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MATERIAL SAFETY DATA SHEET

DESCRIPTION		ORDER CODE
2 PART WATERPROOF CONTACT ADHESIVE		**A 262 MSDS**

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

1.1 Product identifier

A262 Adhesive

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

Identified uses	Adhesive
Uses advised against	No specific uses advised against are identified

1.3 Details of the supplier of the safety data sheet:

Seals + Direct Ltd
Unit 6, Milton Business Centre
Wick Drive, New Milton
Hants, BH25 6RH
Tel: 01425 617722
Fax: 01425 610967
Email: sales@sealsplusdirect.co.uk

1.4 Emergency telephone number

Tel: 01425 617722 (Mon – Fri 8:30am – 5pm)

SECTION 2: Hazards identification

2.1 Classification of the substance or mixture

Physical hazards	Flam. Liq. 2 - H225
Health hazards	Skin Irrit. 2 - H315 Eye Irrit. 2 - H319 Repr. 2 - H361d STOT SE 3 - H336 STOT RE 2 - H373
Environmental hazards	Aquatic Chronic 2 - H411
Classification (67/548/EEC or 1999/45/EC)	Xn;R48/20. Repr. Cat. 3;R63. Xi;R36/38. F;R11. N;R51/53. R67.

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Human health	The product is irritating to eyes and skin. Contains a substance/a group of substances which may damage the unborn child.
Environmental	The product contains a substance which is toxic to aquatic organisms and which may cause long-term adverse effects in the aquatic environment.
Physicochemical	The product is highly flammable. Vapours may form explosive mixtures with air.

2.2 Label elements

Pictogram

Signal word	Danger
Hazard statements	H225 Highly flammable liquid and vapour. H315 Causes skin irritation. H319 Causes serious eye irritation. H336 May cause drowsiness or dizziness. H361d Suspected of damaging the unborn child. H373 May cause damage to organs through prolonged or repeated exposure. H411 Toxic to aquatic life with long lasting effects. EUH208 Contains ROSIN. May produce an allergic reaction.
Precautionary statements	P202 Do not handle until all safety precautions have been read and understood. P210 Keep away from heat, hot surfaces, sparks, open flames and other ignition sources. No smoking. P243 Take precautionary measures against static discharge. P261 Avoid breathing vapour/spray. P273 Avoid release to the environment. P314 Get medical advice/attention if you feel unwell.
Contains	BUTANONE, TOLUENE, Hydrocarbons,C6-C7,n-alkanes,isoalkanes,cyclics,<5%n-hexane
Supplementary precautionary Statements	P201 Obtain special instructions before use. P240 Ground/bond container and receiving equipment. P241 Use explosion-proof electrical equipment. P242 Use only non-sparking tools. P260 Do not breathe vapour/spray. P264 Wash contaminated skin thoroughly after handling. P271 Use only outdoors or in a well-ventilated area.

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P280 Wear protective gloves/protective clothing/eye protection/face protection.
P302+P352 IF ON SKIN: Wash with plenty of water.
P303+P361+P353 IF ON SKIN (or hair): Take off immediately all contaminated clothing. Rinse skin with water/shower.
P304+P340 IF INHALED: Remove person to fresh air and keep comfortable for breathing.
P305+P351+P338 IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing.
P308+P313 IF exposed or concerned: Get medical advice/attention.
P312 Call a POISON CENTER/doctor if you feel unwell.
P321 Specific treatment (see medical advice on this label).
P332+P313 If skin irritation occurs: Get medical advice/attention.
P337+P313 If eye irritation persists: Get medical advice/attention.
P362+P364 Take off contaminated clothing and wash it before reuse.
P370+P378 In case of fire: Use foam, carbon dioxide, dry powder or water fog to extinguish.
P391 Collect spillage.
P403+P233 Store in a well-ventilated place. Keep container tightly closed.
P403+P235 Store in a well-ventilated place. Keep cool.
P405 Store locked up.
P501 Dispose of contents/container in accordance with national regulations.

2.3 Other hazards

This product does not contain any substances classified as PBT or vPvB.

SECTION 3: Composition/information on ingredients

3.2 Mixtures

BUTANONE CAS number: 78-93-3	EC number: 201-159-0	30-60% REACH registration number: 01-2119457290-43
Classification Flam. Liq. 2 - H225 Eye Irrit. 2 - H319	Classification (67/548/EEC or 1999/45/EC) F;R11 Xi;R36 R66 R67	

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STOT SE 3 - H336		
TOLUENE CAS number: 108-88-3	EC number: 203-625-9	10-30% REACH registration number: 01-2119471310-51
Classification Flam. Liq. 2 - H225 Skin Irrit. 2 - H315 Repr. 2 - H361d STOT SE 3 - H336 STOT RE 2 - H373 Asp. Tox. 1 - H304	Classification (67/548/EEC or 1999/45/EC) F;R11 Repr. Cat. 3;R63 Xn;R48/20,R65 Xi;R38 R67	
Hydrocarbons,C6-C7,n-alkanes,isoalkanes,cyclics,<5%nhexane CAS number: —	EC number: 921-024-6	10-30% REACH registration number: 01-2119475514-35
Classification Flam. Liq. 2 - H225 Skin Irrit. 2 - H315 STOT SE 3 - H336 Asp. Tox. 1 - H304 Aquatic Chronic 2 - H411	Classification (67/548/EEC or 1999/45/EC) Xn;R65. Xi;R38. F;R11. N;R51/53. R67.	
ZINC OXIDE CAS number: 1314-13-2 M factor (Acute) = 1	EC number: 215-222-5 M factor (Chronic) = 1	<1%
Classification Aquatic Acute 1 - H400 Aquatic Chronic 1 - H410	Classification (67/548/EEC or 1999/45/EC) N;R50/53.	
ROSIN CAS number: 8050-09-7	EC number: 232-475-7	<1%
Classification Skin Sens. 1 - H317	Classification (67/548/EEC or 1999/45/EC) R43	
HEXANE-norm CAS number: 110-54-3	EC number: 203-777-6	<1%
Classification Flam. Liq. 2 - H225 Skin Irrit. 2 - H315 Repr. 2 - H361f Asp. Tox. 1 - H304 STOT SE 3 - H336 STOT RE 2 - H373 STOT SE 3 - H336 Aquatic Chronic 2 - H411	Classification (67/548/EEC or 1999/45/EC) F;R11 Repr. Cat. 3;R62 Xn;R48/20,R65 Xi;R38 R67 N;R51/53	

The Full Text for all R-Phrases and Hazard Statements are Displayed in Section 16.

Composition comments Polychloroprene based adhesive in petroleum solvent

SECTION 4: First-aid measures

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General information	Move affected person to fresh air at once. Move affected person to fresh air and keep warm and at rest in a position comfortable for breathing. Get medical attention.
Inhalation	Remove affected person from source of contamination. Move affected person to fresh air at once. If spray/mist has been inhaled, proceed as follows. Move affected person to fresh air and keep warm and at rest in a position comfortable for breathing. Get medical attention if any discomfort continues.
Ingestion	Rinse mouth thoroughly with water. Give plenty of water to drink. Get medical attention if a large quantity has been ingested. Show this Safety Data Sheet to the medical personnel.
Skin contact	Remove contaminated clothing immediately and wash skin with soap and water.
Eye contact	Remove contact lenses, if present and easy to do. Continue rinsing. Continue to rinse for at least 15 minutes and get medical attention.
Protection of first aiders	First aid personnel should wear appropriate protective equipment during any rescue. It may be dangerous for first aid personnel to carry out mouth-to-mouth resuscitation.

4.2 Most important symptoms and effects, both acute and delayed

General information	The severity of the symptoms described will vary dependent on the concentration and the length of exposure.
Inhalation	Vapours may cause headache, fatigue, dizziness and nausea.
Ingestion	May cause stomach pain or vomiting.
Skin contact	Prolonged contact may cause redness, irritation and dry skin.
Eye contact	Irritating to eyes. Symptoms following overexposure may include the following: Redness. Pain.

4.3 Indication of any immediate medical attention and special treatment needed

Notes for the doctor	No specific recommendations. If in doubt, get medical attention promptly.
Specific treatments	Treat symptomatically.

SECTION 5: Fire-fighting measures

5.1 Extinguishing media

Suitable extinguishing media	Extinguish with alcohol-resistant foam, carbon dioxide or dry powder.
Unsuitable extinguishing media	Do not use water jet as an extinguisher, as this will spread the fire.

5.2 Special hazards arising from the substance or mixture

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Specific hazards	Heating may generate flammable vapours. The product is highly flammable. Vapours may form explosive mixtures with air. Vapours may accumulate on the floor and in low-lying areas.
Hazardous combustion products	Thermal decomposition or combustion products may include the following substances: Irritating gases or vapours. Carbon monoxide (CO). Carbon dioxide (CO2). Hydrogen chloride (HCl).

