



SAFETY DATA SHEET

TradeBond

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

1.1. Product identifier

Product name	TradeBond
Product number	TradeBond Part B
CAS number	9016-87-9

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

Identified uses	Hardener.
-----------------	-----------

1.3. Details of the supplier of the safety data sheet

Supplier	LEESON POLYURETHANES HERMES CLOSE TACHBROOK PARK WARWICK CV34 6RP UK +44 (0) 1926 833367 +44 (0) 1926 881469 sales@lpultd.com 24 HOUR EMERGENCY NUMBER: 00447909 683213
----------	--

1.4. Emergency telephone number

Emergency telephone	+44 (0)1926 833367
---------------------	--------------------

SECTION 2: Hazards identification

2.1. Classification of the substance or mixture

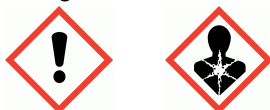
Classification

Physical hazards	Not Classified
Health hazards	Acute Tox. 4 - H332 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) Xn;R20,R48/20. Carc. Cat. 3;R40. R42/43. Xi;R36/37/38.

2.2. Label elements

Pictogram



Signal word Danger

TradeBond

Hazard statements	<p>H315 Causes skin irritation.</p> <p>H317 May cause an allergic skin reaction.</p> <p>H319 Causes serious eye irritation.</p> <p>H332 Harmful if inhaled.</p> <p>H334 May cause allergy or asthma symptoms or breathing difficulties if inhaled.</p> <p>H335 May cause respiratory irritation.</p> <p>H351 Suspected of causing cancer.</p> <p>H373 May cause damage to organs through prolonged or repeated exposure.</p>
Precautionary statements	<p>P260 Do not breathe vapour/spray.</p> <p>P280 Wear protective gloves/protective clothing/eye protection/face protection.</p> <p>P284 [In case of inadequate ventilation] wear respiratory protection.</p> <p>P302+P352 IF ON SKIN: Wash with plenty of water.</p> <p>P304+P340 IF INHALED: Remove person to fresh air and keep comfortable for breathing.</p> <p>P305+P351+P338 IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing.</p> <p>P308+P311 IF exposed or concerned: Call a POISON CENTER or doctor.</p>
Contains	Isocyanic Acid, polymethylenepolyphenylene ester, DIPHENYLMETHANE -4, 4'- DI-ISOCYANATE

2.3. Other hazards

This substance is not classified as PBT or vPvB according to current EU criteria.

SECTION 3: Composition/information on ingredients

3.2. Mixtures

Isocyanic Acid, polymethylenepolyphenylene ester	60-100%
CAS number: 9016-87-9	
Classification	Classification (67/548/EEC or 1999/45/EC)
Skin Irrit. 2 - H315	Xn;R20,R48/20. Carc. Cat. 3;R40. Xi;R36/37/38. R42/43.
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	

TradeBond

DIPHENYLMETHANE -4, 4'- DI-ISOCYANATE		30-60%
CAS number: 101-68-8		EC number: 202-966-0
Classification	Classification (67/548/EEC or 1999/45/EC)	
Skin Irrit. 2 - H315	Carc. Cat. 3;R40 Xn;R20,R48/20 Xi;R36/37/38 R42/43	
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		

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

SECTION 4: First aid measures

4.1. Description of first aid measures

General information	Avoid any actions which may cause undue risk. Only trained personnel should use this material.
Inhalation	Move affected person to fresh air at once. When breathing is difficult, properly trained personnel may assist affected person by administering oxygen. Treatment is symptomatic for primary irritation or bronchospasm. If breathing is laboured, oxygen should be administered by qualified personnel. Get medical attention immediately.
Ingestion	Never give anything by mouth to an unconscious person. If swallowed, rinse mouth with water (only if the person is conscious). Get medical attention if any discomfort continues. Do not induce vomiting unless directed to do so by medical personnel.
Skin contact	Wash skin thoroughly with soap and water. Get medical attention if irritation persists after washing. Wash contaminated clothing before reuse.
Eye contact	Important! Immediately rinse with water for at least 15 minutes. Get medical attention immediately.

