|--|

|             |               |
|-------------|---------------|
| Signal word | <b>Danger</b> |
|-------------|---------------|

#### Hazard statement(s)

|               |   |
|---------------|---|
| <b>H360Df</b> | May damage the unborn child. Suspected of damaging fertility. |
| <b>H411</b>   | Toxic to aquatic life with long lasting effects.              |

#### Precautionary statement(s) Prevention

|             |   |
|-------------|---|
| <b>P201</b> | Obtain special instructions before use.         |
| <b>P280</b> | Wear protective gloves and protective clothing. |
| <b>P273</b> | Avoid release to the environment.               |

#### Precautionary statement(s) Response

|                  |   |
|------------------|---|
| <b>P308+P313</b> | IF exposed or concerned: Get medical advice/ attention. |
| <b>P391</b>      | Collect spillage.                                       |

#### Precautionary statement(s) Storage

|             |                  |
|-------------|------------------|
| <b>P405</b> | Store locked up. |
|-------------|------------------|

#### Precautionary statement(s) Disposal

|             |  |
|-------------|--|
| <b>P501</b> | Dispose of contents/container to authorised hazardous or special waste collection point in accordance with any local regulation. |
|-------------|--|

### SECTION 3 Composition / information on ingredients

#### Substances

See section below for composition of Mixtures

#### Mixtures

| CAS No        | %[weight] | Name   |
|---------------|-----------|--|
| 63449-39-8    | 5-10      | <u>chlorinated paraffin, long chain grades</u>   |
| 84-74-2       | <5        | <u>dibutyl phthalate</u>                         |
| 64742-94-5    | <2.5      | <u>solvent naphtha petroleum, heavy aromatic</u> |
| 91-20-3       | <0.25     | <u>naphthalene</u>                               |
| 26471-62-5    | <0.03     | <u>toluene diisocyanate</u>                      |
| 91-08-7       | <0.02     | <u>toluene-2,6-diisocyanate</u>                  |
| 584-84-9      | <0.02     | <u>toluene-2,4-diisocyanate</u>                  |
| Not Available | balance   | #30nonhaz  |

**Legend:** 1. Classified by Chemwatch; 2. Classification drawn from HCIS; 3. Classification drawn from Regulation (EU) No 1272/2008 - Annex VI; 4. Classification drawn from C&L; \* EU IOELVs available

### SECTION 4 First aid measures

#### Description of first aid measures

|                     |   |
|---------------------|---|
| <b>Eye Contact</b>  | <p>If this product comes in contact with the eyes:</p> <ul style="list-style-type: none"> <li>▶ Wash out immediately with fresh running water.</li> <li>▶ 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.</li> <li>▶ Seek medical attention without delay; if pain persists or recurs seek medical attention.</li> <li>▶ Removal of contact lenses after an eye injury should only be undertaken by skilled personnel.</li> </ul> |
| <b>Skin Contact</b> | <p>If skin contact occurs:</p> <ul style="list-style-type: none"> <li>▶ Immediately remove all contaminated clothing, including footwear.</li> <li>▶ Flush skin and hair with running water (and soap if available).</li> <li>▶ Seek medical attention in event of irritation.</li> </ul>   |
| <b>Inhalation</b>   | <ul style="list-style-type: none"> <li>▶ If fumes or combustion products are inhaled remove from contaminated area.</li> <li>▶ Lay patient down. Keep warm and rested.</li> <li>▶ Prostheses such as false teeth, which may block airway, should be removed, where possible, prior to initiating first aid</li> </ul>   |

|                  |  |
|------------------|--|
|                  | <p>procedures.</p> <ul style="list-style-type: none"> <li>▶ 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.</li> <li>▶ Transport to hospital, or doctor.</li> </ul> <p>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.</p> |
| <b>Ingestion</b> | <ul style="list-style-type: none"> <li>▶ <b>If swallowed do NOT induce vomiting.</b></li> <li>▶ If vomiting occurs, lean patient forward or place on left side (head-down position, if possible) to maintain open airway and prevent aspiration.</li> <li>▶ Observe the patient carefully.</li> <li>▶ Never give liquid to a person showing signs of being sleepy or with reduced awareness; i.e. becoming unconscious.</li> <li>▶ Give water to rinse out mouth, then provide liquid slowly and as much as casualty can comfortably drink.</li> <li>▶ Seek medical advice.</li> </ul>   |

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

for naphthalene intoxication: Naphthalene requires hepatic and microsomal activation prior to the production of toxic effects. Liver microsomes catalyse the initial synthesis of the reactive 1,2-epoxide intermediate which is subsequently oxidised to naphthalene dihydrodiol and alpha-naphthol. The 2-naphthoquinones are thought to produce haemolysis, the 1,2-naphthoquinones are thought to be responsible for producing cataracts in rabbits, and the glutathione-adducts of naphthalene-1,2-oxide are probably responsible for pulmonary toxicity. Suggested treatment regime:

- ▶ Induce emesis and/or perform gastric lavage with large amounts of warm water where oral poisoning is suspected.
- ▶ Instill a saline cathartic such as magnesium or sodium sulfate in water (15 to 30g).
- ▶ Demulcents such as milk, egg white, gelatin, or other protein solutions may be useful after the stomach is emptied but oils should be avoided because they promote absorption.
- ▶ If eyes/skin contaminated, flush with warm water followed by the application of a bland ointment.
- ▶ Severe anaemia, due to haemolysis, may require small repeated blood transfusions, preferably with red cells from a non-sensitive individual.
- ▶ Where intravascular haemolysis, with haemoglobinuria occurs, protect the kidneys by promoting a brisk flow of dilute urine with, for example, an osmotic diuretic such as mannitol. It may be useful to alkalinise the urine with small amounts of sodium bicarbonate but many researchers doubt whether this prevents blockage of the renal tubules.
- ▶ Use supportive measures in the case of acute renal failure. GOSSELIN, SMITH HODGE: Clinical Toxicology of Commercial Products, 5th Ed.

## SECTION 5 Firefighting measures

### Extinguishing media

- ▶ 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

|                             |  |
|-----------------------------|--|
| <b>Fire Incompatibility</b> | ▶ Avoid contamination with oxidising agents i.e. nitrates, oxidising acids, chlorine bleaches, pool chlorine etc. as ignition may result |
|-----------------------------|--|

### Advice for firefighters

|                              |   |
|------------------------------|---|
| <b>Fire Fighting</b>         | <ul style="list-style-type: none"> <li>▶ Alert Fire Brigade and tell them location and nature of hazard.</li> <li>▶ Wear full body protective clothing with breathing apparatus.</li> <li>▶ Prevent, by any means available, spillage from entering drains or water course.</li> <li>▶ Use water delivered as a fine spray to control fire and cool adjacent area.</li> <li>▶ Avoid spraying water onto liquid pools.</li> <li>▶ <b>DO NOT</b> approach containers suspected to be hot.</li> <li>▶ Cool fire exposed containers with water spray from a protected location.</li> </ul>  |
| <b>Fire/Explosion Hazard</b> | <ul style="list-style-type: none"> <li>▶ Combustible.</li> <li>▶ Slight fire hazard when exposed to heat or flame.</li> <li>▶ Heating may cause expansion or decomposition leading to violent rupture of containers.</li> <li>▶ On combustion, may emit toxic fumes of carbon monoxide (CO).</li> <li>▶ May emit acrid smoke.</li> <li>▶ Mists containing combustible materials may be explosive.</li> </ul> <p>Combustion products include:<br/>carbon dioxide (CO<sub>2</sub>)<br/>isocyanates<br/>and minor amounts of<br/>hydrogen cyanide<br/>nitrogen oxides (NO<sub>x</sub>)<br/>other pyrolysis products typical of burning organic material.</p> |
| <b>HAZCHEM</b>               | •3Z   |