5.3 Advice for fire-fighters

Protective actions during firefighting	Avoid breathing fire gases or vapours. Ventilate closed spaces before entering them. Wear positive-pressure self-contained breathing apparatus (SCBA) and appropriate protective clothing. Cool containers exposed to flames with water until well after the fire is out.
Special protective equipment for firefighters	Wear chemical protective suit. Use air-supplied respirator, gloves and protective goggles.

SECTION 6: Accidental release measures

6.1 Personal precautions, protective equipment and emergency procedures

Personal precautions	Ensure suitable respiratory protection is worn during removal of spillages in confined areas. Wear suitable protective equipment, including gloves, goggles/face shield, respirator, boots, clothing or apron, as appropriate.
For non-emergency personnel	Wear positive-pressure self-contained breathing apparatus (SCBA) and appropriate protective clothing.
For emergency responders	Wear positive-pressure self-contained breathing apparatus (SCBA) and appropriate protective clothing.

6.2 Environmental precautions

Environmental precautions	Do not discharge into drains or watercourses or onto the ground.

6.3 Methods and material for containment and cleaning up

Methods for cleaning up	Eliminate all sources of ignition. No smoking, sparks, flames or other sources of ignition near spillage. Provide adequate ventilation. Absorb spillage with sand or other inert absorbent.

6.4 Reference to other sections

Reference to other sections	Wear protective clothing as described in Section 8 of this safety data sheet.

SECTION 7: Handling and storage

7.1 Precautions for safe handling

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Usage precautions	Keep away from heat, sparks and open flame. Good personal hygiene procedures should be implemented. Wash hands and any other contaminated areas of the body with soap and water before leaving the work site. Avoid inhalation of vapours/spray and contact with skin and eyes.
Advice on general occupational hygiene	Wash promptly with soap and water if skin becomes contaminated. Use appropriate hand lotion to prevent defatting and cracking of skin.

7.2 Conditions for safe storage, including any incompatibilities

Storage precautions	Keep away from oxidising materials, heat and flames. Store in tightly-closed, original container in a dry, cool and well-ventilated place. Store at temperatures between 5°C and 25°C.
Storage class	Flammable liquid storage.

7.3 Specific end use(s)

Specific end use(s)	The identified uses for this product are detailed in Section 1.2.
Usage description	Adhesive.

SECTION 8: Exposure controls/personal protection

8.1 Control parameters

Occupational exposure limits

BUTANONE
Long-term exposure limit (8-hour TWA): WEL 200 ppm(Sk) 600 mg/m3(Sk)
Short-term exposure limit (15-minute): WEL 300 ppm(Sk) 899 mg/m3(Sk)
TOLUENE
Long-term exposure limit (8-hour TWA): 50 191
Short-term exposure limit (15-minute): 100 384
ZINC OXIDE
Long-term exposure limit (8-hour TWA): WEL 5 mg/m³
Short-term exposure limit (15-minute): WEL 10 mg/m³
ROSIN
Long-term exposure limit (8-hour TWA): WEL 0.05 mg/m³
Short-term exposure limit (15-minute): WEL 0.15 mg/m³
HEXANE-norm
Long-term exposure limit (8-hour TWA): WEL 20 ppm 72 mg/m³
Short-term exposure limit (15-minute): WEL
WEL = Workplace Exposure Limit

BUTANONE (CAS: 78-93-3)

DNEL Consumer - Oral; Long term systemic effects: 31 mg/kg/day

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Consumer - Dermal; Long term systemic effects: 412 mg/kg/day
Industry - Dermal; Long term systemic effects: 1161 mg/kg/day
Consumer - Inhalation; Long term systemic effects: 106 mg/m³
Industry - Inhalation; Long term systemic effects: 600 mg/m³

PNEC
- Fresh water; 55.8 mg/l
- Marine water; 55.8 mg/l
- Intermittent release; 55.8 mg/l
- STP; 709 mg/l
- Sediment (Marinewater); 284.7 mg/kg
- Soil; 22.5 mg/kg
- Sediment (Freshwater); 284.7 mg/kg

TOLUENE (CAS: 108-88-3)

DNEL
Consumer - Oral; Long term systemic effects: 8.13 mg/m³
Industry - Dermal; Long term systemic effects: 384 mg/kg/day
Consumer - Inhalation; Short term local effects: 226 mg/m³
Consumer - Inhalation; Short term systemic effects: 226 mg/m³
Industry - Inhalation; Short term systemic effects: 384 mg/m³
Industry - Inhalation; Short term local effects: 384 mg/m³
Industry - Inhalation; Long term local effects: 192 mg/m³
Consumer - Inhalation; Long term systemic effects: 56.5 mg/m³
Industry - Inhalation; Long term systemic effects: 192 mg/m³

PNEC
- Fresh water; 0.68 mg/l
- Sediment (Freshwater); 16.39 mg/kg
- STP; 13.61 mg/l
- Soil; 2.89 mg/kg

Hydrocarbons,C6-C7,n-alkanes,isoalkanes,cyclics,<5%n-hexane

DNEL
Consumer - Oral; Long term systemic effects: 699 mg/kg/day
Industry - Oral; Long term systemic effects: 2035 mg/kg/day
Consumer - Dermal; Long term systemic effects: 699 mg/kg/day
- Dermal; Long term systemic effects: 773 mg/kg/day
Consumer - Inhalation; Long term systemic effects: 608 mg/m³

8.2 Exposure controls

Protective equipment

Appropriate engineering controls

Provide adequate ventilation. Avoid inhalation of vapours. As this product contains ingredients with exposure limits, process

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	enclosures, local exhaust ventilation or other engineering controls should be used to keep worker exposure below any statutory or recommended limits, if use generates dust, fumes, gas, vapour or mist. This product should not be used under conditions of poor ventilation unless a protective mask with an appropriate gas filter (i.e. type A1 according to standard EN 14387) is used.
Eye/face protection	Wear chemical splash goggles. Eyewear complying with an approved standard should be worn if a risk assessment indicates eye contact is possible. Personal protective equipment for eye and face protection should comply with European Standard EN166.
Hand protection	Wear protective gloves made of the following material: Nitrile rubber. To protect hands from chemicals, gloves should comply with European Standard EN374. The selected gloves should have a breakthrough time of at least 6 hours. The most suitable glove should be chosen in consultation with the glove supplier/manufacturer, who can provide information about the breakthrough time of the glove material. When used with mixtures, the protection time of gloves cannot be accurately estimated.
Other skin and body protection	Wear suitable protective clothing as protection against splashing or contamination.
Hygiene measures	Use engineering controls to reduce air contamination to permissible exposure level. Wash promptly with soap and water if skin becomes contaminated. Wash hands at the end of each work shift and before eating, smoking and using the toilet.
Respiratory protection	If ventilation is inadequate, suitable respiratory protection must be worn. Wear a respirator fitted with the following cartridge: Combination filter, type A2/P3. Ensure all respiratory protective equipment is suitable for its intended use and is 'CE'-marked. Half mask and quarter mask respirators with replaceable filter cartridges should comply with European Standard EN140.
Thermal hazards	Contact with hot product can cause serious thermal burns.
Environmental exposure controls	Keep container tightly sealed when not in use.

SECTION 9: Physical and Chemical Properties

9.1. Information on basic physical and chemical properties

Appearance	Liquid
Colour	Cream
Odour	Organic solvents
Odour threshold	Not determined
pH	Not available
Melting point	Not applicable
Flash point	-25°C CC (Closed cup)

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Evaporation rate	Not available
Evaporation factor	Not determined
Upper/lower flammability or explosive limits	Upper flammable/explosive limit: 11.5 Lower flammable/explosive limit: 1.0
Vapour pressure	Not available
Vapour density	Not available
Bulk density	Not applicable
Solubility(ies)	Not determined. Insoluble in water. Soluble in the following materials: Organic solvents
Partition coefficient	Not determined
Auto-ignition temperature	Not determined
Decomposition Temperature	Not determined
Viscosity	2,700 - 3,300 cP @ 25°C
Explosive properties	Not determined
Oxidising properties	Not determined
Comments	Information declared as "Not available" or "Not applicable" is not considered to be relevant to the implementation of the proper control measures.