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

Inhalation	May irritate eyes. Irritation of nose, throat and airway. Dryness of mouth and throat. Coughing. Difficulty in breathing. Asthma. This product is a respiratory irritant and potential respiratory sensitiser: repeated inhalation of vapour or aerosol at levels above the OEL could cause respiratory sensitisation. The onset of the respiratory symptoms may be delayed for several hours after exposure. A hyper-reactive response to even minimal concentrations of MDI may develop in sensitised persons.
Ingestion	Low oral toxicity. Ingestion may cause irritation of the gastrointestinal tract.
Skin contact	Irritating to skin. May cause sensitisation by skin contact. Animal studies have shown that respiratory sensitisation can be induced by skin contact with known respiratory sensitisers including diisocyanates. Wear protective clothing as described in Section 8 of this safety data sheet. For personal protection, see Section 8. Prolonged skin contact may cause redness and irritation. Chemical-resistant, impervious gloves complying with an approved standard should be worn if a risk assessment indicates skin contact is possible.
Eye contact	Irritating to eyes. Prolonged contact may cause redness and/or tearing.

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

TradeBond

Notes for the doctor Treat symptomatically. Following severe exposure the patient should be kept under medical review for at least 48 hours.

SECTION 5: Firefighting measures

5.1. Extinguishing media

Suitable extinguishing media Foam, carbon dioxide or dry powder.

Unsuitable extinguishing media Do not use water, if avoidable. Avoid discharge into drains or watercourses or onto the ground. Cool containers exposed to heat with water spray and remove them from the fire area if it can be done without risk. Reaction between water and hot isocyanate may be vigorous.

5.2. Special hazards arising from the substance or mixture

Specific hazards None.

Hazardous combustion products Carbon monoxide (CO). Carbon dioxide (CO₂). Oxides of: Nitrogen.

5.3. Advice for firefighters

Protective actions during firefighting Evacuate all unnecessary personnel.

Special protective equipment for firefighters Wear positive-pressure self-contained breathing apparatus (SCBA) and appropriate protective clothing. Wear self-contained breathing apparatus with full facepiece. PVC boots, gloves, safety helmet and protective clothing should be worn. Closed containers can burst violently when heated, due to excess pressure build-up.

SECTION 6: Accidental release measures

6.1. Personal precautions, protective equipment and emergency procedures

Personal precautions CAUTION! First aid personnel must be aware of own risk during rescue! Do not touch or walk into spilled material. Provide adequate ventilation. If ventilation is inadequate, suitable respiratory protection must be worn. Avoid breathing vapours. Wear protective clothing. Evacuate area.

6.2. Environmental precautions

Environmental precautions Avoid the spillage or runoff entering drains, sewers or watercourses.

6.3. Methods and material for containment and cleaning up

Methods for cleaning up Small Spillages: Stop leak if possible without any risk. Absorb spillage with non-combustible, absorbent material. Collect and place in suitable waste disposal containers and seal securely. For waste disposal, see Section 13. Large Spillages: Contain and absorb spillage with sand, earth or other non-combustible material. Do not absorb in sawdust or other combustible materials. Shovel into open top drums for further decontamination. Flush contaminated area with plenty of water. Test the atmosphere for MDI vapour. Remove and dispose of residues.

6.4. Reference to other sections

Reference to other sections For personal protection, see Section 8. For waste disposal, see section 13.

SECTION 7: Handling and storage

7.1. Precautions for safe handling

TradeBond

Usage precautions For personal protection, see Section 8. Avoid contact with skin and eyes. Avoid contact with clothing. Harmful if swallowed. Provide adequate ventilation. If ventilation is inadequate, suitable respiratory protection must be worn. Store in tightly-closed, original container. Do not eat, drink or smoke when using the product. Wash hands at the end of each work shift and before eating, smoking and using the toilet. Personnel with a history of asthma-type conditions, bronchitis or skin sensitisation conditions should not work with MDI based products. Do not handle until all safety precautions have been read and understood. Avoid breathing vapours.

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. Keep away from food, drink and animal feeding stuffs. Keep containers upright. Use appropriate containment to avoid environmental contamination. Protect against direct sunlight. Keep away from heat, sparks and open flame. Store locked up.

7.3. Specific end use(s)

Specific end use(s) Not available.

Usage description Not available.

SECTION 8: Exposure Controls/personal protection

8.1. Control parameters

Occupational exposure limits

Isocyanic Acid, polymethylenepolyphenylene ester

Long-term exposure limit (8-hour TWA): WEL 0.02 mg/m³

Short-term exposure limit (15-minute): WEL 0.07 mg/m³

Skin sensitiser.

as NCO

DIPHENYLMETHANE -4, 4'- DI-ISOCYANATE

Long-term exposure limit (8-hour TWA): WEL 0,01 mg/m³

Short-term exposure limit (15-minute): WEL 0,07 mg/m³

as NCO

Sen

WEL = Workplace Exposure Limit

Sen = Capable of causing occupational asthma.

