The Rubber Company

Manufacturers · Designers · Distributors

Experts in Rubber

HypaBond Part B Curing Agent Safety Datasheet

Product Code: RC13101

Section 1: Identification of the Substance/Mixture and of the Company/Undertaking

1.1 Product identifier

Product name	HypaBond 250ml / 1L Part B
Product form	Mixture
Product number	RC13101

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

Use of the substance/mixture	Adhesive.
Uses advised against	No additional information available.

1.3 Details of the supplier of the safety datasheet

Company name and address	The Rubber Company Limited Unit 21 Romsey Industrial Estate Greatbridge Road, Romsey, Hampshire, SO51 0HR, United Kingdom
Telephone number	+44 (0) 1794 513184
Email address	sales@therubbercompany.com

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Section 2: Hazardous identification

2.1 Classification of the substance or mixture

Regulation (EC) no. 1272/2008 (CLP)

Flam. Liq. 2	H225
Skin Irrit. 2	H315
Eye Irrit. 2	H319
Resp. Sens. 1	H334
Skin Sens. 1	H317
Carc. 2	H351
STOT SE 3	H336
STOT SE 3	H335
STOT RE 2	H373

Full text of hazard classes and H-statements: see section 16

Adverse physicochemical, human health and environmental effects

No additional information available.

2.2 Label elements

According to Regulation (EC) No. 1272/2008 (CLP)
Hazard pictograms (CLP)

GHS02 GHS07 GHS08

Signal word (CLP)	Danger
Contains	Ethyl acetate; Diphenylmethane Diisocyanate, isomers and homologues.

Hazard statements	H225: Highly flammable liquid and vapour. 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. H336: May cause drowsiness or dizziness. H351: Suspected of causing cancer. H373: May cause damage to organs (respiratory system) through prolonged or repeated exposure (if inhaled).
Precautionary statements (CLP)	P210: Keep away from heat, hot surfaces, sparks, open flames and other ignition sources. No smoking. P304+P340: IF INHALED: Remove person to fresh air and keep comfortable for breathing. P342+P311: If experiencing respiratory symptoms: Call doctor. P403+P235: Store in a well-ventilated place. Keep cool.
EU specific hazard statements	EUH204: Contains isocyanates. May produce an allergic reaction.
Extra phrases	Persons already sensitised to diisocyanates may develop allergic reactions when using this product. Persons suffering from asthma, eczema or skin problems should avoid contact, including dermal contact, with this product. 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.

2.3 Other hazards

This substance/mixture does not meet the PBT criteria of REACH regulation, annex XIII.
This substance/mixture does not meet the vPvB criteria of REACH regulation, annex XIII.

Section 3: Composition/Information on Ingredients

3.1 Substances

Not applicable

3.2 Mixtures

Chemical Name	Product Identifier	%	Classification According to Regulation (EC) No. 1272/2008 [CLP]
Ethyl acetate	(CAS-No.) 141-78-6 (EC No.) 205-500-4 (EC index No.) 607-022-00-5 (REACH-no) 01-2119475103-46-XXXX	60-100	Flam. Liq. 2, H225 Eye Irrit. 2, H319 STOT SE 3, H336
Diphenylmethane Diisocyanate, isomers and homologues	(CAS-No.) 9016-87-9 (EC index No.) 615-005-00-9 (REACH-no) 01-2119457024-46-XXXX	10-30	Acute Tox. 4 (Inhalation), 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
Diphenylmethane-4,4'-di-isocyanate	(CAS-No.) 101-68-8 (EC No.) 202-966-0 (EC index No.) 615-005-00-9 (REACH-no) 01-2119457014-47-XXXX	5-10	Acute Tox. 4 (Inhalation), 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
o-(p-isocyanatobenzyl)phenyl isocyanate; diphenylmethane-2,4'-diisocyanate	(CAS-No.) 5873-54-1 (EC No.) 227-534-9 (EC index No.) 615-005-00-9 (REACH-no) 01-2119480143-45-XXXX	<1	Carc. 2, H351 Acute Tox. 4 (Inhalation), H332 STOT RE 2, H373 Eye Irrit. 2, H319 STOT SE 3, H335 Skin Irrit. 2, H315 Resp. Sens. 1, H334 Skin Sens. 1, H317

Chemical Name	Product Identifier	%	Classification According to Regulation (EC) No. 1272/2008 [CLP]
2,2'-methylenediphenyl diisocyanate; diphenylmethane-2,2'-diisocyanate	(CAS-No.) 2536-05-2 (EC No.) 219-799-4 (EC index No.) 615-005-00-9 (REACH-no) 01-2119927323-43-XXXX	<1	Carc. 2, H351 Acute Tox. 4 (Inhalation), H332 STOT RE 2, H373 Eye Irrit. 2, H319 STOT SE 3, H335 Skin Irrit. 2, H315 Resp. Sens. 1, H334 Skin Sens. 1, H317

Full text of H-statements: see section 16.

Section 4: First Aid Measures

4.1 Description of first aid measures

General Never give anything by mouth to an unconscious person. If you feel unwell, seek medical advice (show the label where possible).