9.2. Other information

Refractive index	Not applicable
Particle size	Not available
Molecular weight	Not applicable
Volatility	Volatile
Saturation concentration	Not available.
Critical temperature	Not determined
Volatile organic compound	This product contains a maximum VOC content of 674 g/litre

SECTION 10: Stability and reactivity

10.1. Reactivity

Reactivity	There are no known reactivity hazards associated with this product

10.2. Chemical stability

Stability Stable at normal ambient temperatures and when used as recommended

10.3. Possibility of hazardous reactions

Possibility of hazardous reactions	Not applicable

10.4. Conditions to avoid

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Conditions to avoid — Avoid heat, flames and other sources of ignition

10.5. Incompatible materials

Materials to avoid — No specific material or group of materials is likely to react with the product to produce a hazardous situation

10.6. Hazardous decomposition products

Hazardous decomposition products — Thermal decomposition or combustion products may include the following substances: Carbon monoxide (CO). Carbon dioxide (CO2). Hydrogen chloride (HCl)

SECTION 11: Toxicological information

11.1. Information on toxicological effects

Acute toxicity – oral
Notes (oral LD_{50}) — Not determined

Acute toxicity - dermal
Notes (dermal LD_{50}) — Not determined

Acute toxicity - inhalation
Notes (inhalation LC_{50}) — Not determined

Skin corrosion/irritation
Human skin model test — Not determined
Extreme pH — Not determined

Serious eye damage/irritation
Serious eye damage/irritation — Not determined

General information — Prolonged and repeated contact with solvents over a long period may lead to permanent health problems. Avoid contact during pregnancy/while nursing.

Inhalation — Harmful: danger of serious damage to health by prolonged exposure through inhalation. Vapours may cause drowsiness and dizziness. May cause damage to organs through prolonged or repeated exposure if inhaled.

Ingestion — May cause stomach pain or vomiting.

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Skin contact	Product has a defatting effect on skin. May cause allergic contact eczema. Irritating to skin.
Eye contact	Irritating to eyes. May cause severe eye irritation.
Acute and chronic health hazards	Contains a substance/a group of substances which may damage the unborn child.
Route of entry	Inhalation Skin absorption

Toxicological information on ingredients

BUTANONE

Acute toxicity - oral	
Acute toxicity oral (LD_{50}mg/kg)	2,500.0
Species	Rat
Acute toxicity - dermal	
Acute toxicity dermal (LD_{50}mg/kg)	2,500.0
Species	Rabbit
ATE dermal (mg/kg)	2,500.0
Acute toxicity - inhalation	
Acute toxicity inhalation (LC_{50} vapours mg/l)	5,000.0
Species	Rat
ATE inhalation (vapours mg/l)	5,000.0

TOLUENE

Acute toxicity - oral	
Acute toxicity oral (LD_{50}mg/kg)	6,000.0
Species	Rat
ATE oral (mg/kg)	6,000.0
Acute toxicity - dermal	
Acute toxicity dermal (LD_{50}mg/kg)	6,000.0
Species	Rabbit
ATE dermal (mg/kg)	6,000.0

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Acute toxicity - inhalation

Acute toxicity inhalation (LC_{50} vapours mg/l)	21.0
Species	Rat
ATE inhalation (vapours mg/l)	21.0

Hydrocarbons,C6-C7,n-alkanes,isoalkanes,cyclics,<5%n-hexane

Acute toxicity - oral

Acute toxicity oral (LD_{50}mg/kg)	5,000.0
Species	Rat

Acute toxicity - dermal

Acute toxicity dermal (LD_{50}mg/kg)	2,000.0
Species	Rabbit

Poly(2-chloro-1,3-butadiene)

Acute toxicity - oral

Acute toxicity oral (LD_{50}mg/kg)	7,800.0
Species	Rat
ATE oral (mg/kg)	7,800.0

Acute toxicity - dermal

Acute toxicity dermal (LD_{50}mg/kg)	2,505.0
Species	Rabbit
ATE dermal (mg/kg)	2,505.0

Acute toxicity - inhalation

Acute toxicity inhalation (LC_{50} dust/mist mg/l)	2,300.0
Species	Mouse
ATE inhalation (dusts/mists mg/l)	2,300.0

Carcinogenicity

IARC carcinogenicity	IARC Group 3 Not classifiable as to its carcinogenicity to humans.

ZINC OXIDE

Acute toxicity – oral

Acute toxicity oral (LD_{50}mg/kg)	5,001.0
Species	Rat

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ATE oral (mg/kg)	5,001.0

GAROLITE DE

Acute toxicity - oral	
Acute toxicity oral (LD_{50}mg/kg)	5,500.0
Species	Rat
ATE oral (mg/kg)	5,500.0

ROSIN

Acute toxicity - oral	
Acute toxicity oral (LD_{50}mg/kg)	7,800.0
Species	Rat
Acute toxicity - dermal	
Acute toxicity dermal (LD_{50}mg/kg)	2,505.0
Species	Rabbit
ATE dermal (mg/kg)	2,505.0

Butylated reaction product of p-cresol & dicyclopentadiene

Acute toxicity - oral	
Acute toxicity oral (LD_{50}mg/kg)	5,001.0
Species	Rat
ATE oral (mg/kg)	5,001.0
Acute toxicity - dermal	
Acute toxicity dermal (LD_{50}mg/kg)	2,001.0
Species	Rat
ATE dermal (mg/kg)	2,001.0

N,N,N',N'-TETRAMETHYLETHYLENEDIAMINE

Acute toxicity - oral	
Acute toxicity oral (LD_{50}mg/kg)	630.0
Species	Rat
ATE oral (mg/kg)	630.0
Acute toxicity - dermal	
Acute toxicity dermal (LD_{50}mg/kg)	5,390.0
Species	Rabbit
ATE dermal (mg/kg)	5,390.0

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Acute toxicity - inhalation

Acute toxicity inhalation (LC_{50} gases ppmV)	1,318.0
Species	Rat
ATE inhalation (gases ppm)	1,318.0

SECTION 12: Ecological information

Ecotoxicity — Dangerous for the environment if discharged into watercourses. The product contains substances which are toxic to aquatic organisms and which may cause long-term adverse effects in the aquatic environment.

12.1. Toxicity

Acute toxicity – fish	Not determined
Acute toxicity – aquatic invertebrates	Not determined
Acute toxicity – aquatic plants	Not determined
Acute toxicity – microorganisms	Not determined
Acute toxicity – terrestrial	Not determined
Chronic toxicity – fish early life stage	Not determined
Short term toxicity – embryo and sac fry stages	Not determined
Chronic toxicity – aquatic invertebrates	Not determined

Ecological information on ingredients

BUTANONE

Acute toxicity – fish	LC50, 96 hours, 96 hours: 2993 mg/l, Pimephales promelas (Fat-head Minnow) LC50, 48 hours, 48 hours: > 100 mg/l, Leuciscus idus (Golden orfe)
Acute toxicity – aquatic invertebrates	EC_{50}, 48 hours, 48 hours: > 100 mg/l, Daphnia magna
Acute toxicity – aquatic plants	EC_{50}, 96 hours, 96 hours: 2029 , Freshwater algae
Acute toxicity – Microorganisms	EC_{50}, 96 hours, 96 hours: > 50 mg/l, Activated sludge

TOLUENE

Acute toxicity – fish	LC50, 96 hours, 96 hours: 13 mg/l, Carassius auratus (Goldfish)

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	LC50, 96 hours, 96 hours: 24 mg/l, Onchorhynchus mykiss (Rainbow trout)
Acute toxicity – aquatic invertebrates	EC_{50}, 48 hours, 48 hours: 11.5 mg/l, Daphnia magna
Acute toxicity – aquatic plants	IC_{50}, 72 hours, 72 hours: 12 mg/l, Selenastrum capricornutum
Acute toxicity – Microorganisms	NOEC, : 29 mg/l, Activated sludge

Hydrocarbons,C6-C7,n-alkanes,isoalkanes,cyclics,<5%n-hexane

Acute toxicity – fish	NOEC, : 1 - 10 mg/l, LC_{50}, 96 hours: 1 - 10 mg/l, Fish
Acute toxicity – aquatic plants	IC_{50}, 72 hours: 10 - 100 mg/l, Algae
Acute toxicity – Microorganisms	EC_{50}, : 1 - 10 mg/l, Activated sludge

ZINC OXIDE

Acute aquatic toxicity	
$LE(C)_{50}$	0.1 < L(E)C50 ≤ 1
M factor (Acute)	1
Acute toxicity – fish	LC_{50}, 96 hours: 1.1 mg/l, Fish
Acute toxicity – aquatic invertebrates	EC_{50}, 48 hours: > 1000 mg/l, Daphnia magna
Acute toxicity – aquatic plants	IC_{50}, 72 hours: 0.1- 1 mg/l, Algae
Chronic aquatic toxicity	
M factor (Chronic)	1