Ingredient comments EH40/2005 Workplace exposure limits. Medical supervision of all employees who come into contact with respiratory sensitisers is recommended. Personnel with a history of asthma-type conditions, bronchitis or skin sensitisation conditions should not work with MDI based products. The OELs listed do not apply to previously sensitised individuals. Sensitised individuals should be removed from any further exposure.

Biological limit values Derived Effect Levels: No DELs available, Derived Effect Levels: No DELs available, Derived Effect Levels: No DELs available Predicated Effect Levels: No PECs available Predicated Effect Levels: No PECs available Predicated Effect Levels: No PECs available

8.2. Exposure controls

Appropriate engineering controls Provide adequate general and local exhaust ventilation. Observe any occupational exposure limits for the product or ingredients.

Personal protection Overalls.

Eye/face protection Eyewear complying with an approved standard should be worn if a risk assessment indicates eye contact is possible. The following protection should be worn: Chemical splash goggles.

TradeBond

Hand protection	Wear protective gloves made of the following material: Butyl rubber. Laminate of polyethylene and ethylene vinyl alcohol (PE/EVOH). Neoprene. Nitrile rubber. Polyvinyl chloride (PVC). Viton rubber (fluoro rubber). 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.
Hygiene measures	Wash hands after handling. Wash hands at the end of each work shift and before eating, smoking and using the toilet. Remove contaminated clothing. Wash contaminated clothing before reuse. Eye wash facilities and emergency shower must be available when handling this product.
Respiratory protection	If ventilation is inadequate, suitable respiratory protection must be worn.
Environmental exposure controls	Emissions from ventilation or work process equipment should be checked to ensure they comply with the requirements of environmental protection legislation.

SECTION 9: Physical and Chemical Properties

9.1. Information on basic physical and chemical properties

Appearance	Liquid.
Colour	Brown.
Odour	Musty (mouldy).
Odour threshold	Not available. Not available.
pH	Not available.
Melting point	Not available.
Initial boiling point and range	Not available.
Flash point	230°C CC (Closed cup).
Evaporation rate	Not available.
Upper/lower flammability or explosive limits	Not available.
Vapour pressure	Not available.
Vapour density	8.5
Relative density	1.23 @ °C
Bulk density	1.23 g/cm ³ [25°C (77°F)]
Solubility(ies)	Insoluble in water.
Partition coefficient	Not applicable. : reacts with water and octanol
Auto-ignition temperature	Not available.
Decomposition Temperature	Not available.
Viscosity	Dynamic: 180 - 240 s @ 25°C
Explosive properties	Not available.
Oxidising properties	Not available.

9.2. Other information

Other information	Not available.
--------------------------	----------------

SECTION 10: Stability and reactivity

TradeBond

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 Reacts with water. Reactions with the following materials may generate heat: Hydrogen.

10.4. Conditions to avoid

Conditions to avoid Avoid exposure to high temperatures or direct sunlight.

10.5. Incompatible materials

Materials to avoid Water Alcohols. Amines. Bases and acids.

10.6. Hazardous decomposition products

Hazardous decomposition products Carbon dioxide (CO₂). Carbon monoxide (CO). Oxides of the following substances: Nitrogen. Hydrocarbons. Hydrogen cyanide (HCN).

SECTION 11: Toxicological information

11.1. Information on toxicological effects

Acute toxicity - inhalation

ATE inhalation (gases ppm) 11,363.64

ATE inhalation (vapours mg/l) 27.78

ATE inhalation (dusts/mists mg/l) 3.76

Respiratory sensitisation

Respiratory sensitisation Rat: Isocyanic Acid, polymethylenepolyphenylene ester - Sensitising Diphenylmethane4,4'-Guinea Pig - Sensitising

Skin sensitisation

Skin sensitisation - Guinea pig: Not sensitising.

Germ cell mutagenicity

Genotoxicity - in vitro : Negative.

