

# F-125 PART A

## Barnes Products P/L

Chemwatch Hazard Alert Code: 1

Chemwatch: 5246-48

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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-125 PART A
Chemical Name	Not Applicable
Synonyms	F-125 REV 1 PART A
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.
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#### 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. NON-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	0	0

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

Poisons Schedule	Not Applicable
Classification <sup>[1]</sup>	Serious Eye Damage/Eye Irritation Category 2A
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)	
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Signal word	<b>Warning</b>
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### Hazard statement(s)

<b>H319</b>	Causes serious eye irritation.
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### Precautionary statement(s) Prevention

<b>P280</b>	Wear protective gloves, protective clothing, eye protection and face protection.
<b>P264</b>	Wash all exposed external body areas thoroughly after handling.

### Precautionary statement(s) Response

<b>P305+P351+P338</b>	IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing.
<b>P337+P313</b>	If eye irritation persists: Get medical advice/attention.

### Precautionary statement(s) Storage

Not Applicable

### Precautionary statement(s) Disposal

Not Applicable

## SECTION 3 Composition / information on ingredients

### Substances

See section below for composition of Mixtures

### Mixtures

CAS No	%[weight]	Name
Not Available	30-60	polyurethane prepolymer
68515-49-1	30-60	<u>di-C9-11-alkyl phthalate, C10-rich</u>
78-40-0	<5	<u>triethyl phosphate</u>
91-08-7	<0.055	<u>toluene-2,6-diisocyanate</u>
584-84-9	<0.055	<u>toluene-2,4-diisocyanate</u>

**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>▶ Immediately hold eyelids apart and flush the eye continuously with 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>▶ Continue flushing until advised to stop by the Poisons Information Centre or a doctor, or for at least 15 minutes.</li> <li>▶ Transport to hospital or doctor without delay.</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 procedures.</li> <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>▶ If swallowed do <b>NOT</b> induce vomiting.</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> <p>If patient is unconscious, <b>DO NOT</b> attempt to give fluids by mouth.</p>
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### Indication of any immediate medical attention and special treatment needed

Treat symptomatically.

## SECTION 5 Firefighting measures

### Extinguishing media

- ▶ Water spray or fog.
- ▶ Alcohol stable foam.
- ▶ Dry chemical powder.
- ▶ Carbon dioxide.

### 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
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### 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 breathing apparatus plus protective gloves.</li> <li>▶ Prevent, by any means available, spillage from entering drains or water courses.</li> <li>▶ Use water delivered as a fine spray to control fire and cool adjacent area.</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> <li>▶ If safe to do so, remove containers from path of fire.</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: carbon dioxide (CO<sub>2</sub>) isocyanates and minor amounts of hydrogen cyanide nitrogen oxides (NO<sub>x</sub>) phosphorus oxides (PO<sub>x</sub>) other pyrolysis products typical of burning organic material. May emit poisonous fumes. May emit corrosive fumes.</p>
<b>HAZCHEM</b>	Not Applicable

## 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>▶ Remove all ignition sources.</li> <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>
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<b>Major Spills</b>	<p>Environmental hazard - contain spillage. 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>
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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>▸ <b>DO NOT allow clothing wet with material to stay in contact with skin</b></li> <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>
<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>▸ No smoking, naked lights or ignition sources.</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> </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	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
triethyl phosphate	23 mg/m <sup>3</sup>	250 mg/m <sup>3</sup>	320 mg/m <sup>3</sup>
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
di-C9-11-alkyl phthalate, C10-rich	Not Available	Not Available
triethyl phosphate	Not Available	Not Available
toluene-2,6-diisocyanate	Not Available	Not Available
toluene-2,4-diisocyanate	2.5 ppm	Not Available

## Occupational Exposure Banding

Ingredient	Occupational Exposure Band Rating	Occupational Exposure Band Limit
triethyl phosphate	E	≤ 0.1 ppm
<b>Notes:</b>	<i>Occupational exposure banding is a process of assigning chemicals into specific categories or bands based on a chemical's potency and the adverse health outcomes associated with exposure. The output of this process is an occupational exposure band (OEB), which corresponds to a range of exposure concentrations that are expected to protect worker health.</i>	

## 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> <ul style="list-style-type: none"> <li>▶ Neoprene rubber gloves</li> </ul>
<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>

## 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>	Pale yellow liquid with slight characteristic odour; reacts slightly with water.		
<b>Physical state</b>	Liquid	<b>Relative density (Water = 1)</b>	1.021 @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>	995.475 @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>	Negligible
<b>Vapour pressure (kPa)</b>	0.1 @25C	<b>Gas group</b>	Not Available
<b>Solubility in water</b>	Reacts	<b>pH as a solution (1%)</b>	Not Available
<b>Vapour density (Air = 1)</b>	Not Available	<b>VOC g/L</b>	Negligible