ROSIN

Acute toxicity – fish	LC_{50}, 96 hours: < 10 mg/l, Fish
Acute toxicity – aquatic invertebrates	EC_{50}, 48 hours: 911 mg/l, Daphnia magna
Acute toxicity – aquatic plants	IC_{50}, 72 hours: > 1,000 mg/l, Algae
Acute toxicity – Microorganisms	EC_{50}, 3 hours, 3 hours: > 10,000 mg/l, Activated sludge

Butylated reaction product of p-cresol & dicyclopentadiene

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Acute toxicity – fish	LC50, 96 hours, 96 hours: > 0.2 mg/l, Freshwater fish
Acute toxicity - aquatic Invertebrates	EC_{50}, 96 hours, 96 hours: > 0.2 mg/l, Daphnia magna

12.2. Persistence and degradability

Persistence and degradability	The product is slowly degradable
Phototransformation	Not relevant
Stability (hydrolysis)	Not determined
Biodegradation	Not determined
Biological oxygen demand	Not determined
Chemical oxygen demand	Not determined

Ecological information on ingredients

BUTANONE

Persistence and degradability	The product is biodegradable
Biodegradation	Air. - Degradation (%) 98: 28 days readily biodegradable

TOLUENE

Persistence and degradability	The product is readily biodegradable
Biodegradation	- Degradation (%) 86: 20 days readily biodegradable
Biological oxygen demand	1.23 g O_2/g substance

ROSIN

Biodegradation	Water and sediment - Degradation (%) 71: 28 days readily biodegradable

12.3. Bioaccumulative potential

Bioaccumulative potential	Bioaccumulation is unlikely to be significant because of the low water-solubility of this product
Partition coefficient	Not determined

Ecological information on ingredients

BUTANONE

Bioaccumulative potential	The product is not bioaccumulating

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TOLUENE

Bioaccumulative potential	The product is not bioaccumulating. BCF:

12.4. Mobility in soil

Mobility	The product contains volatile organic compounds (VOCs) which will evaporate easily from all surfaces
Adsorption/desorption coefficient	Not determined
Henry's law constant	Not determined
Surface tension	Not determined

Ecological information on ingredients

BUTANONE

Mobility	The product contains volatile organic compounds (VOCs) which will evaporate easily from all surfaces

TOLUENE

Mobility	The product contains volatile organic compounds (VOCs) which will evaporate easily from all surfaces

12.5. Results of PBT and vPvB assessment

Results of PBT and vPvB assessment	This product does not contain any substances classified as PBT or vPvB

Ecological information on ingredients

BUTANONE

Results of PBT and vPvB assessment	This product does not contain any substances classified as PBT or vPvB

TOLUENE

Results of PBT and vPvB assessment	This product does not contain any substances classified as PBT or vPvB

12.6. Other adverse effects

Other adverse effects	Not known

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SECTION 13: Disposal considerations

13.1. Waste treatment methods

General information	Waste liquid components should be suitable for incineration at an approved facility.
Disposal methods	Dispose of waste to licensed waste disposal site in accordance with the requirements of the local Waste Disposal Authority.

SECTION 14: Transport information

14.1. UN number

UN No. (ADR/RID)	1133
UN No. (IMDG)	1133
UN No. (ICAO)	1133
UN No. (ADN)	1133

14.2. UN proper shipping name

Proper shipping name (ADR/RID)	ADHESIVES
Proper shipping name (IMDG)	ADHESIVES (CONTAINS Hydrocarbons,C6-C7,n-alkanes,isoalkanes,cyclics,<5%n-hexane, ZINC OXIDE)
Proper shipping name (ICAO)	ADHESIVES
Proper shipping name (ADN)	ADHESIVES

14.3. Transport hazard class(es)

ADR/RID class	3
ADR/RID classification code	F1
ADR/RID label	3
IMDG class	3
ICAO class/division	3
ADN class	3

Transport labels

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14.4. Packing group

ADR/RID packing group	II
IMDG packing group	II
ADN packing group	II
ICAO packing group	II

14.5. Environmental hazards

Environmentally hazardous substance/marine pollutant

14.6. Special precautions for user

EmS	F-E, S-D
ADR transport category	2
Emergency Action Code	•3YE
Hazard Identification Number (ADR/RID)	33
Tunnel restriction code	(D/E)

14.7. Transport in bulk according to Annex II of MARPOL73/78 and the IBC Code

Transport in bulk according to Annex II of MARPOL 73/78 and the IBC Code	Not applicable

SECTION 15: Regulatory information

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

National regulations	Control of Pollution Act 1974. Control of Substances Hazardous to Health Regulations 2002 (as amended). Health and Safety at Work etc. Act 1974 (as amended). EH40/2005 Workplace exposure limits.
EU legislation	Regulation (EC) No 1272/2008 of the European Parliament and of the Council of 16 December 2008 on classification, labelling and packaging of substances and mixtures (as amended).

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	Regulation (EC) No 1907/2006 of the European Parliament and of the Council of 18 December 2006 concerning the Registration, Evaluation, Authorisation and Restriction of Chemicals (REACH) (as amended).
Guidance	Workplace Exposure Limits EH40. Safety Data Sheets for Substances and preparations.
Authorisations (Title VII Regulation 1907/2006)	No specific authorisations are known for this product.
Restrictions (Title VIII Regulation 1907/2006)	No specific restrictions on use are known for this product.

15.2. Chemical safety assessment

No chemical safety assessment has been carried out

SECTION 16: Other information

Abbreviations and acronyms used in the safety data sheet	ATE: Acute Toxicity Estimate. ADR: European Agreement concerning the International Carriage of Dangerous Goods by Road. CAS: Chemical Abstracts Service. DNEL: Derived No Effect Level. GHS: Globally Harmonized System. IATA: International Air Transport Association. ICAO-TI: Technical Instructions for the Safe Transport of Dangerous Goods by Air. IMDG: International Maritime Dangerous Goods. Kow: Octanol-water partition coefficient. LC_{50}: Lethal Concentration to 50 % of a test population. LD_{50}: Lethal Dose to 50% of a test population (Median Lethal Dose). PBT: Persistent, Bioaccumulative and Toxic substance. PNEC: Predicted No Effect Concentration. REACH: Registration, Evaluation, Authorisation and Restriction of Chemicals Regulation (EC) No 1907/2006. RID: European Agreement concerning the International Carriage of Dangerous Goods by Rail.

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	SVHC: Substances of Very High Concern. vPvB: Very Persistent and Very Bioaccumulative. IARC: International Agency for Research on Cancer. MARPOL 73/78: International Convention for the Prevention of Pollution From Ships, 1973 as modified by the Protocol of 1978. cATpE: Converted Acute Toxicity Point Estimate. BCF: Bioconcentration Factor. EC_{50}: 50% of maximal Effective Concentration. LOAEC: Lowest Observed Adverse Effect Concentration. LOAEL: Lowest Observed Adverse Effect Level. NOAEC: No Observed Adverse Effect Concentration. NOAEL: No Observed Adverse Effect Level. NOEC: No Observed Effect Concentration. LOEC: Lowest Observed Effect Concentration. DMEL: Derived Minimal Effect Level. UN: United Nations. IBC: International Code for the Construction and Equipment of Ships carrying Dangerous Chemicals in Bulk (International Bulk Chemical Code).
Key literature references and sources for data	Dangerous Properties of Industrial Materials Report, N.Sax et.al.
Revision comments	NOTE: Lines within the margin indicate significant changes from the previous revision.
Revision date	05/07/2017
Revision	2
Risk phrases in full	R11 Highly flammable. R36 Irritating to eyes. R36/38 Irritating to eyes and skin. R38 Irritating to skin. R48/20 Harmful: danger of serious damage to health by prolonged exposure through inhalation. R50/53 Very toxic to aquatic organisms, may cause long-term adverse effects in the aquatic environment. R51/53 Toxic to aquatic organisms, may cause long-term adverse effects in the aquatic environment.

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	R63 Possible risk of harm to the unborn child. R65 Harmful: may cause lung damage if swallowed. R66 Repeated exposure may cause skin dryness or cracking. R67 Vapours may cause drowsiness and dizziness.
Hazard statements in full	H225 Highly flammable liquid and vapour. H304 May be fatal if swallowed and enters airways. H315 Causes skin irritation. H317 May cause an allergic skin reaction. H319 Causes serious eye irritation. H336 May cause drowsiness or dizziness. H361d Suspected of damaging the unborn child. H361f Suspected of damaging fertility. H373 May cause damage to organs through prolonged or repeated exposure. H400 Very toxic to aquatic life. H410 Very toxic to aquatic life with long lasting effects. H411 Toxic to aquatic life with long lasting effects. EUH208 Contains ROSIN. May produce an allergic reaction.