Inhalation Remove person to fresh air, keep the patient warm and at rest. If symptoms develop, obtain medical attention.

Skin contact Remove affected clothing and wash all exposed skin area with mild soap and water, followed by warm water rinse. If skin irritation or rash occurs: Get medical advice/attention.

Eye contact Rinse cautiously with water for several minutes. Ensure that folded skin of eyelids is thoroughly washed with water. Remove contact lenses, if present and easy to do. Continue rinsing. If eye irritation persists: Get medical advice/attention.

Ingestion Do NOT induce vomiting. Never give anything by mouth to an unconscious person. Rinse mouth. Give 100 - 200 ml of water to drink. Obtain medical attention.

4.2 Most important symptoms and effects, both acute and delayed

Inhalation	May cause drowsiness or dizziness. Nausea. May cause respiratory irritation. May cause allergy or asthma symptoms or breathing difficulties if inhaled. Even minimal concentrations of isocyanate can lead to a reaction in sensitised people. Symptoms that may occur include the following: irritation of the eyes, nose, throat and lungs, possibly together with a dry throat, a feeling of chest tightness and breathing difficulties. The symptoms may only arise several hours after exposure.
Skin contact	Causes skin irritation. May cause an allergic skin reaction. Animal research has shown that skin contact with substances known to have a sensitising effect on airways, such as diisocyanate, can cause airways to be sensitised.
Eye Contact	Causes serious eye irritation.
Ingestion	Ingestion may cause discomfort. May cause stomach pain or vomiting if ingested.
Chronic symptoms	Suspected of causing cancer. May cause damage to organs (respiratory system) through prolonged or repeated exposure (if inhaled).

4.3 Indication of any immediate medical attention and special treatment needed

In instances of existing sensitisation towards isocyanates, a doctor should be consulted with regards to work-related contact with other sensitising substances, or substances which irritate the airway. Treatment for exposure should be geared towards monitoring symptoms and the patient's clinical condition. It must be ensured that the patient has sufficient ventilation and oxygen supply. Isocyanates can cause sensitisation of the airways, or asthma-like symptoms (bronchospasms). Delayed breathing symptoms, including lung oedema, may occur. People who have shown signs of breathlessness after considerable exposure should remain under observation for 24-48 hours.

Section 5: Firefighting Measures

5.1 Extinguishing media

Suitable extinguishing media	Alcohol-resistant foam. Carbon dioxide. Dry chemical. For large fire: Water spray.
Unsuitable extinguishing media	Do not use water jet.

5.2 Special hazards arising from the substance or mixture

Fire hazard	Highly flammable liquid and vapour. Vapours are heavier than air and may travel considerable distance to an ignition source and flash back to source of vapours.
Explosion hazard	May form flammable/explosive vapour-air mixture. May form explosive peroxides.
Hazardous decomposition products in case of fire	Carbon monoxide. Carbon dioxide. Nitrogen oxides.

5.3 Indication of any immediate medical attention and special treatment needed

Firefighting instructions	Move containers from fire area if you can do it without risk. Cool closed containers exposed to fire with water spray. Exercise caution when fighting any chemical fire. Avoid fire-fighting water entering the environment.
Protection during firefighting	As in any fire, wear self-contained breathing apparatus and full protective gear.

Section 6: Accidental Release Measures

6.1 Personal precautions, protective equipment and emergency procedures

6.1.1 For non-emergency personnel

Emergency procedures	Remove ignition sources. Ventilate area. Do not breathe vapours. Avoid contact with eyes, skin and clothing. Evacuate unnecessary personnel.

6.1.2 For emergency responders

Protective equipment	Use personal protective equipment as required. In case of inadequate ventilation wear respiratory protection. See Section 8.
Emergency procedures	Remove ignition sources. Use only non-sparking tools. Ventilate area. Do not breathe vapours. Avoid contact with eyes, skin and clothing.

6.2 Environmental precautions

Prevent entry to sewers and public waters. Notify authorities if large amounts of the product enters sewers or public waters.

6.3 Methods and material for containment and cleaning up

For containment	Stop leak, if possible without risk. Dam up the liquid spill.
Methods for cleaning up	Liquid: Absorb with earth, sand or other non-combustible material and transfer to containers for later disposal. Cured product: Pick up mechanically. Dispose in a safe manner in accordance with local/national regulations.

6.4 Reference to other sections

Section 8: Exposure controls/personal protection.
Section 13: Disposal considerations

Section 7: Handling and Storage

7.1 Precautions for safe handling

Additional hazards when processed	Handle empty containers with care because residual vapours are flammable.
Precautions for safe handling	Keep away from heat, hot surfaces, sparks, open flames and other ignition sources. No smoking. The vapour is heavier than air, spreads along the ground and distant ignition is possible. Use only non-sparking tools. Take precautionary measures against static discharge. Use explosion-proof equipment. Do not handle until all safety precautions have been read and understood. Avoid contact with skin, eyes and clothing. Do not breathe vapours. Provide good ventilation in process area to prevent formation of vapour. Use only outdoors or in a well-ventilated area.