## 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>	<p>Inhalation of aerosols (mists, fumes), generated by the material during the course of normal handling, may be damaging to the health of the individual.</p> <p>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.</p> <p>Inhalation hazard is increased at higher temperatures.</p>
<b>Ingestion</b>	Accidental ingestion of the material may be damaging to the health of the individual.
<b>Skin Contact</b>	<p>There is some evidence to suggest that the material may cause mild but significant inflammation of the skin either following direct contact or after a delay of some time. Repeated exposure can cause contact dermatitis which is characterised by redness, swelling and blistering.</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>	<p>Limited evidence or practical experience suggests, that the material may cause eye irritation in a substantial number of individuals. Prolonged eye contact may cause inflammation characterised by a temporary redness of the conjunctiva (similar to windburn).</p> <p>The liquid may produce eye discomfort and is capable of causing temporary impairment of vision and/or transient eye inflammation, ulceration</p>
<b>Chronic</b>	<p>There has been some concern that this material can cause cancer or mutations but there is not enough data to make an assessment.</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-125 PART A</b>	<b>TOXICITY</b>	<b>IRRITATION</b>
	Not Available	Not Available
<b>di-C9-11-alkyl phthalate, C10-rich</b>	<b>TOXICITY</b>	<b>IRRITATION</b>
	dermal (guinea pig) LD50: 10000 mg/kg <sup>[2]</sup> Oral (Mouse) LD50; 1500 mg/kg <sup>[2]</sup>	Eye (rabbit): 500 mg/24h mild Skin (rabbit): 500 mg/24h mild
<b>triethyl phosphate</b>	<b>TOXICITY</b>	<b>IRRITATION</b>
	Dermal (rabbit) LD50: >20000 mg/kg <sup>[1]</sup> Inhalation(Rat) LC50: >8.817 mg/L4h <sup>[1]</sup> Oral (Rat) LD50: 1165 mg/kg <sup>[2]</sup>	Eye : Severe * Eye: adverse effect observed (irritating) <sup>[1]</sup> Skin : Severe * Skin: no adverse effect observed (not irritating) <sup>[1]</sup>
	<b>TOXICITY</b>	<b>IRRITATION</b>
	Oral (Rat) LD50: >2000 mg/kg <sup>[1]</sup>	Eye: adverse effect observed (irritating) <sup>[1]</sup> 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> Inhalation(Mouse) LC50; 10 ppm4h <sup>[2]</sup> Oral (Rat) LD50: >2000 mg/kg <sup>[1]</sup>	Eye (rabbit): 100 mg - SEVERE Eye: adverse effect observed (irritating) <sup>[1]</sup> Skin (rabbit): 500 mg(open)-SEVERE Skin (rabbit):500 mg/24hr-moderate Skin: adverse effect observed (irritating) <sup>[1]</sup>
	<b>TOXICITY</b>	<b>IRRITATION</b>
	Oral (Rat) LD50: >2000 mg/kg <sup>[1]</sup>	Eye: adverse effect observed (irritating) <sup>[1]</sup> 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>DI-C9-11-ALKYL PHTHALATE, C10-RICH</b>	<p>High Molecular Weight Phthalate Esters (HMWPEs) Category</p> <p>The HMWPE group includes chemically similar substances produced from alcohols. These substances have been demonstrated to have few biological effects. They demonstrate minimal acute toxicity, with effect on the liver and kidney at high doses. They also cause reproductive and developmental toxicity, also, liver cancer. They are readily metabolised and excreted primarily via the urine. Repeated doses may cause liver and kidney damage, although the relevance to human health is questionable</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>The material may be irritating to the eye, with prolonged contact causing inflammation. Repeated or prolonged exposure to irritants may produce conjunctivitis.</p> <p>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.</p>
<b>TRIETHYL PHOSPHATE</b>	<p>For toxicological endpoints, the NOAEL is 1000 mg/kg bw for subacute toxicity, a NOEL of 625 mg/kg bw/day for teratogenicity and about 335 mg/kg bw for fertility effects. On the basis of all data on genotoxicity, a mutagenic effect of TEP is not assumed.</p> <p>The substance is harmful with a narcotic effect and, at high doses, shows certain neurotoxic properties (inhibition of cholinesterase) without indicating delayed neurotoxicity. The substance is not irritant to the skin. Studies on experimental animals showed no irritation properties. The most comprehensive documented, actual study (OECD Guideline 405, GLP) showed moderate irritation in 1 of 3 animals. According to the classification guideline this does not lead to a classification as irritant</p> <p>Triethylphosphate administered orally or i.p. to rodents is eliminated rapidly and comprehensively (90% within 16 hours). The very low acute dermal toxicity indicates a markedly lower adsorption than with oral administration. In a subchronic study (rat; oral, up to 6700 mg/kg bw) retarded weight gain, elevated liver and adrenals weight were observed (a validated NOEL or NOAEL cannot be given, the approx. NOEL based on the available data is about 670 mg/kg bw). A subacute 28-day study performed according actual guidelines after oral administration to rats determined a NOEL of 100 mg/kg bw (increased liver metabolism). An increase of liver metabolism is of no toxicological relevance, therefore a NOAEL of 1000 mg/kg bw was derived. After high doses to rats a depressive effect on the central nervous system and slight inhibition of cholinesterases are described. In mice, a NOAEL of 274 mg/kg bw was determined in an oral study (1/5 LD 50 = 274 mg/kg bw for 4 weeks) . In rats a NOEL following inhalatory exposure (5h/d for 12 d) of 366 mg/m<sup>3</sup> was determined. Conclusion: low toxicity, no serious damage in oral doses up to 6700 mg/kg bw. The NOAEL in the most relevant tests was 1000 mg/kg bw/day. Reproductive Toxicity In an early study using a small number of animals the litter size was reduced after repeated feeding to both sexes (rat) beginning at 670 mg/kg bw, although no symptoms of poisoning in the parent animals were described for the 670 mg/kg bw dose. The NOEL for effects on the litter size was 335 mg/kg bw/day. Neither testicular weights nor the histological investigation of the testes revealed remarkable findings in this study (max. dose 6700 mg/kg bw/day). A more recent 28-day study with doses up to 1000 mg/kg bw also showed no effect on the testicular weight [Bayer 1992]. A teratogenicity study in rats showed no evidence of a teratogenic potential up to the highest dose of 625 mg/kg bw/day (NOEL developmental toxicity). In the highest dose there was reduction of body weight gain, food intake and feces excretion as a sign of maternal toxicity (NOEL 125 mg/kg bw/day). Genetic Toxicity Aside from several Ames tests with negative results, triethylphosphate induces gene mutations without metabolic activation in <i>S. typhimurium</i> his C117, some bacteria, viruses and a yeast strain. For clarification of the endpoint gene mutation a HPRT test in V79 cell cultures was done. This test revealed a negative result with and without metabolic activation. In an in vitro UDS test on rat hepatocytes triethylphosphate showed no DNA-damaging effect. The results for <i>Drosophila melanogaster</i> in the limited documented recessive-lethal tests are contradictory, while in vivo studies on the mouse (cytogenetics in the bone marrow, dominant lethal test) were negative.</p> <p>Based on laboratory and animal testing, exposure to the material may result in irreversible effects and mutations in humans.</p>