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

1.1 Product identifier

A262 Curing Agent

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

Identified uses	Curative Solution
Uses advised against	Not suitable for use in homeworker (DIY) applications

1.3 Details of the supplier of the safety data sheet:

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Email: sales@sealsplusdirect.co.uk

1.4 Emergency telephone number

Tel: 01425 617722 (Mon – Fri 8:30am – 5pm)

SECTION 2: Hazards identification

2.1. Classification of the substance or mixture

Classification

Physical hazards	Not Classified
Health hazards	Skin Irrit. 2 - H315 Eye Irrit. 2 - H319 Resp. Sens. 1 - H334 Skin Sens. 1 - H317 Carc. 2 - H351 STOT SE 3 - H335 STOT RE 2 - H373
Environmental hazards	Not Classified
Classification (67/548/EEC or 1999/45/EC)	Carc. Cat. 3;R40. R42/43. Xi;R36/37/38
Human health	Contains non-volatile isocyanate. Heating may generate vapours which irritate the respiratory system. May cause allergy or asthma symptoms or breathing difficulties if inhaled. The liquid may be irritating to eyes, respiratory system and skin. Contains a substance/a group of substances which may cause cancer.

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Environmental	The product will harden into a solid mass in contact with water and moisture. The resultant material is not biodegradable.
Physicochemical	Closed containers can burst violently when heated, due to excess pressure build-up.

2.2. Label elements

Signal word	Danger
Hazard statements	H315 Causes skin irritation. H317 May cause an allergic skin reaction. H319 Causes serious eye irritation. H334 May cause allergy or asthma symptoms or breathing difficulties if inhaled. H335 May cause respiratory irritation. H351 Suspected of causing cancer. H373 May cause damage to organs through prolonged or repeated exposure.
Precautionary statements	P202 Do not handle until all safety precautions have been read and understood. P261 Avoid breathing vapour/spray. P272 Contaminated work clothing should not be allowed out of the workplace. P280 Wear protective gloves/protective clothing/eye protection/face protection. P284 [In case of inadequate ventilation] wear respiratory protection. P314 Get medical advice/attention if you feel unwell.
Contains	DICHLOROMETHANE, Diphenylmethane - diisocyanate, isomers and homologues, DIPHENYLMETHANE-4,4'-DI-ISOCYANATE, DIPHENYLMETHANE-2,4'-DI-ISOCYANATE, DIPHENYLMETHANE-2,2'-DI-ISOCYANATE
Supplementary precautionary statements	P201 Obtain special instructions before use. P260 Do not breathe vapour/spray. P264 Wash contaminated skin thoroughly after handling. P302+P352 IF ON SKIN: Wash with plenty of water.

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P304+P340 IF INHALED: Remove person to fresh air and keep comfortable for breathing.
P305+P351+P338 IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing.
P308+P313 IF exposed or concerned: Get medical advice/attention.
P321 Specific treatment (see medical advice on this label).
P332+P313 If skin irritation occurs: Get medical advice/attention.
P333+P313 If skin irritation or rash occurs: Get medical advice/attention.
P337+P313 If eye irritation persists: Get medical advice/attention.
P342+P311 If experiencing respiratory symptoms: Call a POISON CENTER/doctor.
P362+P364 Take off contaminated clothing and wash it before reuse.
P405 Store locked up.
P501 Dispose of contents/container in accordance with national regulations.

2.3. Other hazards

This product does not contain any substances classified as PBT or vPvB.

SECTION 3: Composition/information on ingredients

3.2. Mixtures

DICHLOROMETHANE		**60-100%**
CAS number: 75-09-2	EC number: 200-838-9	REACH registration number: 01-2119480404-41
Classification Skin Irrit. 2 - H315 Eye Irrit. 2 - H319 Carc. 2 - H351 STOT SE 3 - H335 STOT RE 2 - H373	**Classification (67/548/EEC or 1999/45/EC)** Carc. Cat. 3;R40	

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Diphenylmethane - diisocyanate,isomers and homologues	**10-30%**
CAS number: 9016-87-9	
Classification	**Classification (67/548/EEC or 1999/45/EC)**
Acute Tox. 4 - H332 Irrit. 2 - H315 Eye Irrit. 2 - H319 Resp. Sens. 1 - H334 Skin Sens. 1 - H317 Carc. 2 - H351 STOT SE 3 - H335 STOT RE 2 - H373	Xn;R20,R48/20. Carc. Cat. 3;R40. Skin Xi;R36/37/38. R42/43.

DIPHENYLMETHANE-4,4'-DI-ISOCYANATE		**1-5%**
CAS number: 101-68-8	EC number: 202-966-0	REACH registration number: 01-2119457014-47
Classification		**Classification (67/548/EEC or 1999/45/EC)**
Skin Irrit. 2 - H315 Eye Irrit. 2 - H319 Resp. Sens. 1 - H334 Skin Sens. 1 - H317 Carc. 2 - H351 Acute Tox. 4 - H332 STOT SE 3 - H335 STOT RE 2 - H373 STOT SE 3 - H335		Carc. Cat. 3;R40 Xn;R20,R48/20 Xi;R36/37/38 R42/43

DIPHENYLMETHANE-2,4'-DI-ISOCYANATE		**1-5%**
CAS number: 5873-54-1	EC number: 227-534-9	REACH registration number: 01-2119480143-45-0000
Classification		**Classification (67/548/EEC or 1999/45/EC)**
Skin Irrit. 2 - H315 Eye Irrit. 2 - H319 Resp. Sens. 1 - H334 Skin Sens. 1 - H317 Carc. 2 - H351 Acute Tox. 4 - H332 STOT SE 3 - H335 STOT RE 2 - H373 STOT SE 3 - H335		Carc. Cat. 3;R40 Xn;R20,R48/20 Xi;R36/37/38 R42/43

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DIPHENYLMETHANE-2,2'-DI-ISOCYANATE		**<1%**
CAS number: 2536-05-2	EC number: 219-799-4	REACH registration number: 01-21199227323-43
Classification	**Classification (67/548/EEC or 1999/45/EC)**	
Skin Irrit. 2 - H315 Eye Irrit. 2 - H319 Resp. Sens. 1 - H334 Skin Sens. 1 - H317 Carc. 2 - H351 Acute Tox. 4 - H332 STOT SE 3 - H335 STOT RE 2 - H373 STOT SE 3 - H335	Carc. Cat. 3;R40 Xn;R20,R48/20 Xi;R36/37/38 R42/43	

The Full Text for all R-Phrases and Hazard Statements are Displayed in Section 16.

Composition comments Isocyanate solution n non flammable solvent

SECTION 4: First-aid measures

4.1. Description of first aid measures

General information Get medical attention if any discomfort continues.

Inhalation Move affected person to fresh air at once. Get medical attention. Move affected person to fresh air and keep warm and at rest in a position comfortable for breathing. When breathing is difficult, properly trained personnel may assist affected person by administering oxygen.

Ingestion Do not induce vomiting. Never give anything by mouth to an unconscious person. Do not induce vomiting. Remove affected person from source of contamination. Get medical attention immediately. Move affected person to fresh air and keep warm and at rest in a position comfortable for breathing.

Skin contact Remove affected person from source of contamination. Remove contaminated clothing. Wash skin thoroughly with soap and water. Get medical attention promptly if symptoms occur after washing.

Eye contact Remove affected person from source of contamination. Remove any contact lenses and open eyelids wide apart. Continue to rinse for at least 15 minutes and get medical attention.

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Protection of first aiders	First aid personnel should wear appropriate protective equipment during any rescue. It may be dangerous for first aid personnel to carry out mouth-to-mouth resuscitation.

4.2. Most important symptoms and effects, both acute and delayed

General information	The severity of the symptoms described will vary dependent on the concentration and the length of exposure. The product contains a sensitising substance. Persons already sensitised to diisocyanates may develop allergic reactions when using this product.
Inhalation	Vapours may cause headache, fatigue, dizziness and nausea. The product contains a sensitising substance. The product contains organic solvents. Frequent inhalation of vapours may cause respiratory allergy.
Ingestion	May cause stomach pain or vomiting.
Skin contact	May cause skin irritation/eczema. May cause sensitisation or allergic reactions in sensitive individuals.
Eye contact	May cause severe eye irritation.

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

Notes for the doctor	The product irritates the respiratory tract and may trigger sensitisation of the skin or respiratory tract. Treatment of acute irritation or bronchial constriction is primarily symptomatic. Extended medical treatment may be required depending on the degree of exposure and the severity of the symptoms.
Specific treatments	Treat symptomatically.