Hygiene measures	Handle in accordance with good industrial hygiene and safety practice. Do not eat, drink or smoke when using this product. Wash hands and other exposed areas with mild soap and water before eating, drinking or smoking and when leaving work. Take off contaminated clothing and wash it before reuse. Contaminated work clothing should not be allowed out of the workplace.

7.2 Conditions for safe storage, including any incompatibilities

Storage conditions	Keep away from heat, hot surfaces, sparks, open flames and other ignition sources. No smoking. Keep only in original container. Store tightly closed in a dry, cool and well ventilated place.
Incompatible materials	Strong oxidising agents. Strong acids. Strong alkalis.
Storage temperature	5 - 25°C

7.3 Specific end uses

Adhesive.

Section 8: Exposure Controls/Personal Protection

8.1 Control parameters

8.1.1 National occupational exposure and biological limit values

Ethyl acetate (141-78-6)	
EU - Indicative Occupational Exposure Limit (IOEL)	
Local name	Ethyl acetate
IOELV TWA (mg/m³)	734 mg/m³
IOELV TWA (ppm)	200 ppm
IOELV STEL (mg/m³)	1468 mg/m³
IOELV STEL (ppm)	400 ppm
Regulatory reference	COMMISSION DIRECTIVE (EU) 2017/164
Ireland - Occupational Exposure Limits	
Local name	Ethyl acetate
OEL (8 hours ref) (mg/m³)	734 mg/m³
OEL TWA [2]	200 ppm
OEL (15 min ref) (mg/m3)	1468 mg/m³
OEL STEL [ppm]	400 ppm
Notes (IE)	IOELV (Indicative Occupational Exposure Limit Values)
Regulatory reference	Chemical Agents Code of Practice 2020
United Kingdom - Occupational Exposure Limits	
Local name	Ethyl acetate
WEL TWA (mg/m³)	734 mg/m³
WEL TWA (ppm)	200 ppm
WEL STEL (mg/m³)	1468 mg/m³
WEL STEL (ppm)	400 ppm
Regulatory reference	EH40/2005 (Fourth edition, 2020). HSE

Diphenylmethane Diisocyanate, isomers and homologues (9016-87-9)	
Ireland - Occupational Exposure Limits	
Local name	Isocyanates, All, (as -NCO) except Methyl isocyanate and Toluene (2,4 or 2,6 diisocyanate)
OEL (8 hours ref) (mg/m³)	0.02 mg/m³
OEL (15 min ref) (mg/m3)	0.07 mg/m³
Notes (IE)	Sens. (In the workplace respiratory or dermal exposures to sensitising agents may occur. Sensitizers may evoke respiratory or dermal reactions, e.g. asthma, rhinitis and allergic contact dermatitis. The notation does not distinguish between respiratory or dermal sensitisation. Chemical agents that are sensitizers present special problems in the workplace. Should an employee become sensitised, subsequent exposure may cause intense responses, even at low exposure concentrations well below the OELV. Exposure should be eliminated or significantly reduced through control measures such as engineering and process controls and use of personal protective equipment (PPE)).
Regulatory reference	Chemical Agents Code of Practice 2020
Ireland - Biological Limit Values	
Local name	Isocyanates
BLV	1 µmol/mol creatinine Parameter: urinary diamine - Medium: urine - Sampling time: Post task
Regulatory reference	Biological Monitoring Guidelines (HSA, 2011)
United Kingdom - Occupational Exposure Limits	
Local name	Isocyanates, all (as –NCO)
WEL TWA (mg/m³)	0.02 mg/m³
WEL STEL (mg/m³)	0.07 mg/m³
Remark (WEL)	Sen
Regulatory reference	EH40/2005 (Fourth edition, 2020). HSE
United Kingdom - Biological Limit Values	
Local name	Isocyanates (applies to HDI, IPDI, TDI and MDI)
BMGV	1 µmol/mol creatinine Parameter: isocyanate-derived diamine - Medium: urine - Sampling time: At the end of the period of exposure.
Regulatory reference	EH40/2005 (Fourth edition, 2020). HSE

Diphenylmethane-4,4'-di-isocyanate (101-68-8)	
Ireland - Occupational Exposure Limits	
Local name	4,4'-Methylene-diphenyl diisocyanate (as —NCO) [MDI]
OEL TWA [2]	0.005 ppm
OEL (15 min ref) (mg/m3)	0.07 mg/m³
Notes (IE)	Sens. (In the workplace respiratory or dermal exposures to sensitising agents may occur. Sensitizers may evoke respiratory or dermal reactions, e.g. asthma, rhinitis and allergic contact dermatitis. The notation does not distinguish between respiratory or dermal sensitisation. Chemical agents that are sensitizers present special problems in the workplace. Should an employee become sensitised, subsequent exposure may cause intense responses, even at low exposure concentrations well below the OELV. Exposure should be eliminated or significantly reduced through control measures such as engineering and process controls and use of personal protective equipment (PPE)).
Regulatory reference	Chemical Agents Code of Practice 2020
Ireland - Biological Limit Values	
Local name	Isocyanates
BLV	1 µmol/mol creatinine Parameter: urinary diamine - Medium: urine - Sampling time: Post task.
Regulatory reference	Biological Monitoring Guidelines (HSA, 2011)
United Kingdom - Occupational Exposure Limits	
Local name	Isocyanates, all (as –NCO)
WEL TWA (mg/m³)	0.02 mg/m³
WEL STEL (mg/m³)	0.07 mg/m³
Remark (WEL)	Sen
Regulatory reference	EH40/2005 (Fourth edition, 2020). HSE
United Kingdom - Biological Limit Values	
Local name	Isocyanates (applies to HDI, IPDI, TDI and MDI)
BMGV	1 µmol/mol creatinine Parameter: isocyanate-derived diamine - Medium: urine - Sampling time: At the end of the period of exposure.
Regulatory reference	EH40/2005 (Fourth edition, 2020). HSE