## 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

|                     |  |
|---------------------|--|
| <b>Minor Spills</b> | <p>Environmental hazard - contain spillage.</p> <ul style="list-style-type: none"><li>▸ Clean up all spills immediately.</li><li>▸ Avoid breathing vapours and contact with skin and eyes.</li><li>▸ Control personal contact with the substance, by using protective equipment.</li><li>▸ Contain and absorb spill with sand, earth, inert material or vermiculite.</li><li>▸ Wipe up.</li><li>▸ Place in a suitable, labelled container for waste disposal.</li></ul>                |
| <b>Major Spills</b> | <p>Environmental hazard - contain spillage.<br/>Moderate hazard.</p> <ul style="list-style-type: none"><li>▸ Clear area of personnel and move upwind.</li><li>▸ Alert Fire Brigade and tell them location and nature of hazard.</li><li>▸ Wear breathing apparatus plus protective gloves.</li><li>▸ Prevent, by any means available, spillage from entering drains or water course.</li><li>▸ No smoking, naked lights or ignition sources.</li><li>▸ Increase ventilation.</li></ul> |

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

## SECTION 7 Handling and storage

### Precautions for safe handling

|                          |   |
|--------------------------|---|
| <b>Safe handling</b>     | <ul style="list-style-type: none"><li>· Electrostatic discharge may be generated during pumping - this may result in fire.</li><li>· Ensure electrical continuity by bonding and grounding (earthing) all equipment.</li><li>· Restrict line velocity during pumping in order to avoid generation of electrostatic discharge (<math>\leq 1</math> m/sec until fill pipe submerged to twice its diameter, then <math>\leq 7</math> m/sec).</li><li>· Avoid splash filling.</li><li>· Do NOT use compressed air for filling discharging or handling operations.</li><li>· Wait 2 minutes after tank filling (for tanks such as those on road tanker vehicles) before opening hatches or manholes.</li><li>· Wait 30 minutes after tank filling ( for large storage tanks) before opening hatches or manholes.<ul style="list-style-type: none"><li>▸ Avoid all personal contact, including inhalation.</li><li>▸ Wear protective clothing when risk of exposure occurs.</li><li>▸ Use in a well-ventilated area.</li><li>▸ Prevent concentration in hollows and sumps.</li><li>▸ <b>DO NOT enter confined spaces until atmosphere has been checked.</b></li><li>▸ Avoid smoking, naked lights or ignition sources.</li><li>▸ Avoid contact with incompatible materials.</li></ul></li></ul> |
| <b>Other information</b> | <p>Consider storage under inert gas.</p> <ul style="list-style-type: none"><li>▸ Store in original containers.</li><li>▸ Keep containers securely sealed.</li><li>▸ Store in a cool, dry, well-ventilated area.</li><li>▸ Store away from incompatible materials and foodstuff containers.</li><li>▸ Protect containers against physical damage and check regularly for leaks.</li><li>▸ Observe manufacturer's storage and handling recommendations contained within this SDS.</li></ul>   |

### Conditions for safe storage, including any incompatibilities

|                                |   |
|--------------------------------|---|
| <b>Suitable container</b>      | <ul style="list-style-type: none"><li>▸ Metal can or drum</li><li>▸ Packaging as recommended by manufacturer.</li><li>▸ Check all containers are clearly labelled and free from leaks.</li></ul>  |
| <b>Storage incompatibility</b> | <p>Phthalates:</p> <ul style="list-style-type: none"><li>▸ react with strong acids, strong oxidisers, permanganates and nitrates</li><li>▸ attack some form of plastics</li><li>▸ Segregate from alcohol, water.</li><li>▸ Avoid reaction with oxidising agents</li><li>▸ <b>NOTE:</b> May develop pressure in containers; open carefully. Vent periodically.</li></ul> |

## 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 | dibutyl phthalate        | Dibutyl phthalate              | 5 mg/m <sup>3</sup>           | Not Available                 | Not Available | Not Available |
| Australia Exposure Standards | naphthalene              | Naphthalene                    | 10 ppm / 52 mg/m <sup>3</sup> | 79 mg/m <sup>3</sup> / 15 ppm | Not Available | Not Available |
| Australia Exposure Standards | toluene diisocyanate     | Toluene-2,4-diisocyanate (TDI) | 0.02 mg/m <sup>3</sup>        | 0.07 mg/m <sup>3</sup>        | Not Available | Not Available |
| Australia Exposure Standards | toluene-2,6-diisocyanate | Isocyanates, all (as-NCO)      | 0.02 mg/m <sup>3</sup>        | 0.07 mg/m <sup>3</sup>        | Not Available | Not Available |
| Australia Exposure Standards | toluene-2,4-diisocyanate | Toluene-2,4-diisocyanate (TDI) | 0.02 mg/m <sup>3</sup>        | 0.07 mg/m <sup>3</sup>        | Not Available | Not Available |

### Emergency Limits

| Ingredient               | TEEL-1               | TEEL-2                  | TEEL-3                  |
|--------------------------|----------------------|-------------------------|-------------------------|
| dibutyl phthalate        | 15 mg/m <sup>3</sup> | 1,600 mg/m <sup>3</sup> | 9300* mg/m <sup>3</sup> |
| naphthalene              | 15 ppm               | 83 ppm                  | 500 ppm                 |
| toluene diisocyanate     | 0.02 ppm             | 0.083 ppm               | 0.51 ppm                |
| toluene diisocyanate     | Not Available        | Not Available           | Not Available           |
| toluene diisocyanate     | Not Available        | Not Available           | Not Available           |
| toluene-2,6-diisocyanate | Not Available        | Not Available           | Not Available           |
| toluene-2,4-diisocyanate | 0.02 ppm             | 0.083 ppm               | 0.51 ppm                |
| toluene-2,4-diisocyanate | Not Available        | Not Available           | Not Available           |

| Ingredient                                | Original IDLH           | Revised IDLH  |
|---|-------------------------|---------------|
| chlorinated paraffin, long chain grades   | Not Available           | Not Available |
| dibutyl phthalate                         | 4,000 mg/m <sup>3</sup> | Not Available |
| solvent naphtha petroleum, heavy aromatic | Not Available           | Not Available |
| naphthalene                               | 250 ppm                 | Not Available |
| toluene diisocyanate                      | 2.5 ppm                 | Not Available |
| toluene-2,6-diisocyanate                  | Not Available           | Not Available |
| toluene-2,4-diisocyanate                  | 2.5 ppm                 | Not Available |