Carcinogenicity

Carcinogenicity CARCINOGENICITY: Isocyanic Acid - OECD453 COMBINED CHRONIC TOXICITY/CARCINOGENICITY STUDIES, 2 YEARS, 5 DAYS PER WEEK, NEGATIVE , Inhalation, Rat CARCINOGENICITY: Diphenylmethane4,4' - OECD 453 COMBINED TOXICITY/CARCINOGENICITY STUDIES, 2 YEARS; 5 DAYS PER WEEK, POSITIVE , Inhalation, Rat

Reproductive toxicity

Reproductive toxicity - fertility - NOAEL Diphenylmethane4,4' - OECD 414 PRENATAL DEVELOPMENTAL TOXICITY STUDY 12 mg/m³ , , Rat Isocyanic Acid, polymethylenepolyphenylene ester - OECD 414 PRENATAL DEVELOPMENT TOXICITY STUDY 4mg/m³ RAT

Specific target organ toxicity - single exposure

STOT - single exposure CATEGORY 3 , Inhalation,

TradeBond

Target organs Respiratory system, lungs

Specific target organ toxicity - repeated exposure

STOT - repeated exposure CATEGORY 2 , Inhalation,

Target organs Respiratory system, lungs

General information May cause damage to organs if inhaled. The product contains a sensitising substance. May cause sensitisation or allergic reactions in sensitive individuals.

Inhalation Irritation of nose, throat and airway. Difficulty in breathing. Dryness of mouth and throat. This product is a respiratory irritant and potential respiratory sensitiser: repeated inhalation of vapour or aerosol at levels above the OEL could cause respiratory sensitisation. The onset of the respiratory symptoms may be delayed for several hours after exposure. A hyper-reactive response to even minimal concentrations of MDI may develop in sensitised persons.

Ingestion Low oral toxicity. Ingestion may cause irritation of the gastrointestinal tract.

Skin contact Irritating to skin. May cause sensitisation by skin contact. Animal studies have shown that respiratory sensitisation can be induced by skin contact with known respiratory sensitisers including diisocyanates. Chemical-resistant, impervious gloves complying with an approved standard should be worn if a risk assessment indicates skin contact is possible. Wear protective clothing as described in Section 8 of this safety data sheet.

Eye contact Irritating to eyes.

Acute and chronic health hazards CHRONIC EFFECTS: Isocyanic Acid, polymethylenepolyphenylene ester - OECD453 COMBINED CHRONIC TOXICITY/CARCINOGENICITY STUDIES - NOEC DUST AND MISTS - 0.2mg/m³

Route of entry Not available.

Toxicological information on ingredients.

Isocyanic Acid, polymethylenepolyphenylene ester

Acute toxicity - oral

Acute toxicity oral (LD₅₀ mg/kg) 10,000.0

Species Rat

Acute toxicity - dermal

Acute toxicity dermal (LD₅₀ mg/kg) 9,400.0

Species Rabbit

Acute toxicity - inhalation

Acute toxicity inhalation (LC₅₀ dust/mist mg/l) 310.0

Species Rat

ATE inhalation (dusts/mists mg/l) 310.0

Respiratory sensitisation

Respiratory sensitisation Rat: Sensitising.

TradeBond

Skin sensitisation

Skin sensitisation - Guinea pig: Not sensitising.

Germ cell mutagenicity

Genotoxicity - in vitro : Negative., Inconclusive.

Carcinogenicity

Carcinogenicity OECD 453 Combined Chronic Toxicity/Carcinogenicity Studies: Negative (2 years; 5 days per week) , Inhalation, Rat EU: Negative (2 years; 5 days per week) , Inhalation, Rat OECD 453 Combined Chronic Toxicity/Carcinogenicity Studies (NOEC Dusts and mists): 0.2 mg/kg, Inhalation,

Reproductive toxicity

Reproductive toxicity - fertility Fertility: - 4 (OECD 414 Prenatal Developmental Toxicity Study) mg/kg, , Rat

Specific target organ toxicity - single exposure

STOT - single exposure Category 3 , Inhalation,

Target organs Respiratory system, lungs

Specific target organ toxicity - repeated exposure

STOT - repeated exposure Category 2 , Inhalation,

Target organs Respiratory system, lungs

DIPHENYLMETHANE -4, 4'- DI-ISOCYANATE

Respiratory sensitisation

Respiratory sensitisation Sensitising.

Skin sensitisation

Skin sensitisation - Guinea pig: Not sensitising.

Germ cell mutagenicity

Genotoxicity - in vitro : Negative.