o-(p-isocyanatobenzyl)phenyl isocyanate; diphenylmethane-2,4'-diisocyanate (5873-54-1)	
Ireland - Occupational Exposure Limits	
Local name	Isocyanates, All, (as -NCO) except Methyl isocyanate and Toluene (2,4 or 2,6 diisocyanate)
OEL (8 hours ref) (mg/m³)	0.02 mg/m³
OEL (15 min ref) (mg/m3)	0.07 mg/m³
Notes (IE)	Sens. (In the workplace respiratory or dermal exposures to sensitising agents may occur. Sensitizers may evoke respiratory or dermal reactions, e.g. asthma, rhinitis and allergic contact dermatitis. The notation does not distinguish between respiratory or dermal sensitisation. Chemical agents that are sensitizers present special problems in the workplace. Should an employee become sensitised, subsequent exposure may cause intense responses, even at low exposure concentrations well below the OELV. Exposure should be eliminated or significantly reduced through control measures such as engineering and process controls and use of personal protective equipment (PPE)).
Regulatory reference	Chemical Agents Code of Practice 2020
Ireland - Biological Limit Values	
Local name	Isocyanates
BLV	1 µmol/mol creatinine Parameter: urinary diamine - Medium: urine - Sampling time: Post task.
Regulatory reference	Biological Monitoring Guidelines (HSA, 2011)
United Kingdom - Occupational Exposure Limits	
Local name	Isocyanates
WEL TWA (mg/m³)	0.02 mg/m³ all (as –NCO) Except methyl isocyanate
WEL STEL (mg/m³)	0.07 mg/m³ all (as –NCO) Except methyl isocyanate
Remark (WEL)	Sen (Capable of causing occupational asthma)
Regulatory reference	EH40/2005 (Fourth edition, 2020). HSE
United Kingdom - Biological Limit Values	
Local name	Isocyanates (applies to HDI, IPDI, TDI and MDI)
BMGV	1 µmol/mol creatinine Parameter: isocyanate-derived diamine - Medium: urine - Sampling time: At the end of the period of exposure.
Regulatory reference	EH40/2005 (Fourth edition, 2020). HSE

2,2'-methylenediphenyl diisocyanate; diphenylmethane-2,2'-diisocyanate (2536-05-2)	
Ireland - Occupational Exposure Limits	
Local name	Isocyanates, All, (as -NCO) except Methyl isocyanate and Toluene (2,4 or 2,6 diisocyanate)
OEL (8 hours ref) (mg/m³)	0.02 mg/m³
OEL (15 min ref) (mg/m3)	0.07 mg/m³
Notes (IE)	Sens. (In the workplace respiratory or dermal exposures to sensitising agents may occur. Sensitizers may evoke respiratory or dermal reactions, e.g. asthma, rhinitis and allergic contact dermatitis. The notation does not distinguish between respiratory or dermal sensitisation. Chemical agents that are sensitizers present special problems in the workplace. Should an employee become sensitised, subsequent exposure may cause intense responses, even at low exposure concentrations well below the OELV. Exposure should be eliminated or significantly reduced through control measures such as engineering and process controls and use of personal protective equipment (PPE)).
Regulatory reference	Chemical Agents Code of Practice 2020
Ireland - Biological Limit Values	
Local name	Isocyanates
BLV	1 µmol/mol creatinine Parameter: urinary diamine - Medium: urine - Sampling time: Post task.
Regulatory reference	Biological Monitoring Guidelines (HSA, 2011)
United Kingdom - Occupational Exposure Limits	
Local name	Isocyanates
WEL TWA (mg/m³)	0.02 mg/m³ all (as –NCO) Except methyl isocyanate
WEL STEL (mg/m³)	0.07 mg/m³ all (as –NCO) Except methyl isocyanate
Remark (WEL)	Sen (Capable of causing occupational asthma)
Regulatory reference	EH40/2005 (Fourth edition, 2020). HSE
United Kingdom - Biological Limit Values	
Local name	Isocyanates (applies to HDI, IPDI, TDI and MDI)
BMGV	1 µmol/mol creatinine Parameter: isocyanate-derived diamine - Medium: urine - Sampling time: At the end of the period of exposure.
Regulatory reference	EH40/2005 (Fourth edition, 2020). HSE