### Exposure controls

|  |  |
|--|--|
| <b>Appropriate engineering controls</b>                                      | <p>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.</p> <p>The basic types of engineering controls are:</p> <p>Process controls which involve changing the way a job activity or process is done to reduce the risk.</p> <p>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.</p> |
| <b>Individual protection measures, such as personal protective equipment</b> |   |
| <b>Eye and face protection</b>   | <ul style="list-style-type: none"> <li>▸ Safety glasses with side shields.</li> <li>▸ Chemical goggles.</li> <li>▸ 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.</li> </ul>   |
| <b>Skin protection</b>   | See Hand protection below  |
| <b>Hands/feet protection</b>   | <ul style="list-style-type: none"> <li>▸ Wear chemical protective gloves, e.g. PVC.</li> <li>▸ Wear safety footwear or safety gumboots, e.g. Rubber</li> </ul> <p>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.</p> <p>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.</p> <p>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 moisturiser is recommended.</p>                |

|                         |  |
|-------------------------|--|
| <b>Body protection</b>  | See Other protection below   |
| <b>Other protection</b> | <ul style="list-style-type: none"> <li>▶ Overalls.</li> <li>▶ P.V.C apron.</li> <li>▶ Barrier cream.</li> <li>▶ Skin cleansing cream.</li> <li>▶ Eye wash unit.</li> </ul> |

## Recommended material(s)

### GLOVE SELECTION INDEX

Glove selection is based on a modified presentation of the:

**"Forsberg Clothing Performance Index".**

The effect(s) of the following substance(s) are taken into account in the

**computer-generated** selection:

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| Material         | CPI |
|------------------|-----|
| BUTYL            | C   |
| NATURAL RUBBER   | C   |
| NATURAL+NEOPRENE | C   |
| NEOPRENE         | C   |
| NEOPRENE/NATURAL | C   |
| NITRILE          | C   |
| PE/EVAL/PE       | C   |
| PVA              | C   |
| SARANEX-23       | C   |
| TEFLON           | C   |
| VITON            | C   |

\* CPI - Chemwatch Performance Index

A: Best Selection

B: Satisfactory; may degrade after 4 hours continuous immersion

C: Poor to Dangerous Choice for other than short term immersion

**NOTE:** As a series of factors will influence the actual performance of the glove, a final selection must be based on detailed observation. -

\* Where the glove is to be used on a short term, casual or infrequent basis, factors such as "feel" or convenience (e.g. disposability), may dictate a choice of gloves which might otherwise be unsuitable following long-term or frequent use. A qualified practitioner should be consulted.

## Respiratory protection

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

Where the concentration of gas/particulates in the breathing zone, approaches or exceeds the "Exposure Standard" (or ES), respiratory protection is required. Degree of protection varies with both face-piece and Class of filter; the nature of protection varies with Type of filter.

| Required Minimum Protection Factor | Half-Face Respirator | Full-Face Respirator | Powered Air Respirator  |
|------------------------------------|----------------------|----------------------|-------------------------|
| up to 10 x ES                      | A-AUS P2             | -                    | A-PAPR-AUS / Class 1 P2 |
| up to 50 x ES                      | -                    | A-AUS / Class 1 P2   | -                       |
| up to 100 x ES                     | -                    | A-2 P2               | A-PAPR-2 P2 ^           |

^ - Full-face

A(All classes) = Organic vapours, B AUS or B1 = Acid gasses, B2 = Acid gas or hydrogen cyanide(HCN), B3 = Acid gas or hydrogen cyanide(HCN), E = Sulfur dioxide(SO<sub>2</sub>), G = Agricultural chemicals, K = Ammonia(NH<sub>3</sub>), 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 on detecting any odours through the respirator. The odour may indicate that the mask is not functioning properly, that the vapour concentration is too high, or that the mask is not properly fitted. Because of these limitations, only restricted use of cartridge respirators is considered appropriate.
- ▶ Cartridge performance is affected by humidity. Cartridges should be changed after 2 hr of continuous use unless it is determined that the humidity is less than 75%, in which case, cartridges can be used for 4 hr. Used cartridges should be discarded daily, regardless of the length of time used

## SECTION 9 Physical and chemical properties

### Information on basic physical and chemical properties

|   |   |  |                |
|---|---|--|----------------|
| <b>Appearance</b>                                   | Clear to pale yellow viscous liquid with slight aromatic hydrocarbon odour; slightly reacts with water. |  |                |
| <b>Physical state</b>                               | Liquid  | <b>Relative density (Water = 1)</b>            | 1.090 @25C     |
| <b>Odour</b>  | Not Available   | <b>Partition coefficient n-octanol / water</b> | Not Available  |
| <b>Odour threshold</b>                              | Not Available   | <b>Auto-ignition temperature (°C)</b>          | Not Available  |
| <b>pH (as supplied)</b>                             | Not Applicable  | <b>Decomposition temperature (°C)</b>          | Not Available  |
| <b>Melting point / freezing point (°C)</b>          | Not Available   | <b>Viscosity (cSt)</b>                         | 6540.000 @25C  |
| <b>Initial boiling point and boiling range (°C)</b> | >250  | <b>Molecular weight (g/mol)</b>                | Not Applicable |
| <b>Flash point (°C)</b>                             | 110 (PMCC)  | <b>Taste</b>                                   | Not Available  |
| <b>Evaporation rate</b>                             | Not Available   | <b>Explosive properties</b>                    | Not Available  |
| <b>Flammability</b>                                 | Not Applicable  | <b>Oxidising properties</b>                    | Not Available  |
| <b>Upper Explosive Limit (%)</b>                    | Not Available   | <b>Surface Tension (dyn/cm or mN/m)</b>        | Not Available  |
| <b>Lower Explosive Limit (%)</b>                    | Not Available   | <b>Volatile Component (%vol)</b>               | Not Available  |
| <b>Vapour pressure (kPa)</b>                        | <0.133 @21C   | <b>Gas group</b>                               | Not Available  |

|                                 |               |                              |                |
|---------------------------------|---------------|------------------------------|----------------|
| <b>Solubility in water</b>      | Reacts        | <b>pH as a solution (1%)</b> | Not Applicable |
| <b>Vapour density (Air = 1)</b> | Not Available | <b>VOC g/L</b>               | 24             |

## SECTION 10 Stability and reactivity

|   |  |
|---|--|
| <b>Reactivity</b>                         | See section 7  |
| <b>Chemical stability</b>                 | <ul style="list-style-type: none"> <li>▶ Unstable in the presence of incompatible materials.</li> <li>▶ Product is considered stable.</li> <li>▶ Hazardous polymerisation will not occur.</li> </ul> |
| <b>Possibility of hazardous reactions</b> | See section 7  |
| <b>Conditions to avoid</b>                | See section 7  |
| <b>Incompatible materials</b>             | See section 7  |
| <b>Hazardous decomposition products</b>   | See section 5  |