SECTION 5: Fire-fighting measures

5.1. Extinguishing media

Suitable extinguishing media	Use fire-extinguishing media suitable for the surrounding fire.
Unsuitable extinguishing media	Water.

5.2. Special hazards arising from the substance or mixture

Specific hazards	Thermal decomposition or combustion products may include the following substances: Asphyxiating

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	gases. Carbon monoxide (CO). Carbon dioxide (CO2). Hydrogen cyanide (HCN). Isocyanates.
Hazardous combustion products	Heating may generate the following products: Carbon monoxide (CO). Oxides of nitrogen. Isocyanates.

5.3. Advice for firefighters

Protective actions during firefighting	Avoid breathing fire gases or vapours. Thermal decomposition or combustion products may include the following substances: Toxic and corrosive gases or vapours. Wear positivepressure self-contained breathing apparatus (SCBA) and appropriate protective clothing. Control run-off water by containing and keeping it out of sewers and watercourses.
Special protective equipment for firefighters	Wear positive-pressure self-contained breathing apparatus (SCBA) and appropriate protective clothing.

SECTION 6: Accidental release measures

6.1. Personal precautions, protective equipment and emergency procedures

Personal precautions	Wear protective clothing as described in Section 8 of this safety data sheet. Avoid inhalation of dust and vapours. If ventilation is inadequate, suitable respiratory protection must be worn.
For non-emergency personnel	Wear positive-pressure self-contained breathing apparatus (SCBA) and appropriate protective clothing.
For emergency responders	Wear positive-pressure self-contained breathing apparatus (SCBA) and appropriate protective clothing.

6.2. Environmental precautions

Environmental precautions	Do not discharge into drains or watercourses or onto the ground.

6.3. Methods and material for containment and cleaning up

Methods for cleaning up	Wear suitable protective equipment, including gloves, goggles/face shield, respirator, boots,

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clothing or apron, as appropriate. Absorb in vermiculite, dry sand or earth and place into containers. Avoid the spillage or runoff entering drains, sewers or watercourses.

6.4. Reference to other sections

Reference to other sections	Wear protective clothing as described in Section 8 of this safety data sheet. See Section 11 for additional information on health hazards.

SECTION 7: Handling and storage

7.1. Precautions for safe handling

Usage precautions	Avoid spilling. Provide adequate ventilation. Avoid inhalation of vapours. Use approved respirator if air contamination is above an acceptable level. Wear appropriate clothing to prevent skin contamination.
Advice on general occupational hygiene	Wash hands and any other contaminated areas of the body with soap and water before leaving the work site. When using do not eat, drink or smoke.

7.2. Conditions for safe storage, including any incompatibilities

Storage precautions	Store in tightly-closed, original container in a dry, cool and well-ventilated place.
Storage class	Water-reactive storage.

7.3. Specific end use(s)

Specific end use(s)	The identified uses for this product are detailed in Section 1.2.

SECTION 8: Exposure controls/personal protection

8.1. Control parameters

Occupational exposure limits

DICHLOROMETHANE
Long-term exposure limit (8-hour TWA): WEL 100 ppm(Sk) 350 mg/m3(Sk)
Short-term exposure limit (15-minute): WEL 300 ppm(Sk) 1060 mg/m3(Sk)

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Diphenylmethane - diisocyanate,isomers and homologues
Long-term exposure limit (8-hour TWA): WEL 0.02 mg/m³
Short-term exposure limit (15-minute): WEL 0.07 mg/m³

DIPHENYLMETHANE-4,4'-DI-ISOCYANATE
Long-term exposure limit (8-hour TWA): WEL 0.02 mg/m3(Sen)
Short-term exposure limit (15-minute): WEL 0.07 mg/m3(Sen)

DIPHENYLMETHANE-2,4'-DI-ISOCYANATE
Long-term exposure limit (8-hour TWA): WEL 0.02 mg/m3(Sen)
Short-term exposure limit (15-minute): WEL 0.07 mg/m3(Sen)

DIPHENYLMETHANE-2,2'-DI-ISOCYANATE
Long-term exposure limit (8-hour TWA): WEL 0.02 mg/m3(Sen)
Short-term exposure limit (15-minute): WEL 0.07 mg/m3(Sen)
WEL = Workplace Exposure Limit

DICHLOROMETHANE (CAS: 75-09-2)

DNEL	Industry - Inhalation; Long term local effects: 353 mg/m³ Industry - Dermal; Long term local effects: 4750 mg/kg/day Industry - Inhalation; Short term local effects: 706 mg/m³ Consumer - Inhalation; Long term local effects: 88.3 mg/m³ Consumer - Oral; Short term local effects: 0.06 mg/kg/day Consumer - Inhalation; Short term local effects: 353 mg/m³ Consumer - Dermal; Short term local effects: 2395 mg/kg/day
PNEC	- Fresh water; 0.54 mg/l - Marine water; 0.194 mg/l - Intermittent release; 0.27 mg/l - Sediment (Freshwater); 0.972 mg/kg - Sediment (Marinewater); 0.349 mg/kg - STP; 26 mg/l - Soil; 0.972 mg/kg

DIPHENYLMETHANE-4,4'-DI-ISOCYANATE (CAS: 101-68-8)

DNEL	Industry - Dermal; Short term local effects: 28.7 mg/m³ Industry - Inhalation; Short term local effects: 0.1 mg/m³ Industry - Dermal; Long term systemic effects: no quantitativerisk assessment possible 9.0 - 10.0, ISO 976 Industry - Inhalation; Long term systemic effects: 0.05 mg/m³ Industry - Dermal; Long term local effects: no quantitative risk assessment possible Industry - Inhalation; Long term local effects: 0.05 mg/m³

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PNEC	Industry - Fresh water; Long term >1 mg/l Industry - Marine water; Long term > 0.1 mg/l Industry - Sediment (Freshwater); Long term Not relevant Industry - Soil; Long term > 1 mg/kg Industry - STP; Long term > 1 mg/l

DIPHENYLMETHANE-2,4'-DI-ISOCYANATE (CAS: 5873-54-1)

DNEL	Industry - Dermal; Short term systemic effects: 50 mg/kg/day Industry - Inhalation; Short term systemic effects: 0.1 mg/m³ Industry - Dermal; Short term local effects: 28.7 mg/m³ Industry - Inhalation; Short term local effects: 0.1 mg/m³ Industry - Inhalation; Long term systemic effects: 0.05 mg/m³ Industry - Inhalation; Long term local effects: 0.05 mg/m³
PNEC	Industry - Fresh water; Long term > 1 mg/l Industry - Marine water; Long term > 0.1 mg/l Industry - Soil; Long term > 1 mg/kg Industry - STP; Long term > 1 mg/l

DIPHENYLMETHANE-2,2'-DI-ISOCYANATE (CAS: 2536-05-2)

DNEL	Industry - Dermal; Short term systemic effects: 50 mg/kg/day Industry - Inhalation; Short term systemic effects: 0.1 mg/m³ Industry - Dermal; Short term local effects: 28.7 mg/m³ Industry - Inhalation; Short term local effects: 0.1 mg/m³ Industry - Inhalation; Long term systemic effects: 0.05 mg/m³ Industry - Inhalation; Long term local effects: 0.05 mg/m³
PNEC	- Fresh water; > 1 mg/l - Marine water; > 0.1 mg/l - Soil; > 1 mg/kg - STP; > 1 mg/l

8.2. Exposure controls

Protective equipment

Appropriate engineering controls	Provide adequate general and local exhaust ventilation. As this product contains ingredients with exposure limits, process enclosures, local exhaust ventilation or other

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	engineering controls should be used to keep worker exposure below any statutory or recommended limits, if use generates dust, fumes, gas, vapour or mist.
Eye/face protection	The following protection should be worn: Chemical splash goggles. Eyewear complying with an approved standard should be worn if a risk assessment indicates eye contact is possible. Personal protective equipment for eye and face protection should comply with European Standard EN166.
Hand protection	To protect hands from chemicals, gloves should comply with European Standard EN374. The most suitable glove should be chosen in consultation with the glove supplier/manufacturer, who can provide information about the breakthrough time of the glove material. When used with mixtures, the protection time of gloves cannot be accurately estimated. The selected gloves should have a breakthrough time of at least 6 hours. Wear protective gloves made of the following material: Butyl rubber.
Other skin and body protection	Wear appropriate clothing to prevent any possibility prolonged of liquid contact and repeated or vapour contact.
Hygiene measures	Do not smoke in work area. Wash hands at the end of each work shift and before eating, smoking and using the toilet. Promptly remove any clothing that becomes contaminated. Wash promptly with soap and water if skin becomes contaminated. When using do not eat, drink or smoke.
Respiratory protection	Respiratory protection must be used if the airborne contamination exceeds the recommended occupational exposure limit. Wear a respirator fitted with the following cartridge: Gas filter, type A2. Respiratory protection complying with an approved standard should be worn if a risk assessment indicates inhalation of contaminants is possible. Ensure all respiratory protective equipment is suitable for its intended use and is 'CE'-marked.
Thermal hazards	Contact with hot product can cause serious thermal burns.
Environmental exposure controls	Keep container tightly sealed when not in use.