8.1.2 Recommended monitoring procedure

No additional information available

8.1.3 Air containment formed

No additional information available

8.1.4 DNEL and PNEC

Ethyl acetate (141-78-6)		
Type	**Exposure route**	**Level**
DNEL/DMEL (Workers)		
Acute - systemic effects	Inhalation	1468 mg/m³
Acute - local effects	Inhalation	1468 mg/m³
Long-term - systemic effects	Dermal	63 mg/kg bodyweight/day
Long-term - systemic effects	Inhalation	734 mg/m³
Long-term - local effects	Inhalation	734 mg/m³
DNEL/DMEL (General population)		
Acute - systemic effects	Inhalation	734 mg/m³
Acute - local effects	Inhalation	734 mg/m³
Long-term - systemic effects	Oral	4.5 mg/kg bodyweight/day
Long-term - systemic effects	Inhalation	367 mg/m³
Long-term - systemic effects	Dermal	37 mg/kg bodyweight/day
Long-term - local effects	Inhalation	367 mg/m³
PNEC (Water)		
PNEC aqua (freshwater)	-	0.24 mg/L
PNEC aqua (marine water)	-	0.024 mg/L
PNEC aqua (intermittent, freshwater)	-	1.65 mg/L
PNEC (Sediment)		
PNEC sediment (freshwater)	-	1.15 mg/kg dwt
PNEC sediment (marine water)	-	0.115 mg/kg dwt
PNEC (Soil)		
PNEC soil	-	0.148 mg/kg dwt

Ethyl acetate (141-78-6)		
Type	**Exposure route**	**Level**
PNEC (Oral)		
PNEC oral (secondary poisoning)	-	0.2 kg/kg food
PNEC (STP)		
PNEC sewage treatment plant	-	650 mg/L

Diphenylmethane Diisocyanate, isomers and homologues (9016-87-9)		
Type	**Exposure route**	**Level**
DNEL/DMEL (Workers)		
Acute - local effects	Inhalation	0.1 mg/m³
Long-term - local effects	Inhalation	0.05 mg/m³
DNEL/DMEL (General population)		
Acute - local effects	Inhalation	0.05 mg/m³
Long-term - local effects	Inhalation	0.025 mg/m³
PNEC (Water)		
PNEC aqua (freshwater)	-	1 mg/L
PNEC aqua (marine water)	-	1 mg/L
PNEC aqua (intermittent, freshwater)	-	10 mg/L
PNEC (Soil)		
PNEC soil	-	1 mg/kg dwt

Diphenylmethane-4,4'-di-isocyanate (101-68-8)		
Type	**Exposure route**	**Level**
DNEL/DMEL (Workers)		
Acute - local effects	Inhalation	0.1 mg/m³
Long-term - local effects	Inhalation	0.05 mg/m³
DNEL/DMEL (General population)		
Acute - local effects	Inhalation	0.05 mg/m³
Long-term - local effects	Inhalation	0.025 mg/m³

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Diphenylmethane-4,4'-di-isocyanate (101-68-8)		
Type	**Exposure route**	**Level**
PNEC (Water)		
PNEC aqua (freshwater)	-	1 mg/L
PNEC aqua (marine water)	-	0.1 mg/L
PNEC aqua (intermittent, freshwater)	-	10 mg/L
PNEC (Soil)		
PNEC soil	-	1 mg/kg dwt
PNEC (STP)		
PNEC sewage treatment plant	-	1 mg/L

8.1.5 Control Banding

No additional information available.

8.2 Exposure controls

8.2.1 Appropriate engineering controls

Provide good ventilation in process area to prevent formation of vapour. Ensure exposure is below occupational exposure limits (where available). Local exhaust ventilation (LEV) may be required to control inhalation exposure. Emergency eye wash fountains should be available in the immediate vicinity of any potential exposure.

8.2.2 Personal protection equipment

Avoid all unnecessary exposure.

Eye/face protection Safety goggles. Standard EN 166 - Personal eye-protection.

Skin and body protection Long-sleeved protective clothing.

Hand protection Wear protective gloves if skin contact is possible. Standard EN 374 - Protective gloves against chemicals. Recommended: Nitrile rubber gloves. The exact breakthrough time has to be found out by the manufacturer of the protective gloves and has to be observed. Gloves should be removed and replaced if there are any signs of degradation or breakthrough.

Respiratory protection	In case of insufficient ventilation, wear suitable respiratory equipment. Short term exposure/At low concentrations: Respiratory filter device. Filter type. A1. EN 14387. Long term exposure/In high concentrations: Approved supplied air respirator.
Thermal hazard protection	Not required for normal conditions of use.

8.2.3 Environment exposure controls

Environmental exposure controls	Avoid release to the environment. Assure that emissions are compliant with all applicable air pollution control regulations. In some cases, fume scrubbers, filters or engineering modifications to the process equipment will be necessary to reduce emissions to acceptable levels.
Other information	Do not eat, drink or smoke during use. Handle in accordance with good industrial hygiene and safety procedures.