## SECTION 11 Toxicological information

### Information on toxicological effects

|                     |   |
|---------------------|---|
| <b>Inhaled</b>      | Inhalation of aerosols (mists, fumes), generated by the material during the course of normal handling, may be damaging to the health of the individual.   |
| <b>Ingestion</b>    | Accidental ingestion of the material may be damaging to the health of the individual.   |
| <b>Skin Contact</b> | <p>Skin contact with the material may damage the health of the individual; systemic effects may result following absorption.</p> <p>Open cuts, abraded or irritated skin should not be exposed to this material</p> <p>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.</p>  |
| <b>Eye</b>          | There is some evidence to suggest that this material can cause eye irritation and damage in some persons.   |
| <b>Chronic</b>      | <p>There has been concern that this material can cause cancer or mutations, but there is not enough data to make an assessment. Ample evidence exists, from results in experimentation, that developmental disorders are directly caused by human exposure to the material.</p> <p>Ample evidence from experiments exists that there is a suspicion this material directly reduces fertility.</p> <p>Substance accumulation, in the human body, may occur and may cause some concern following repeated or long-term occupational exposure.</p> |

|  |  |   |
|--|--|---|
| <b>F-190 PART A</b>                              | <b>TOXICITY</b>  | <b>IRRITATION</b>   |
|  | Not Available  | Not Available   |
| <b>chlorinated paraffin, long chain grades</b>   | <b>TOXICITY</b>  | <b>IRRITATION</b>   |
|  | Dermal (rabbit) LD50: >10000 mg/kg <sup>[2]</sup><br>Oral (Mouse) LD50; 21800 mg/kg <sup>[2]</sup>   | Not Available   |
| <b>dibutyl phthalate</b>                         | <b>TOXICITY</b>  | <b>IRRITATION</b>   |
|  | Dermal (rabbit) LD50: >2000 mg/kg <sup>[2]</sup><br>Inhalation(Rat) LC50: >=15.68 mg/l4h <sup>[1]</sup><br>Oral (Rat) LD50: 8000 mg/kg <sup>[2]</sup>  | Eye: no adverse effect observed (not irritating) <sup>[1]</sup><br>Skin: no adverse effect observed (not irritating) <sup>[1]</sup>                                 |
|  |  |   |
| <b>solvent naphtha petroleum, heavy aromatic</b> | <b>TOXICITY</b>  | <b>IRRITATION</b>   |
|  | Dermal (rabbit) LD50: >2000 mg/kg <sup>[2]</sup><br>Inhalation(Rat) LC50: >0.003 mg/L4h <sup>[1]</sup><br>Oral (Rat) LD50: >2000 mg/kg <sup>[1]</sup>  | Eye (rabbit): Irritating [PETROFIN]<br>Eye: no adverse effect observed (not irritating) <sup>[1]</sup><br>Skin: adverse effect observed (irritating) <sup>[1]</sup> |
|  |  |   |
| <b>naphthalene</b>                               | <b>TOXICITY</b>  | <b>IRRITATION</b>   |
|  | dermal (rat) LD50: >2500 mg/kg <sup>[2]</sup><br>Inhalation(Rat) LC50: >0.4 mg/l4h <sup>[1]</sup><br>Oral (Rat) LD50: 490 mg/kg <sup>[2]</sup>         | Eye (rabbit): 100 mg - mild<br>Skin (rabbit):495 mg (open) - mild   |
|  |  |   |
| <b>toluene diisocyanate</b>                      | <b>TOXICITY</b>  | <b>IRRITATION</b>   |
|  | Dermal (rabbit) LD50: >9400 mg/kg <sup>[1]</sup><br>Inhalation(Mouse) LC50; 0.069 mg/L4h <sup>[2]</sup><br>Oral (Rat) LD50: >2000 mg/kg <sup>[1]</sup> | Eye: adverse effect observed (irritating) <sup>[1]</sup><br>Skin: adverse effect observed (irritating) <sup>[1]</sup>   |
|  |  |   |

|                                 |   |   |
|---------------------------------|---|---|
| <b>toluene-2,6-diisocyanate</b> | <b>TOXICITY</b>   | <b>IRRITATION</b>   |
|                                 | Oral (Rat) LD50: >2000 mg/kg <sup>[1]</sup>   | Eye: adverse effect observed (irritating) <sup>[1]</sup><br>Skin: adverse effect observed (irritating) <sup>[1]</sup> |
| <b>toluene-2,4-diisocyanate</b> | <b>TOXICITY</b>   | <b>IRRITATION</b>   |
|                                 | dermal (rat) LD50: >2000 mg/kg <sup>[1]</sup>   | Eye (rabbit): 100 mg - SEVERE   |
|                                 | Inhalation(Mouse) LC50; 10 ppm4h <sup>[2]</sup>   | Eye: adverse effect observed (irritating) <sup>[1]</sup>  |
|                                 | Oral (Rat) LD50: >2000 mg/kg <sup>[1]</sup>   | Skin (rabbit): 500 mg(open)-SEVERE  |
|                                 |   | Skin (rabbit):500 mg/24hr-moderate<br>Skin: adverse effect observed (irritating) <sup>[1]</sup>                       |
| <b>Legend:</b>                  | 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 |   |