	<p>For alkyl phosphates, their salts and esters:  <b>Acute toxicity:</b> The alkyl phosphates, their salts and esters are relatively non-toxic in single-dose studies. Animal testing showed that the esters do not accumulate in the body.  <b>Irritation:</b> Some of the alkyl phosphates are reported to irritate the eye. Generally, animal testing suggests that the lighter the species, the more likely eye irritation is to occur.  Animal testing showed that some alkyl phosphates were not irritating to the skin, while others were irritating but not sensitizing. Again, the lighter species were more likely to cause irritation.  <b>Reproductive toxicity:</b> Animal testing showed that potassium C9-15 alkyl phosphate did not cause toxicity to the embryo or the foetus, and did not cause birth defects. Heavier species had even higher tolerances in testing with respect to reproductive toxicity.  <b>Potential to cause mutations:</b> So far, tests have not shown this group to cause mutations.  Alkyl esters of phosphoric acid exhibit a low to moderate acute toxicity and metabolised. From studies done on mice, they are not likely to cause gene damage or affect reproduction. However, 2-ethylhexanoic acid produced an effect on newborn rats at high doses to the pregnant female.  <b>NOTE:</b> Substance has been shown to be mutagenic in at least one assay, or belongs to a family of chemicals producing damage or change to cellular DNA.  The material may produce moderate eye irritation leading to inflammation. Repeated or prolonged exposure to irritants may produce conjunctivitis.</p>
<b>TOLUENE-2,6-DIISOCYANATE</b>	Hamster ovary cell mutagen in vitro.
<b>TOLUENE-2,4-DIISOCYANATE</b>	<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> <p><b>WARNING:</b> This substance has been classified by the IARC as Group 2B: Possibly Carcinogenic to Humans.  Tenth Annual Report on Carcinogens: Substance anticipated to be Carcinogen  [National Toxicology Program: U.S. Dep. of Health &amp; Human Services 2002]</p>
<b>TRIETHYL PHOSPHATE &amp; TOLUENE-2,4-DIISOCYANATE</b>	The material may produce severe irritation to the eye causing pronounced inflammation. Repeated or prolonged exposure to irritants may produce conjunctivitis.
<b>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.  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.  Allergic reactions involving the respiratory tract are usually due to interactions between IgE antibodies and allergens and occur rapidly. Allergic potential of the allergen and period of exposure often determine the severity of symptoms. Some people may be genetically more prone than others, and exposure to other irritants may aggravate symptoms. Allergy causing activity is due to interactions with proteins.  Attention should be paid to atopic diathesis, characterised by increased susceptibility to nasal inflammation, asthma and eczema. Exogenous allergic alveolitis is induced essentially by allergen specific immune-complexes of the IgG type; cell-mediated reactions (T lymphocytes) may be involved. Such allergy is of the delayed type with onset up to four hours following exposure. 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.  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>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