Section 9: Physical and Chemical Properties

9.1 Information on basic physical and chemical properties

Physical state	Liquid.
Appearance	Liquid.
Colour	Colourless.
Odour	Not data available.
Odour threshold	Not data available.
pH	Not applicable.
Relative evaporation rate (butylacetate=1)	No data available.
Melting point	No data available.
Freezing point	No data available.
Boiling point	77°C (approx.)
Flash point	-1°C (approx.)
Auto-ignition temperature	460 °C

Decomposition temperature	No data available.
Flammability (solid, gas)	Not applicable.
Vapour pressure	No data available.
Relative vapour density at 20°C	No data available.
Relative density	0.94 approx. (20°C), (Water = 1)
Solubility	In water, material is partially soluble.
Log Pow	No data available.
Viscosity, kinematic	>20.5 mm^2/s
Viscosity, dynamic	No data available.
Explosive properties	May form flammable/explosive vapour-air mixture.
Oxidising properties	Not oxidising.
Explosive limits	1.1 – 11 vol %

9.2 Other information

No additional information available.

Section 10: Stability and Reactivity

10.1 Reactivity

Stable under recommended handling and storage conditions (see section 7). Highly flammable liquid and vapour.

10.2 Chemical stability

Stable under recommended handling and storage conditions (see section 7).

10.3 Possibility of hazardous reactions

May form flammable/explosive vapour-air mixture.

10.4 Conditions to avoid

Keep away from heat, hot surfaces, sparks, open flames and other ignition sources. No smoking.

10.5 Incompatible materials

Strong oxidising agents. Strong acids. Strong alkalis.

10.6 Hazardous decomposition products

Carbon monoxide. Carbon dioxide. Nitrogen oxides.

Section 11: Toxicology Information

11.1 Information on toxicological effects

Acute toxicology - oral	Not classified.
Acute toxicology - dermal	Not classified.
Acute toxicology - inhalation	Not classified.
Additional information	Based on available data, the classification criteria are not met

Ethyl acetate (141-78-6)		
LD50 Dermal	Rabbit	>20000 mg/kg bodyweight
LC50 Inhalation	Rat (ppm)	>6000 ppm - 6 hours

Diphenylmethane Diisocyanate, isomers and homologues (9016-87-9)		
LD50 Oral	Rat	>2000 mg/kg bodyweight
LD50 Dermal	Rabbit	9400 mg/kg bodyweight
LC50 Inhalation	Rat (mg/L)	0.49 mg/L - 4 hours

Diphenylmethane-4,4'-di-isocyanate (101-68-8)		
LC50 Inhalation	Rat (mg/L)	431 mg/m³ - 4 hours

o-(p-isocyanatobenzyl)phenyl isocyanate; diphenylmethane-2,4'-diisocyanate (5873-54-1)		
LC50 Inhalation	Rat (mg/L)	431 mg/m³ - 4 hours

2,2'-methylenediphenyl diisocyanate; diphenylmethane-2,2'-diisocyanate (2536-05-2)		
LD50 Oral	Rat	>5000 mg/kg bodyweight
LC50 Inhalation	Rat (mg/L)	431 mg/m³ - 4 hours

Skin corrosion/irritation Causes skin irritation.
Serious eye damage/irritation Causes serious eye irritation.
Respiratory or skin sensitisation May cause allergy or asthma symptoms or breathing difficulties if inhaled. May cause an allergic skin reaction.
Germ cell mutagenicity Not classified.
Additional information Based on available data, the classification criteria are not met.
Carcinogenicity Suspected of causing cancer.

Diphenylmethane Diisocyanate, isomers and homologues (9016-87-9)	
IARC group	3 - Not classifiable

Diphenylmethane-4,4'-di-isocyanate (101-68-8)	
IARC group	3 - Not classifiable

Reproductive toxicity Not classified.
Additional information Based on available data, the classification criteria are not met.
STOT - single exposure May cause drowsiness or dizziness. May cause respiratory irritation.

Ethyl acetate (141-78-6)	
STOT - single exposure	May cause drowsiness or dizziness.

Diphenylmethane Diisocyanate, isomers and homologues (9016-87-9)	
STOT - single exposure	May cause respiratory irritation.

Diphenylmethane-4,4'-di-isocyanate (101-68-8)	
STOT - single exposure	May cause respiratory irritation.

o-(p-isocyanatobenzyl)phenyl isocyanate; diphenylmethane-2,4'-diisocyanate (5873-54-1)	
STOT - single exposure	May cause respiratory irritation.

2,2'-methylenediphenyl diisocyanate; diphenylmethane-2,2'-diisocyanate (2536-05-2)	
STOT - single exposure	May cause respiratory irritation.

STOT - repeated exposure	May cause damage to organs (respiratory system) through prolonged or repeated exposure (if inhaled).

Diphenylmethane Diisocyanate, isomers and homologues (9016-87-9)	
STOT - repeated exposure	May cause damage to organs through prolonged or repeated exposure.

Diphenylmethane-4,4'-di-isocyanate (101-68-8)	
STOT - repeated exposure	May cause damage to organs through prolonged or repeated exposure.

o-(p-isocyanatobenzyl)phenyl isocyanate; diphenylmethane-2,4'-diisocyanate (5873-54-1)	
STOT - repeated exposure	May cause damage to organs through prolonged or repeated exposure.

2,2'-methylenediphenyl diisocyanate; diphenylmethane-2,2'-diisocyanate (2536-05-2)	
STOT - repeated exposure	May cause damage to organs through prolonged or repeated exposure.