|  |   |
|--|---|
| <b>CHLORINATED PARAFFIN, LONG CHAIN GRADES</b>   | <p>Oral (rat) LD50: &gt;4000 mg/kg [I.C.I.] Cereclor range: Chlorinated paraffin waxes represents a family of substances which vary in molecular weight. Studies using the C12, 59% chlorinated variant (in combination with corn oil) caused tumors when force fed at very high doses over long periods of time. The C24, 43% chlorinated paraffin under the same conditions caused an increase in tumors only in the male mouse. A 13 week dietary, range finding study was conducted on rats with a C24, 70% chlorinated paraffin. This study established a no effect level of 900 mg/kg/day. Pregnant rats fed C16, 52% chlorinated paraffin had offspring which died during weaning.</p> <p>C12, 60% Chlorinated paraffin is classified by IARC as possibly causing cancer in humans. In experimental animals, oral exposure to its C12, 59% variant plus corn oil produced tumour and early infant death.</p> <p>High molecular weight liquid chloroparaffins are considered to be practically non-harmful. Special consideration should be given to solid grades of the material (eg Cereclor 70) because of relatively high levels of carbon tetrachloride remaining as a residual reactant. Vapours are readily absorbed through intact skin, requiring additional precautions in handling.</p> <p>Lifetime studies have been carried out with two grades of chlorinated paraffins. A short-chain grade with 58% chlorine caused tumours in rats and mice. Male mice exposed to long-chain grades with 40% chlorine showed an excess of tumours at one site. It has been shown that the mechanisms by which short-term paraffins cause tumours are specific to rodents and may not have relevance to human health. Furthermore, chlorinated paraffins have been shown to non-genotoxic.</p> <p>The Regulatory regime in various countries differs with respected to chlorinated paraffins.</p> <p>In the USA, the short-chain (C12), 58% chlorine product has been classified and labelled as a carcinogen.</p> <p>In Germany the MAK Commission has classified most chlorinated paraffins as Category IIIB (suspect carcinogens).</p>   |
| <b>DIBUTYL PHTHALATE</b>                         | <p>For dibutyl phthalate (DBP):</p> <p>In studies on rats, DBP is absorbed through the skin, although studies have shown human skin is less permeable. Animal testing shows DBP is rapidly absorbed from the gastrointestinal tract, distributed mainly in the liver and kidneys and excreted in urine as breakdown products if given orally or through a vein. Accumulation has not been observed in any organ. The profile of effects following exposure to DBP is similar to that of other phthalate esters, which, in susceptible species, can cause enlarged liver, toxicity to the foetus, birth defects, and damage to the testicles.</p> <p>Acute toxicity: Animal testing shows that acute toxicity of DBP is low. Signs of acute toxicity include depression of activity, labored breathing and lack of co-ordination. DBP appears to have little potential to irritate skin or eyes or to induce sensitization. A few cases of sensitization after exposure to DBP have been reported.</p> <p>Repeat dose toxicity: Animal testing shows repeat exposure to DBP caused enlarged liver and peroxisome proliferation, The testicles were also affected.</p> <p>Developmental toxicity: In animal testing, DBP resulted in reduced weight in offspring and malformations of the male genitalia and testicle function that were not seen in parent animals.</p> <p>The material may produce peroxisome proliferation. Peroxisomes are single, membrane limited organelles in the cytoplasm that are found in the cells of animals, plants, fungi, and protozoa.</p> <p>Available data indicate that phthalate esters are minimally toxic by swallowing, inhalation and skin contact. Repeated exposure may result in weight gain, liver enlargement and induction of liver enzymes. They may also cause shrinking of the testicles and other structural malformations. They may reduce male and female fertility and number of live births, according to animal testing.</p>   |
| <b>SOLVENT NAPHTHA PETROLEUM, HEAVY AROMATIC</b> | <p>Animal studies indicate that normal, branched and cyclic paraffins are absorbed from the gastrointestinal tract and that the absorption of n-paraffins is inversely proportional to the carbon chain length, with little absorption above C30. With respect to the carbon chain lengths likely to be present in mineral oil, n-paraffins may be absorbed to a greater extent than iso- or cyclo-paraffins.</p> <p>The major classes of hydrocarbons are well absorbed into the gastrointestinal tract in various species. In many cases, the hydrophobic hydrocarbons are ingested in association with fats in the diet. Some hydrocarbons may appear unchanged as in the lipoprotein particles in the gut lymph, but most hydrocarbons partly separate from fats and undergo metabolism in the gut cell. The gut cell may play a major role in determining the proportion of hydrocarbon that becomes available to be deposited unchanged in peripheral tissues such as in the body fat stores or the liver.</p> <p>For petroleum: This product contains benzene, which can cause acute myeloid leukaemia, and n-hexane, which can be metabolized to compounds which are toxic to the nervous system. This product contains toluene, and animal studies suggest high concentrations of toluene lead to hearing loss. This product contains ethyl benzene and naphthalene, from which animal testing shows evidence of tumour formation.</p> <p>Cancer-causing potential: Animal testing shows inhaling petroleum causes tumours of the liver and kidney; these are however not considered to be relevant in humans.</p> <p>Mutation-causing potential: Most studies involving gasoline have returned negative results regarding the potential to cause mutations, including all recent studies in living human subjects (such as in petrol service station attendants).</p> <p>Reproductive toxicity: Animal studies show that high concentrations of toluene (&gt;0.1%) can cause developmental effects such as lower birth weight and developmental toxicity to the nervous system of the foetus. Other studies show no adverse effects on the foetus.</p> <p>Human effects: Prolonged or repeated contact may cause defatting of the skin which can lead to skin inflammation and may make the skin more susceptible to irritation and penetration by other materials.</p> |



|   |   |
|---|---|
|   | Animal testing shows that exposure to gasoline over a lifetime can cause kidney cancer, but the relevance in humans is questionable.  |
| <b>NAPHTHALENE</b>  | 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.  |
| <b>TOLUENE-2,6-DIISOCYANATE</b>   | Hamster ovary cell mutagen in vitro.  |
| <b>TOLUENE-2,4-DIISOCYANATE</b>   | Tenth Annual Report on Carcinogens: Substance anticipated to be Carcinogen<br>[National Toxicology Program: U.S. Dep. of Health & Human Services 2002]  |
| <b>CHLORINATED PARAFFIN, LONG CHAIN GRADES &amp; NAPHTHALENE &amp; TOLUENE-2,4-DIISOCYANATE</b> | <b>WARNING:</b> This substance has been classified by the IARC as Group 2B: Possibly Carcinogenic to Humans.  |
| <b>CHLORINATED PARAFFIN, LONG CHAIN GRADES &amp; NAPHTHALENE</b>                                | The material may be irritating to the eye, with prolonged contact causing inflammation. Repeated or prolonged exposure to irritants may produce conjunctivitis.   |
| <b>TOLUENE DIISOCYANATE &amp; TOLUENE-2,6-DIISOCYANATE &amp; TOLUENE-2,4-DIISOCYANATE</b>       | <p>The following information refers to contact allergens as a group and may not be specific to this product. Contact allergies quickly manifest themselves as contact eczema, more rarely as urticaria or Quincke's oedema. The pathogenesis of contact eczema involves a cell-mediated (T lymphocytes) immune reaction of the delayed type. Other allergic skin reactions, e.g. contact urticaria, involve antibody-mediated immune reactions. The significance of the contact allergen is not simply determined by its sensitisation potential: the distribution of the substance and the opportunities for contact with it are equally important. A weakly sensitising substance which is widely distributed can be a more important allergen than one with stronger sensitising potential with which few individuals come into contact. From a clinical point of view, substances are noteworthy if they produce an allergic test reaction in more than 1% of the persons tested.</p> <p>Asthma-like symptoms may continue for months or even years after exposure to the material ends. This may be due to a non-allergic condition known as reactive airways dysfunction syndrome (RADS) which can occur after exposure to high levels of highly irritating compound. Main criteria for diagnosing RADS include the absence of previous airways disease in a non-atopic individual, with sudden onset of persistent asthma-like symptoms within minutes to hours of a documented exposure to the irritant. Other criteria for diagnosis of RADS include a reversible airflow pattern on lung function tests, moderate to severe bronchial hyperreactivity on methacholine challenge testing, and the lack of minimal lymphocytic inflammation, without eosinophilia. RADS (or asthma) following an irritating inhalation is an infrequent disorder with rates related to the concentration of and duration of exposure to the irritating substance. On the other hand, industrial bronchitis is a disorder that occurs as a result of exposure due to high concentrations of irritating substance (often particles) and is completely reversible after exposure ceases. The disorder is characterized by difficulty breathing, cough and mucus production.</p> <p>Allergic reactions involving the respiratory tract are usually due to interactions between IgE antibodies and allergens and occur rapidly. Allergic potential of the allergen and period of exposure often determine the severity of symptoms. Some people may be genetically more prone than others, and exposure to other irritants may aggravate symptoms. Allergy causing activity is due to interactions with proteins.</p> <p>Attention should be paid to atopic diathesis, characterised by increased susceptibility to nasal inflammation, asthma and eczema. Exogenous allergic alveolitis is induced essentially by allergen specific immune-complexes of the IgG type; cell-mediated reactions (T lymphocytes) may be involved. Such allergy is of the delayed type with onset up to four hours following exposure. Isocyanate vapours are irritating to the airways and can cause their inflammation, with wheezing, gasping, severe distress, even loss of consciousness and fluid in the lungs. Nervous system symptoms that may occur include headache, sleep disturbance, euphoria, inco-ordination, anxiety, depression and paranoia.</p> <p>Aromatic and aliphatic diisocyanates may cause airway toxicity and skin sensitization. Monomers and prepolymers exhibit similar respiratory effect. Of the several members of diisocyanates tested on experimental animals by inhalation and oral exposure, some caused cancer while others produced a harmless outcome. This group of compounds has therefore been classified as cancer-causing.</p> |
| <b>TOLUENE DIISOCYANATE &amp; TOLUENE-2,4-DIISOCYANATE</b>                                      | <p>The material may produce severe irritation to the eye causing pronounced inflammation. Repeated or prolonged exposure to irritants may produce conjunctivitis.</p> <p>The material may cause severe 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. Repeated exposures may produce severe ulceration.</p>  |