SECTION 9: Physical and chemical properties

9.1. Information on basic physical and chemical properties

Appearance	Dark-coloured liquid.
Colour	Brown.
Odour	Chlorinated hydrocarbons.
Initial boiling point and range	41°C @

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Flash point	n/a°C CC (Closed cup).
Relative density	1.30 – 1.32 @ 20°C
Viscosity	less than 50 cP @ 20°C

9.2. Other information

Volatility	Highly volatile.

SECTION 10: Stability and reactivity

10.1. Reactivity

Reactivity	Reactions with the following materials may generate heat: Water. The product will harden into a solid mass in contact with water and moisture.

10.2. Chemical stability

Stability	Stable at normal ambient temperatures.

10.3. Possibility of hazardous reactions

Possibility of hazardous reactions	The following materials may react strongly with the product: Alcohols. Amines. Water, moisture. The product will harden into a solid mass in contact with water and moisture.

10.4. Conditions to avoid

Conditions to avoid	Reactions with the following materials may generate heat: Alkalis. Amines. When exposed to air, this product will absorb moisture. The product will harden into a solid mass in contact with water and moisture.

10.5. Incompatible materials

Materials to avoid	Water-reactive materials.

10.6. Hazardous decomposition products

Hazardous decomposition products	Heating may generate the following products: Carbon monoxide (CO). Oxides of nitrogen. Isocyanates.

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SECTION 11: Toxicological information

11.1. Information on toxicological effects

Acute toxicity – inhalation

ATE inhalation (dusts/mists mg/l) 7.38

Carcinogenicity

Carcinogenicity	Suspected of causing cancer.
General information	Contains isocyanates. May produce an allergic reaction. Persons already sensitised to diisocyanates may develop allergic reactions when using this product. Extensive use of the product in areas with inadequate ventilation may result in the accumulation of hazardous vapour concentrations. May cause damage to organs through prolonged or repeated exposure.
Inhalation	Irritating to respiratory system. May cause sensitisation by inhalation. May cause damage to organs through prolonged or repeated exposure if inhaled. May cause allergy or asthma symptoms or breathing difficulties if inhaled.
Ingestion	Harmful if swallowed.
Skin contact	Irritating to skin. May cause sensitisation by skin contact. May cause an allergic skin reaction.
Eye contact	Causes serious eye irritation.
Acute and chronic health hazards	Suspected of causing cancer.
Target organs	Skin Eyes Respiratory system, lungs

Toxicological information on ingredients

DICHLOROMETHANE

Other health effects	Suspect Cancer Hazard.

Acute toxicity - oral

Acute toxicity oral (LD_{50}mg/kg)	2,500.0
Species	Rat
ATE oral (mg/kg)	2,500.0

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Acute toxicity – dermal

Acute toxicity dermal (LD_{50}mg/kg)	2,500.0
Species	Rat
ATE dermal (mg/kg)	2,500.0

Acute toxicity – inhalation

Acute toxicity inhalation (LC_{50} vapours mg/l)	49.0
Species	Rat
ATE inhalation (vapours mg/l)	49.0

Diphenylmethane - diisocyanate,isomers and homologues

Acute toxicity – oral

Acute toxicity oral (LD_{50}mg/kg)	10,000.0
Species	Rat

Acute toxicity – dermal

Acute toxicity dermal (LD_{50}mg/kg)	9,400.0
Species	Rabbit
ATE dermal (mg/kg)	9,400.0

Acute toxicity – inhalation

Acute toxicity inhalation (LC_{50} dust/mist mg/l)	0.31
Species	Rat
ATE inhalation (dusts/mists mg/l)	1.5

DIPHENYLMETHANE-4,4'-DI-ISOCYANATE

Acute toxicity – dermal

Acute toxicity dermal (LD_{50}mg/kg)	9,400.0
Species	Rabbit

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Acute toxicity – inhalation

Acute toxicity inhalation (LC_{50} dust/mist mg/l)	0.368

Respiratory sensitisation

Respiratory sensitisation	Guinea pig: Not determined.

Skin sensitisation

Skin sensitisation	Buehler test: - Guinea pig: Not determined.

DIPHENYLMETHANE-2,4'-DI-ISOCYANATE

Acute toxicity – oral

Acute toxicity oral (LD_{50}mg/kg)	2,000.0
Species	Rat
Notes (oral LD_{50})	9.0 - 10.0, ISO 976

Acute toxicity – dermal

Acute toxicity dermal (LD_{50}mg/kg)	9,400.0
Species	Rabbit

Acute toxicity – inhalation

Acute toxicity inhalation (LC_{50} dust/mist mg/l)	0.387
Species	Rat
ATE inhalation (dusts/mists mg/l)	0.387

Skin sensitisation

Skin sensitisation	Buehler test: - Guinea pig: 9.0 - 10.0, ISO 976 Not sensitising.

DIPHENYLMETHANE-2,2'-DI-ISOCYANATE

Acute toxicity - oral

Acute toxicity oral (LD_{50}mg/kg)	2,000.0

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Species	Rat

Acute toxicity – dermal

Acute toxicity dermal (LD_{50}mg/kg)	9,400.0
Species	Rabbit

Acute toxicity – inhalation

Acute toxicity inhalation (LC_{50} dust/mist mg/l)	0.527
Species	Rat
ATE inhalation (dusts/mists mg/l)	0.527

SECTION 12: Ecological information

Ecological information on ingredients

DICHLOROMETHANE

Acute toxicity – fish	LC50, 96 hours: 193 mg/l, Pimephales promelas (Fat-head Minnow)
Acute toxicity – aquatic invertebrates	EC_{50}, 48 hours: 220 mg/l, Daphnia magna
Acute toxicity – aquatic plants	NOEC, : 550 mg/l, Scenedesmus subspicatus EC_{50}, 96 hours: 665 mg/l, Selenastrum capricornutum

Diphenylmethane - diisocyanate,isomers and homologues

Acute toxicity – fish	LC50, 96 hours, 96 hours: > 1,000 mg/l, Brachydanio rerio (Zebra Fish)
Acute toxicity – aquatic invertebrates	EC_{50}, 48 hours, 48 hours: > 1,000 mg/l, Daphnia magna NOEC, 192 hours, 192 hours: > 10 mg/l, Daphnia magna
Acute toxicity – aquatic plants	EC_0, 72 hours, 72 hours: 1,640 mg/l, Scenedesmus subspicatus
Acute toxicity – microorganisms	EC_{50}, 3 hours, 3 hours: > 100 mg/l, Activated sludge

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Acute toxicity – terrestrial	LC_{50}, 14 days, 14 days: > 1,000 mg/kg, Eisenia Fetida (Earthworm)

DIPHENYLMETHANE-4,4'-DI-ISOCYANATE

Acute toxicity – fish	LC50, 96 hours, 96 hours: > 1000 mg/l, Brachydanio rerio (Zebra Fish)
Acute toxicity – aquatic invertebrates	EC_{50}, 192 hours, 192 hours: > 10 mg/l, Daphnia magna
Acute toxicity – aquatic plants	EC_{50}, 72 hours, 72 hours: > 1,640 mg/l, scenedesmus subspicatus
Acute toxicity – microorganisms	EC_{50}, 3 hours, 3 hours: > 100 mg/l, Activated sludge
Acute toxicity – terrestrial	NOEC, 14 days, 14 days: > 1,000 mg/kg, Eisenia Fetida (Earthworm)

DIPHENYLMETHANE-2,4'-DI-ISOCYANATE

Acute toxicity – fish	LC50, 96 hours, 96 hours: > 1,000 mg/l, Brachydanio rerio (Zebra Fish)
Acute toxicity – aquatic invertebrates	EC_{50}, 48 hours, 48 hours: > 1,000 mg/l, Daphnia magna NOEC, 192 hours, 192 hours: > 10 mg/l, Daphnia magna
Acute toxicity – aquatic plants	EC_{50}, 3 hours, 3 hours: > 1,640 mg/l, Scenedesmus subspicatus
Acute toxicity – microorganisms	EC_{50}, 3 hours, 3 hours: > 100 mg/l, Activated sludge
Acute toxicity – terrestrial	NOEC, 14 days, 14 days: > 1,000 mg/kg, Eisenia Fetida (Earthworm)

DIPHENYLMETHANE-2,2'-DI-ISOCYANATE

Acute toxicity – fish	LC50, 96 hours, 96 hours: > 1,000 mg/l, Brachydanio rerio (Zebra Fish)
Acute toxicity – aquatic invertebrates	EC_{50}, 48 hours, 48 hours: > 1000 mg/l, Daphnia magna NOEC, 192 hours, 192 hours: > 10 mg/l, Daphnia magna
Acute toxicity – aquatic plants	EC_{50}, 72 hours, 72 hours: > 1,640 mg/l, scenedesmus subspicatus
Acute toxicity – microorganisms	EC_{50}, 3 hours, 3 hours: > 100 mg/l, Activated sludge

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Acute toxicity – terrestrial	NOEC, 14 days, 14 days: > 1,000 mg/kg, Eisenia Fetida (Earthworm)

12.2. Persistence and degradability

Persistence and degradability	The product reacts with water to form a solid, insoluble reaction product which is not biodegradable.