Aspiration hazard	Not classified.
Additional information	Based on available data, the classification criteria are not met.

HypaBond Part B	
Viscosity, kinematic	>20.5 mm^2/s

Potential adverse human health effects and symptoms	May cause drowsiness, dizziness or nausea. May cause respiratory irritation. May cause allergy or asthma symptoms or breathing difficulties if inhaled, even minimal concentrations of isocyanate can lead to a reaction in sensitised people. Symptoms that may occur include the following: irritation of the eyes, nose, throat and lungs, possibly together with a dry throat, a feeling of chest tightness and breathing difficulties. The symptoms may only arise several hours after exposure. Causes serious eye irritation. May cause an allergic skin reaction. Animal research has shown that skin contact with substances known to have a sensitising effect on airways, such as diisocyanate, can cause airways to be sensitised. Causes skin irritation. May cause stomach pain or vomiting if ingested. Ingestion may cause discomfort. Suspected of causing cancer. May cause damage to organs (respiratory system) through prolonged or repeated exposure (if inhaled).

Section 12: Ecological Information

12.1 Toxicity

Very toxic to aquatic life with long lasting effects.

Hazardous to the aquatic environment, short-term (acute)	Not classified.
Hazardous to the aquatic environment, long-term (chronic)	Not classified.

Ethyl acetate (141-78-6)	
LC50 fish	230 mg/L - 96 hours (Pimephales promelas) (US EPA E03-05)
NOEC chronic fish	>00 mg/L - 72 hours (Desmodesmus subspicatus)
NOEC chronic crustacea	2.4 mg/L - 21 days (Daphnia magna) (OECD 211 method)
NOEC, algae	>100 mg/L - 72 hours (Desmodesmus subspicatus, Growth rate) (OECD 201 method)

Diphenylmethane Diisocyanate, isomers and homologues (9016-87-9)	
LC50 fish	>1000 mg/L - 96 hours (Danio rerio)
EC50 Daphnia	>500 mg/L - 48 hours (Daphnia magna)
ErC50 algae	≈1640 mg/L - 3 days (Desmodesmus subspicatus)
NOEC chronic crustacea	10 mg/L - 21 days (Daphnia magna)

12.2 Persistence and degradation

HypaBond Part B	
Persistence and degradability	No information available.

Ethyl acetate (141-78-6)	
Persistence and degradability	Readily biodegradable.
Biodegradation	≈62 % - 10 days (O2 consumption)

Diphenylmethane Diisocyanate, isomers and homologues (9016-87-9)	
Persistence and degradability	Not biodegradable.

12.3 Bioaccumulative potential

HypaBond Part B	
Bioaccumulative potential	No information available.

Ethyl acetate (141-78-6)	
BCF - Fish [1]	30 Leuciscus idus melanotus
Log Pow	0.68 (25 °C, pH 7)
Bioaccumulative potential	Low bioaccumulation potential.

Diphenylmethane Diisocyanate, isomers and homologues (9016-87-9)	
Bioaccumulative potential	Not expected to bioaccumulate.

Diphenylmethane-4,4'-di-isocyanate (101-68-8)	
BCF - Fish [1]	200 Cyprinus carpio (OECD 305 E method)
Log Pow	4.51 (22 °C, pH ≈ 7), (OECD 117 method)
Bioaccumulative potential	Low bioaccumulation potential.

o-(p-isocyanatobenzyl)phenyl isocyanate; diphenylmethane-2,4'-diisocyanate (5873-54-1)	
BCF - Fish [1]	200

12.4 Mobility in Soil

HypaBond Part B	
Ecology - soil	No information available.

Ethyl acetate (141-78-6)	
Ecology - soil	Miscible with water.

Diphenylmethane Diisocyanate, isomers and homologues (9016-87-9)	
Ecology - soil	Not volatile.

Diphenylmethane-4,4'-di-isocyanate (101-68-8)	
Ecology - soil	Slightly soluble in water

2,2'-methylenediphenyl diisocyanate; diphenylmethane-2,2'-diisocyanate (2536-05-2)	
Log Koc	5.22 (QSAR)

12.5 Results of PBT and vPvB assessment

HypaBond Part B
This substance/mixture does not meet the PBT criteria of REACH regulation, annex XIII. This substance/mixture does not meet the vPvB criteria of REACH regulation, annex XIII.

12.6 Other adverse effects

No additional information available

Section 13: Disposal Considerations

13.1 Waste treatment methods

Waste disposal recommendations	Dispose in a safe manner in accordance with local/national regulations. Empty containers should be taken to an approved waste handling site for recycling or disposal. The correct waste code must be determined by the producer of the waste, based on how the waste has been produced.
Additional information	Handle empty containers with care because residual vapours are flammable.
Ecology - waste materials	Avoid release to the environment.

Section 14: Transport Information

In accordance with ADR/IMDG/IATA.