|  |   |                                 |   |
|--|---|---------------------------------|---|
| <b>Acute Toxicity</b>                    | ✗ | <b>Carcinogenicity</b>          | ✗ |
| <b>Skin Irritation/Corrosion</b>         | ✗ | <b>Reproductivity</b>           | ✓ |
| <b>Serious Eye Damage/Irritation</b>     | ✗ | <b>STOT - Single Exposure</b>   | ✗ |
| <b>Respiratory or Skin sensitisation</b> | ✗ | <b>STOT - Repeated Exposure</b> | ✗ |
| <b>Mutagenicity</b>                      | ✗ | <b>Aspiration Hazard</b>        | ✗ |

**Legend:** ✗ – Data either not available or does not fill the criteria for classification  
 ✓ – Data available to make classification

## SECTION 12 Ecological information

### Toxicity

|                     | <b>Endpoint</b> | <b>Test Duration (hr)</b> | <b>Species</b> | <b>Value</b>  | <b>Source</b> |
|---------------------|-----------------|---------------------------|----------------|---------------|---------------|
| <b>F-190 PART A</b> | Not Available   | Not Available             | Not Available  | Not Available | Not Available |

|   |  |                               |                               |                 |               |
|---|--|-------------------------------|-------------------------------|-----------------|---------------|
| chlorinated paraffin, long chain grades   | <b>Endpoint</b>  | <b>Test Duration (hr)</b>     | <b>Species</b>                | <b>Value</b>    | <b>Source</b> |
|   | LC50   | 96h                           | Fish                          | >0.0109mg/l     | 4             |
|   | EC50   | 96h                           | Algae or other aquatic plants | >3.2mg/l        | 2             |
|   | NOEC(ECx)  | 504h                          | Crustacea                     | ~0.002mg/l      | 2             |
| EC50                                      | 72h  | Algae or other aquatic plants | >3.2mg/l                      | 2               |               |
| dibutyl phthalate                         | <b>Endpoint</b>  | <b>Test Duration (hr)</b>     | <b>Species</b>                | <b>Value</b>    | <b>Source</b> |
|   | ErC50  | 72h                           | Algae or other aquatic plants | 1.2mg/l         | 1             |
|   | BCF  | 1344h                         | Fish                          | 3.1-21.2        | 7             |
|   | NOEC(ECx)  | 72h                           | Algae or other aquatic plants | 0.5mg/l         | 1             |
|   | EC50   | 96h                           | Algae or other aquatic plants | 0.0034mg/l      | 4             |
|   | EC50   | 72h                           | Algae or other aquatic plants | 1.2mg/l         | 1             |
|   | LC50   | 96h                           | Fish                          | 0.28-0.44mg/l   | 4             |
| EC50                                      | 48h  | Crustacea                     | 3.4mg/l                       | 1               |               |
| solvent naphtha petroleum, heavy aromatic | <b>Endpoint</b>  | <b>Test Duration (hr)</b>     | <b>Species</b>                | <b>Value</b>    | <b>Source</b> |
|   | EC50(ECx)  | 48h                           | Crustacea                     | 0.95mg/l        | 1             |
|   | EC50   | 72h                           | Algae or other aquatic plants | <1mg/l          | 1             |
|   | LC50   | 96h                           | Fish                          | 2-5mg/l         | Not Available |
|   | EC50   | 96h                           | Algae or other aquatic plants | 11.7mg/l        | 2             |
| EC50                                      | 48h  | Crustacea                     | 0.95mg/l                      | 1               |               |
| naphthalene                               | <b>Endpoint</b>  | <b>Test Duration (hr)</b>     | <b>Species</b>                | <b>Value</b>    | <b>Source</b> |
|   | BCF  | 1344h                         | Fish                          | 23-146          | 7             |
|   | EC50(ECx)  | 0.05h                         | Crustacea                     | <0.000001mg/l   | 4             |
|   | EC50   | 72h                           | Algae or other aquatic plants | ca.0.4mg/l      | 1             |
|   | EC50   | 48h                           | Crustacea                     | 1.09-3.4mg/l    | 4             |
| LC50                                      | 96h  | Fish                          | 0.213mg/l                     | 4               |               |
| toluene diisocyanate                      | <b>Endpoint</b>  | <b>Test Duration (hr)</b>     | <b>Species</b>                | <b>Value</b>    | <b>Source</b> |
|   | NOEC(ECx)  | 504h                          | Crustacea                     | 0.5mg/l         | 2             |
|   | EC50   | 96h                           | Algae or other aquatic plants | 3230mg/l        | 1             |
|   | LC50   | 96h                           | Fish                          | ~0.4mg/l        | 2             |
| EC50                                      | 48h  | Crustacea                     | 12.5mg/l                      | 1               |               |
| toluene-2,6-diisocyanate                  | <b>Endpoint</b>  | <b>Test Duration (hr)</b>     | <b>Species</b>                | <b>Value</b>    | <b>Source</b> |
|   | EC0(ECx)   | 48h                           | Crustacea                     | 1.6mg/l         | 2             |
|   | EC50   | 72h                           | Algae or other aquatic plants | 37.121mg/l      | 2             |
|   | EC50   | 48h                           | Crustacea                     | 12.5mg/l        | 2             |
| LC50                                      | 96h  | Fish                          | 164mg/l                       | 2               |               |
| toluene-2,4-diisocyanate                  | <b>Endpoint</b>  | <b>Test Duration (hr)</b>     | <b>Species</b>                | <b>Value</b>    | <b>Source</b> |
|   | BCF  | 1440h                         | Fish                          | 25-380          | 7             |
|   | NOEC(ECx)  | 504h                          | Crustacea                     | 0.5mg/l         | 2             |
|   | EC50   | 96h                           | Algae or other aquatic plants | 3230mg/l        | 2             |
|   | LC50   | 96h                           | Fish                          | 108.8-240.4mg/l | 4             |
| EC50                                      | 48h  | Crustacea                     | 12.5mg/l                      | 2               |               |
| <b>Legend:</b>                            | Extracted from 1. IUCLID Toxicity Data 2. Europe ECHA Registered Substances - Ecotoxicological Information - Aquatic Toxicity 4. US EPA, Ecotox database - Aquatic Toxicity Data 5. ECETOC Aquatic Hazard Assessment Data 6. NITE (Japan) - Bioconcentration Data 7. METI (Japan) - Bioconcentration Data 8. Vendor Data |                               |                               |                 |               |

On the basis of available evidence concerning either toxicity, persistence, potential to accumulate and or observed environmental fate and behaviour, the material may present a danger, immediate or long-term and /or delayed, to the structure and/ or functioning of natural ecosystems.