Carcinogenicity

Carcinogenicity OECD 453 Combined Chronic Toxicity/Carcinogenicity Studies: Positive (2 years; 5 days per week) , Inhalation, Rat

Target organ for carcinogenicity Respiratory system, lungs

Reproductive toxicity

Reproductive toxicity - development Developmental toxicity: - NOAEL: 12 mg/kg, , Rat

Specific target organ toxicity - single exposure

STOT - single exposure Category 3 , Inhalation,

Target organs Respiratory system, lungs

Specific target organ toxicity - repeated exposure

TradeBond

STOT - repeated exposure Category 2 , Inhalation,

SECTION 12: Ecological Information

12.1. Toxicity

Acute toxicity - fish , : ,

Ecological information on ingredients.

Isocyanic Acid, polymethylenepolyphenylene ester

Acute toxicity - fish	LC ₅₀ , 96 hours: LC 50, 96 HOURS STATIC, FISH, >1000 mg/L mg/l, Fish
Acute toxicity - aquatic invertebrates	EC ₅₀ , 48 hours: EC50, 24 HOURS STATIC, DAPHNIA, >1000 mg/L mg/l, Daphnia magna
Acute toxicity - aquatic plants	IC ₅₀ , 72 hours: EC50, 72 HOURS STATIC, ALGAE, >1640 mg/L mg/l, Algae

DIPHENYLMETHANE -4, 4'- DI-ISOCYANATE

Acute toxicity - fish	LC ₅₀ , 96 hours: Acute, LC50, 96 Hours, Static, Fish, >1000 mg/L mg/l, Fish
------------------------------	---

12.2. Persistence and degradability

Biodegradation The product is not readily biodegradable.

12.3. Bioaccumulative potential

Bioaccumulative potential The product contains potentially bioaccumulating substances.

Partition coefficient Not applicable. : reacts with water and octanol

12.4. Mobility in soil

Mobility Immiscible with water, but will react with water to produce inert and non-biodegradeable solids. Unlikely that significant environmental exposure in the air or water will arise, under normal use.

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.

12.6. Other adverse effects

Other adverse effects None known.

SECTION 13: Disposal considerations

13.1. Waste treatment methods

Disposal methods Waste is classified as hazardous waste. Dispose of waste to licensed waste disposal site in accordance with the requirements of the local Waste Disposal Authority. Empty containers may contain hazardous residues. Avoid the spillage or runoff entering drains, sewers or watercourses. Avoid or minimise generation of waste.

SECTION 14: Transport information

General The product is not covered by international regulations on the transport of dangerous goods (IMDG, IATA, ADR/RID).

14.1. UN number

TradeBond

Not applicable.

UN No. (IMDG)

UN No. (ICAO)

14.2. UN proper shipping name

Not applicable.

14.3. Transport hazard class(es)

Not applicable.

ADR/RID class

ADR/RID subsidiary risk

ADR/RID label

IMDG class

IMDG subsidiary risk

ICAO class/division

ICAO subsidiary risk

Transport labels

14.4. Packing group

Not applicable.

ADR/RID packing group

IMDG packing group

ICAO packing group

14.5. Environmental hazards

Environmentally hazardous substance/marine pollutant

No.

14.6. Special precautions for user

Not applicable.

EmS

Emergency Action Code

**Hazard Identification Number
(ADR/RID)**

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

Transport in bulk according to Not applicable.

**Annex II of MARPOL 73/78
and the IBC Code**

SECTION 15: Regulatory information

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

National regulations

The Chemicals (Hazard Information and Packaging for Supply) Regulations 2009 (SI 2009 No. 716).
Health and Safety at Work etc. Act 1974 (as amended).

TradeBond

Authorisations (Title VII Regulation 1907/2006) Not applicable.

15.2. Chemical safety assessment

Not known.

SECTION 16: Other information

Revision date 27/09/2011

Risk phrases in full R20 Harmful by inhalation.
R36/37/38 Irritating to eyes, respiratory system and skin.
R40 Limited evidence of a carcinogenic effect.
R42/43 May cause sensitisation by inhalation and skin contact.
R48/20 Harmful: danger of serious damage to health by prolonged exposure through inhalation.

Hazard statements in full H315 Causes skin irritation.
H317 May cause an allergic skin reaction.
H319 Causes serious eye irritation.
H332 Harmful if inhaled.
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.
H373 May cause damage to organs through prolonged or repeated exposure if inhaled.