Ecological information on ingredients

DICHLOROMETHANE

Persistence and degradability	The product is potentially degradable.

Diphenylmethane - diisocyanate,isomers and homologues

Persistence and degradability	The product is not readily biodegradable.
Biodegradation	9.0 - 10.0, ISO 976 - Degradation (%) 0: < 28 days No degradation observed

DIPHENYLMETHANE-4,4'-DI-ISOCYANATE

Stability (hydrolysis)	- Half-life : 20 hours 25 @ °C Hydrolizes rapidly in water
Biodegradation	Water and sediment - 0: 9.0 - 10.0, ISO 976 28 days No degradation observed

DIPHENYLMETHANE-2,4'-DI-ISOCYANATE

Phototransformation	Air. - Half-life : 0.92 days
Stability (hydrolysis)	pH7 - Half-life : 20 hours 25 @ °C Hydrolizes rapidly in water
Biodegradation	water - Degradation (%) 0: 28 days Not readily biodegradeable

DIPHENYLMETHANE-2,2'-DI-ISOCYANATE

Stability (hydrolysis)	- Half-life : 20 hours 25 @ °C

12.3. Bioaccumulative potential

Bioaccumulative potential	No data available on bioaccumulation.

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Ecological information on ingredients

DICHLOROMETHANE

Bioaccumulative potential BCF: 0.91,

Diphenylmethane - diisocyanate,isomers and homologues

Bioaccumulative potential BCF: < 14, Cyprinus carpio (Common carp) High

DIPHENYLMETHANE-4,4'-DI-ISOCYANATE

Bioaccumulative potential BCF: 200, Cyprinus carpio (Common carp)

DIPHENYLMETHANE-2,4'-DI-ISOCYANATE

Bioaccumulative potential BCF: 200, Cyprinus carpio (Common carp) An accumulation in aquatic organisms is not to be expected

12.4. Mobility in soil

Mobility The product contains volatile organic compounds (VOCs) which will evaporate easily from all surfaces.

Ecological information on ingredients

DIPHENYLMETHANE-4,4'-DI-ISOCYANATE

Henry's law constant 0.0229 Pa m3/mol @ °C

DIPHENYLMETHANE-2,4'-DI-ISOCYANATE

Henry's law constant 0.229 Pa m3/mol @ °C The substance has to be scored as being slightly volatile from water

DIPHENYLMETHANE-2,2'-DI-ISOCYANATE

Henry's law constant 0.229 Pa m3/mol @ °C The substance has to be scored as being slightly volatile from water

12.5. Results of PBT and vPvB assessment

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Results of PBT and vPvB assessment	This product does not contain any substances classified as PBT or vPvB.

Ecological information on ingredients

DICHLOROMETHANE

Results of PBT and vPvB assessment	This product does not contain any substances classified as PBT or vPvB.

DIPHENYLMETHANE-4,4'-DI-ISOCYANATE

Results of PBT and vPvB assessment	This product does not contain any substances classified as PBT or vPvB.

DIPHENYLMETHANE-2,4'-DI-ISOCYANATE

Results of PBT and vPvB assessment	This substance is not classified as PBT or vPvB according to current EU criteria.

12.6. Other adverse effects

SECTION 13: Disposal considerations

13.1. Waste treatment methods

General information	Dispose of waste to licensed waste disposal site in accordance with the requirements of the local Waste Disposal Authority.
Disposal methods	Dispose of waste product or used containers in accordance with local regulations

SECTION 14: Transport information

14.1. UN number

UN No. (ADR/RID)	1593
UN No. (IMDG)	1593
UN No. (ICAO)	1593
UN No. (ADN)	1593

14.2. UN proper shipping name

Proper shipping name (ADR/RID) DICHLOROMETHANE

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Proper shipping name (IMDG)	DICHLOROMETHANE
Proper shipping name (ICAO)	DICHLOROMETHANE
Proper shipping name (ADN)	DICHLOROMETHANE

14.3. Transport hazard class(es)

ADR/RID class	6.1
ADR/RID classification code	T1
ADR/RID label	6.1
IMDG class	6.1
ICAO class/division	6.1
ADN class	6.1

Transport labels

14.4. Packing group

ADR/RID packing group	III
IMDG packing group	III
ADN packing group	III
ICAO packing group	III

14.5. Environmental hazards

Environmentally hazardous substance/marine pollutant
No.

14.6. Special precautions for user

EmS	F-A, S-A
ADR transport category	2
Emergency Action Code	2Z
Hazard Identification Number (ADR/RID)	60
Tunnel restriction code	(E)

14.7. Transport in bulk according to Annex II of MARPOL73/78 and the IBC Code

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Transport in bulk according to Annex II of MARPOL 73/78 and the IBC Code	Not applicable

SECTION 15: Regulatory information

National regulations	The Control of Substances Hazardous to Health Regulations 2002 (SI 2002 No. 2677) (as amended). The Chemicals (Hazard Information and Packaging for Supply) Regulations 2009 (SI 2009 No. 716). EH40/2005 Workplace exposure limits.
EU legislation	Regulation (EC) No 1272/2008 of the European Parliament and of the Council of 16 December 2008 on classification, labelling and packaging of substances and mixtures (as amended). Regulation (EC) No 1907/2006 of the European Parliament and of the Council of 18 December 2006 concerning the Registration, Evaluation, Authorisation and Restriction of Chemicals (REACH) (as amended).
Guidance	Isocyanates: Health hazards and precautionary measures EH16. Workplace Exposure Limits EH40. Isocyanates: Health hazards and precautionary measures EH16.
Authorisations (Title VII Regulation 1907/2006)	No specific authorisations are known for this product.
Restrictions (Title VIII Regulation 1907/2006)	No specific restrictions on use are known for this product.

15.2. Chemical safety assessment

No chemical safety assessment has been carried out.

SECTION 16: Other information

Abbreviations and acronyms used in the safety data sheet	ATE: Acute Toxicity Estimate. ADR: European Agreement concerning the International Carriage of Dangerous Goods by Road. CAS: Chemical Abstracts Service. DNEL: Derived No Effect Level. GHS: Globally Harmonized System.

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	IATA: International Air Transport Association. ICAO-TI: Technical Instructions for the Safe Transport of Dangerous Goods by Air. IMDG: International Maritime Dangerous Goods. Kow: Octanol-water partition coefficient. LC_{50}: Lethal Concentration to 50 % of a test population. LD_{50}: Lethal Dose to 50% of a test population (Median Lethal Dose). PBT: Persistent, Bioaccumulative and Toxic substance. PNEC: Predicted No Effect Concentration. REACH: Registration, Evaluation, Authorisation and Restriction of Chemicals Regulation (EC) No 1907/2006. RID: European Agreement concerning the International Carriage of Dangerous Goods by Rail. vPvB: Very Persistent and Very Bioaccumulative. IARC: International Agency for Research on Cancer. MARPOL 73/78: International Convention for the Prevention of Pollution From Ships, 1973 as modified by the Protocol of 1978. cATpE: Converted Acute Toxicity Point Estimate. BCF: Bioconcentration Factor. BOD: Biochemical Oxygen Demand. EC_{50}: 50% of maximal Effective Concentration. LOAEC: Lowest Observed Adverse Effect Concentration. LOAEL: Lowest Observed Adverse Effect Level. NOAEC: No Observed Adverse Effect Concentration. NOAEL: No Observed Adverse Effect Level. NOEC: No Observed Effect Concentration. LOEC: Lowest Observed Effect Concentration. UN: United Nations.
Key literature references and sources for data	Dangerous Properties of Industrial Materials Report, N.Sax et.al
Revision comments	NOTE: Lines within the margin indicate significant changes from the previous revision.
Revision date	05/07/2016
Revision	2

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