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

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

#### Persistence and degradability

| Ingredient        | Persistence: Water/Soil   | Persistence: Air            |
|-------------------|---------------------------|-----------------------------|
| dibutyl phthalate | LOW (Half-life = 23 days) | LOW (Half-life = 3.08 days) |

| Ingredient               | Persistence: Water/Soil     | Persistence: Air            |
|--------------------------|-----------------------------|-----------------------------|
| naphthalene              | HIGH (Half-life = 258 days) | LOW (Half-life = 1.23 days) |
| toluene diisocyanate     | LOW (Half-life = 1 days)    | LOW (Half-life = 0.13 days) |
| toluene-2,6-diisocyanate | LOW (Half-life = 1 days)    | LOW (Half-life = 0.13 days) |
| toluene-2,4-diisocyanate | HIGH                        | HIGH                        |

### Bioaccumulative potential

| Ingredient                                | Bioaccumulation       |
|---|-----------------------|
| dibutyl phthalate                         | LOW (BCF = 176)       |
| solvent naphtha petroleum, heavy aromatic | LOW (BCF = 159)       |
| naphthalene                               | HIGH (BCF = 18000)    |
| toluene diisocyanate                      | LOW (BCF = 5)         |
| toluene-2,6-diisocyanate                  | LOW (LogKOW = 3.7403) |
| toluene-2,4-diisocyanate                  | LOW (BCF = 5)         |

### Mobility in soil

| Ingredient               | Mobility         |
|--------------------------|------------------|
| dibutyl phthalate        | LOW (KOC = 1460) |
| naphthalene              | LOW (KOC = 1837) |
| toluene diisocyanate     | LOW (KOC = 9114) |
| toluene-2,6-diisocyanate | LOW (KOC = 9303) |
| toluene-2,4-diisocyanate | LOW (KOC = 9114) |

## SECTION 13 Disposal considerations

### Waste treatment methods

|                                     |  |
|-------------------------------------|--|
| <b>Product / Packaging disposal</b> | <ul style="list-style-type: none"> <li>▸ Containers may still present a chemical hazard/ danger when empty.</li> <li>▸ Return to supplier for reuse/ recycling if possible.</li> </ul> <p>Otherwise:</p> <ul style="list-style-type: none"> <li>▸ 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.</li> <li>▸ Where possible retain label warnings and SDS and observe all notices pertaining to the product.</li> <li>▸ <b>DO NOT allow wash water from cleaning or process equipment to enter drains.</b></li> <li>▸ It may be necessary to collect all wash water for treatment before disposal.</li> <li>▸ In all cases disposal to sewer may be subject to local laws and regulations and these should be considered first.</li> <li>▸ Where in doubt contact the responsible authority.</li> <li>▸ Recycle wherever possible or consult manufacturer for recycling options.</li> <li>▸ Consult State Land Waste Authority for disposal.</li> <li>▸ Bury or incinerate residue at an approved site.</li> <li>▸ Recycle containers if possible, or dispose of in an authorised landfill.</li> </ul> |
|-------------------------------------|--|

## SECTION 14 Transport information

### Labels Required

|                         |     |
|-------------------------|-----|
|                         |     |
| <b>Marine Pollutant</b> |     |
| <b>HAZCHEM</b>          | •3Z |

### Land transport (ADG)

|                                |  |
|--------------------------------|--|
| <b>UN number or ID number</b>  | 3082   |
| <b>UN proper shipping name</b> | ENVIRONMENTALLY HAZARDOUS SUBSTANCE, LIQUID, N.O.S. (contains toluene diisocyanate, chlorinated paraffin, long chain grades, toluene-2,4-diisocyanate, solvent naphtha petroleum, heavy aromatic and toluene-2,6-diisocyanate) |

|                                     |                           |                      |
|-------------------------------------|---------------------------|----------------------|
| <b>Transport hazard class(es)</b>   | Class                     | 9                    |
|                                     | Subsidiary risk           | Not Applicable       |
| <b>Packing group</b>                | III                       |                      |
| <b>Environmental hazard</b>         | Environmentally hazardous |                      |
| <b>Special precautions for user</b> | Special provisions        | 274 331 335 375 AU01 |
|                                     | Limited quantity          | 5 L                  |

Environmentally Hazardous Substances meeting the descriptions of UN 3077 or UN 3082

are not subject to this Code when transported by road or rail in;

(a) packagings;

(b) IBCs; or

(c) any other receptacle not exceeding 500 kg(L).

- Australian Special Provisions (SP AU01) - ADG Code 7th Ed.

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

|                                     |  |                    |
|-------------------------------------|--|--------------------|
| <b>UN number</b>                    | 3082   |                    |
| <b>UN proper shipping name</b>      | Environmentally hazardous substance, liquid, n.o.s. (contains toluene diisocyanate, chlorinated paraffin, long chain grades, toluene-2,4-diisocyanate, solvent naphtha petroleum, heavy aromatic and toluene-2,6-diisocyanate) |                    |
| <b>Transport hazard class(es)</b>   | ICAO/IATA Class  | 9                  |
|                                     | ICAO / IATA Subrisk  | Not Applicable     |
|                                     | ERG Code   | 9L                 |
| <b>Packing group</b>                | III  |                    |
| <b>Environmental hazard</b>         | Environmentally hazardous  |                    |
| <b>Special precautions for user</b> | Special provisions   | A97 A158 A197 A215 |
|                                     | Cargo Only Packing Instructions  | 964                |
|                                     | Cargo Only Maximum Qty / Pack  | 450 L              |
|                                     | Passenger and Cargo Packing Instructions   | 964                |
|                                     | Passenger and Cargo Maximum Qty / Pack   | 450 L              |
|                                     | Passenger and Cargo Limited Quantity Packing Instructions  | Y964               |
|                                     | Passenger and Cargo Limited Maximum Qty / Pack   | 30 kg G            |

#### Sea transport (IMDG-Code / GGVSee)

|                                     |  |                |
|-------------------------------------|--|----------------|
| <b>UN number</b>                    | 3082   |                |
| <b>UN proper shipping name</b>      | ENVIRONMENTALLY HAZARDOUS SUBSTANCE, LIQUID, N.O.S. (contains toluene diisocyanate, chlorinated paraffin, long chain grades, toluene-2,4-diisocyanate, solvent naphtha petroleum, heavy aromatic and toluene-2,6-diisocyanate) |                |
| <b>Transport hazard class(es)</b>   | IMDG Class   | 9              |
|                                     | IMDG Subrisk   | Not Applicable |
| <b>Packing group</b>                | III  |                |
| <b>Environmental hazard</b>         | Marine Pollutant   |                |
| <b>Special precautions for user</b> | EMS Number   | F-A, S-F       |
|                                     | Special provisions   | 274 335 969    |
|                                     | Limited Quantities   | 5 L            |

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

Not Applicable

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

| Product name                              | Group         |
|---|---------------|
| chlorinated paraffin, long chain grades   | Not Available |
| dibutyl phthalate                         | Not Available |
| solvent naphtha petroleum, heavy aromatic | Not Available |
| naphthalene                               | Not Available |
| toluene diisocyanate                      | Not Available |

| Product name             | Group         |
|--------------------------|---------------|
| toluene-2,6-diisocyanate | Not Available |
| toluene-2,4-diisocyanate | Not Available |