## Toxicity

F-125 PART A	Endpoint	Test Duration (hr)	Species	Value	Source
	Not Available	Not Available	Not Available	Not Available	Not Available

di-C9-11-alkyl phthalate, C10-rich	Endpoint	Test Duration (hr)	Species	Value	Source
	NOEC(ECx)	504h	Crustacea	>0.03mg/l	1
	LC50	96h	Fish	>0.37mg/l	2
	EC50	96h	Algae or other aquatic plants	>1.3mg/l	1
	EC50	48h	Crustacea	>0.18mg/l	1

triethyl phosphate	Endpoint	Test Duration (hr)	Species	Value	Source
	BCF	1008h	Fish	0.5-0.8	7
	NOEC(ECx)	Not Available	Crustacea	31.6mg/l	Not Available
	EC50	72h	Algae or other aquatic plants	900mg/l	Not Available
	LC50	96h	Fish	>100mg/l	Not Available

toluene-2,6-diisocyanate	Endpoint	Test Duration (hr)	Species	Value	Source
	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	Endpoint	Test Duration (hr)	Species	Value	Source
	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

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

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.

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

## Persistence and degradability

Ingredient	Persistence: Water/Soil	Persistence: Air
triethyl phosphate	HIGH	HIGH
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
di-C9-11-alkyl phthalate, C10-rich	HIGH (BCF = 3500)
triethyl phosphate	LOW (BCF = 1.3)
toluene-2,6-diisocyanate	LOW (LogKOW = 3.7403)
toluene-2,4-diisocyanate	LOW (BCF = 5)

## Mobility in soil

Ingredient	Mobility
triethyl phosphate	LOW (KOC = 47.96)
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>▶ <b>DO NOT</b> allow wash water from cleaning or process equipment to enter drains.</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>
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## SECTION 14 Transport information

### Labels Required

<b>Marine Pollutant</b>	NO
<b>HAZCHEM</b>	Not Applicable

**Land transport (ADG): NOT REGULATED FOR TRANSPORT OF DANGEROUS GOODS**

**Air transport (ICAO-IATA / DGR): NOT REGULATED FOR TRANSPORT OF DANGEROUS GOODS**

**Sea transport (IMDG-Code / GGVSee): NOT REGULATED FOR TRANSPORT OF DANGEROUS GOODS**

**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
di-C9-11-alkyl phthalate, C10-rich	Not Available
triethyl phosphate	Not Available
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
di-C9-11-alkyl phthalate, C10-rich	Not Available
triethyl phosphate	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

**di-C9-11-alkyl phthalate, C10-rich is found on the following regulatory lists**

Australian Inventory of Industrial Chemicals (AIIC)

Chemical Footprint Project - Chemicals of High Concern List

**triethyl phosphate is found on the following regulatory lists**

Australia Hazardous Chemical Information System (HCIS) - Hazardous Chemicals

Australian Inventory of Industrial Chemicals (AIIC)

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

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

Australia Hazardous Chemical Information System (HCIS) - Hazardous Chemicals

Australian Inventory of Industrial Chemicals (AIIC)

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

Chemical Footprint Project - Chemicals of High Concern List

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

**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 (di-C9-11-alkyl phthalate, C10-rich; triethyl phosphate; 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	No (triethyl phosphate)
Vietnam - NCI	Yes
Russia - FBEPH	No (di-C9-11-alkyl phthalate, C10-rich)
<b>Legend:</b>	Yes = All CAS declared ingredients are on the inventory No = One or more of the CAS listed ingredients are not on the inventory. These ingredients may be exempt or will require registration.

**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
6.1	15/04/2021	Classification change due to full database hazard calculation/update.
8.1	20/03/2023	Hazards identification - Classification, Identification of the substance / mixture and of the company / undertaking - 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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