### Transport in bulk in accordance with the IGC Code

| Product name                              | Ship Type     |
|---|---------------|
| chlorinated paraffin, long chain grades   | Not Available |
| dibutyl phthalate                         | Not Available |
| solvent naphtha petroleum, heavy aromatic | Not Available |
| naphthalene                               | Not Available |
| toluene diisocyanate                      | Not Available |
| toluene-2,6-diisocyanate                  | Not Available |
| toluene-2,4-diisocyanate                  | Not Available |

## SECTION 15 Regulatory information

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

#### chlorinated paraffin, long chain grades is found on the following regulatory lists

Australia Hazardous Chemical Information System (HCIS) - Hazardous Chemicals

Australian Inventory of Industrial Chemicals (AIIC)

Chemical Footprint Project - Chemicals of High Concern List

International Agency for Research on Cancer (IARC) - Agents Classified by the IARC Monographs

International Agency for Research on Cancer (IARC) - Agents Classified by the IARC Monographs - Group 2B: Possibly carcinogenic to humans

#### dibutyl phthalate is found on the following regulatory lists

Australia Hazardous Chemical Information System (HCIS) - Hazardous Chemicals

Australian Inventory of Industrial Chemicals (AIIC)

Chemical Footprint Project - Chemicals of High Concern List

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

Australia Hazardous Chemical Information System (HCIS) - Hazardous Chemicals

Australian Inventory of Industrial Chemicals (AIIC)

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

#### naphthalene is found on the following regulatory lists

Australia Hazardous Chemical Information System (HCIS) - Hazardous Chemicals

Australia Model Work Health and Safety Regulations - Hazardous chemicals (other than lead) requiring health monitoring

Australian Inventory of Industrial Chemicals (AIIC)

Chemical Footprint Project - Chemicals of High Concern List

International Agency for Research on Cancer (IARC) - Agents Classified by the IARC Monographs

International Agency for Research on Cancer (IARC) - Agents Classified by the IARC Monographs - Group 2B: Possibly carcinogenic to humans

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

#### toluene diisocyanate is found on the following regulatory lists

Australia Hazardous Chemical Information System (HCIS) - Hazardous Chemicals

Australia Model Work Health and Safety Regulations - Hazardous chemicals (other than lead) requiring health monitoring

Australia Standard for the Uniform Scheduling of Medicines and Poisons (SUSMP) - Schedule 6

Australian Inventory of Industrial Chemicals (AIIC)

Chemical Footprint Project - Chemicals of High Concern List

International Agency for Research on Cancer (IARC) - Agents Classified by the IARC Monographs

International Agency for Research on Cancer (IARC) - Agents Classified by the IARC Monographs - Group 2B: Possibly carcinogenic to humans

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

#### toluene-2,6-diisocyanate is found on the following regulatory lists

Australia Hazardous Chemical Information System (HCIS) - Hazardous Chemicals

Australia Model Work Health and Safety Regulations - Hazardous chemicals (other than lead) requiring health monitoring

Australia Standard for the Uniform Scheduling of Medicines and Poisons (SUSMP) - Schedule 6

Australian Inventory of Industrial Chemicals (AIIC)

Chemical Footprint Project - Chemicals of High Concern List

#### toluene-2,4-diisocyanate is found on the following regulatory lists

Australia Hazardous Chemical Information System (HCIS) - Hazardous Chemicals

Australia Model Work Health and Safety Regulations - Hazardous chemicals (other than lead) requiring health monitoring

Australia Standard for the Uniform Scheduling of Medicines and Poisons (SUSMP) - Schedule 6

Australian Inventory of Industrial Chemicals (AIIC)

Chemical Footprint Project - Chemicals of High Concern List

International Agency for Research on Cancer (IARC) - Agents Classified by the IARC Monographs

International Agency for Research on Cancer (IARC) - Agents Classified by the IARC Monographs - Group 2B: Possibly carcinogenic to humans

## National Inventory Status

| National Inventory                              | Status  |
|---|---|
| Australia - AIIC / Australia Non-Industrial Use | Yes   |
| Canada - DSL                                    | Yes   |
| Canada - NDSL                                   | No (chlorinated paraffin, long chain grades; dibutyl phthalate; solvent naphtha petroleum, heavy aromatic; naphthalene; toluene diisocyanate; toluene-2,6-diisocyanate; toluene-2,4-diisocyanate)         |
| China - IECSC                                   | Yes   |
| Europe - EINEC / ELINCS / NLP                   | Yes   |
| Japan - ENCS                                    | Yes   |
| Korea - KECI                                    | Yes   |
| New Zealand - NZIoC                             | Yes   |
| Philippines - PICCS                             | Yes   |
| USA - TSCA                                      | Yes   |
| Taiwan - TCSI                                   | Yes   |
| Mexico - INSQ                                   | Yes   |
| Vietnam - NCI                                   | Yes   |
| Russia - FBEPH                                  | Yes   |
| <b>Legend:</b>                                  | <i>Yes = All CAS declared ingredients are on the inventory<br/>No = One or more of the CAS listed ingredients are not on the inventory. These ingredients may be exempt or will require registration.</i> |

## SECTION 16 Other information

|                      |            |
|----------------------|------------|
| <b>Revision Date</b> | 20/03/2023 |
| <b>Initial Date</b>  | 10/03/2017 |

## SDS Version Summary

| Version | Date of Update | Sections Updated   |
|---------|----------------|--|
| 5.1     | 23/12/2022     | Classification review due to GHS Revision change.  |
| 6.1     | 20/03/2023     | Hazards identification - Classification, Identification of the substance / mixture and of the company / undertaking<br>- Supplier Information, Identification of the substance / mixture and of the company / undertaking - Synonyms, Name |

## Other information

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.

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

ES: Exposure Standard

OSF: Odour Safety Factor

NOAEL :No Observed Adverse Effect Level

LOAEL: Lowest Observed Adverse Effect Level

TLV: Threshold Limit Value  
LOD: Limit Of Detection  
OTV: Odour Threshold Value  
BCF: BioConcentration Factors  
BEI: Biological Exposure Index  
AIIIC: Australian Inventory of Industrial Chemicals  
DSL: Domestic Substances List  
NDSL: Non-Domestic Substances List  
IECSC: Inventory of Existing Chemical Substance in China  
EINECS: European INventory of Existing Commercial chemical Substances  
ELINCS: European List of Notified Chemical Substances  
NLP: No-Longer Polymers  
ENCS: Existing and New Chemical Substances Inventory  
KECI: Korea Existing Chemicals Inventory  
NZIoC: New Zealand Inventory of Chemicals  
PICCS: Philippine Inventory of Chemicals and Chemical Substances  
TSCA: Toxic Substances Control Act  
TCSI: Taiwan Chemical Substance Inventory  
INSQ: Inventario Nacional de Sustancias Químicas  
NCI: National Chemical Inventory  
FBEPH: Russian Register of Potentially Hazardous Chemical and Biological Substances

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TEL (+61 3) 9572 4700.