14.1 UN number (ADR/IMDG/IATA)

UN number	UN1133

14.2 UN proper shipping name (ADR/IMDG/IATA)

Proper shipping name	Adhesives
Transport document description (ADR)	UN1133 Adhesives, 3, II, (D/E)
Transport document description (IMDG/IATA)	UN1133 Adhesives, 3, II

14.3 Transport hazard classes (ADR/IMDG/IATA)

Transport hazard classes	3
Hazard / danger labels	**3**

14.4 Packing group (ADR/IMDG/IATA)

Packing group	II

14.5 Environmental hazards

Dangerous for the environment	No
Marine pollutant	No
Other information	No supplementary information available.

14.6 Special precautions for user

Overland transport	
Tunnel restriction code (ADR)	D/E
Transport by sea	No data available.
Air transport	No data available.

14.7 Transport in bulk according to Annex II of Marpol and the IBC code

Not applicable.

Section 15: Regulatory Information

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

15.1.1 European Regulations - Authorisations and/or Restrictions On Use (Annex XVII)

Reference Code	Applicable on	Entry Title or Description
3.	HypaBonda Part B ; Ethyl acetate ; Di-phenylmethane Diisocyanate, isomers and homologues	Liquid substances or mixtures which are regarded as dangerous in accordance with Directive 1999/45/EC or are fulfilling the criteria for any of the following hazard classes or categories set out in Annex I to Regulation (EC) No 1272/2008.
3(a)	HypaBonda Part B ; Ethyl acetate	Substances or mixtures fulfilling the criteria for any of the following hazard classes or categories set out in Annex I to Regulation (EC) No 1272/2008: Hazard classes 2.1 to 2.4, 2.6 and 2.7, 2.8 types A and B, 2.9, 2.10, 2.12, 2.13 categories 1 and 2, 2.14 categories 1 and 2, 2.15 types A to F.
3(b)	HypaBond Part B ; Ethyl acetate ; Di-phenylmethane Diisocyanate, isomers and homologues.	Substances or mixtures fulfilling the criteria for any of the following hazard classes or categories set out in Annex I to Regulation (EC) No 1272/2008: Hazard classes 3.1 to 3.6, 3.7 adverse effects on sexual function and fertility or on development, 3.8 effects other than narcotic effects, 3.9 and 3.10.
40.	HypaBond Part B ; Ethyl acetate	Substances classified as flammable gases category 1 or 2, flammable liquids categories 1, 2 or 3, flammable solids category 1 or 2, substances and mixtures which, in contact with water, emit flammable gases, category 1, 2 or 3, pyrophoric liquids category 1 or pyrophoric solids category 1, regardless of whether they appear in Part 3 of Annex VI to Regulation (EC) No 1272/2008 or not.

Reference Code	Applicable on	Entry Title or Description
56.	Diphenylmethane Diisocyanate, isomers and homologues ; Diphenylmethane-4,4'-di- isocyanate ; o-(p-isocyanatobenzyl)phenyl isocyanate; diphenylmethane-2,4'- diisocyanate ; 2,2'-methylenediphenyl diisocyanate; diphenylmethane-2,2'- diisocyanate	Methylenediphenyl diisocyanate (MDI)
56(a)	Diphenylmethane-4,4'-di-isocyanate	Methylenediphenyl diisocyanate (MDI) isomers: 4,4'-Methylenediphenyl diisocyanate
56(a)	o-(p-isocyanatobenzyl)phenyl isocyanate; diphenylmethane-2,4'-diisocyanate	Methylenediphenyl diisocyanate (MDI) isomers: 2,4'-Methylenediphenyl diisocyanate
56(c)	2,2'-methylenediphenyl diisocyanate; diphenylmethane-2,2'-diisocyanate	Methylenediphenyl diisocyanate (MDI) isomers: 2,2'-Methylenediphenyl diisocyanate

Contains no substance on the REACH candidate list.
Contains no REACH Annex XIV substances.
Contains no substance subject to Regulation (EU) No 649/2012 of the European Parliament and of the Council of 4 July 2012 concerning the export and import of hazardous chemicals.
Contains no substance subject to Regulation (EU) No 2019/1021 of the European Parliament and of the Council of 20 June 2019 on persistent organic pollutants.

15.1.2 National regulations

No additional information available.

15.2 Chemical safety assessment

No chemical safety assessment has been carried out.

Section 16: Other Information

Abbreviations and acronyms:

ADR	European Agreement concerning the International Carriage of Dangerous Good by Road.
BCF	Bioconcentration factor.
CAS	Chemical Abstracts Service.
CLP	Classification, Labeling and Packaging.
CNEL	Derived No Effect Level.
EC	European Community.
EC50	Effective Concentration 50%.
EN	European Norm.
IARC	International Agency for Research on Cancer.
IATA	International Air Transport Association.
IBC	Intermediate Bulk Container.
IMDG	International Maritime Dangerous Goods Code.
Koc	Soil adsorption coefficient.
LC50	Lethal Concentration 50%.
LD50	Lethal Dose 50%.
OECD	Organisation for Economic Co-operation and Development.
OEL	Occupational exposure limit.
NOAEL	No Observed Adverse Effect Level.
NOEC	No Observed Effect Concentration.
PBT	Persistent, Bioaccumulative and Toxic.
PNEC	Predicted No Effect Concentration.
QSAR	Quantitative Structure-Activity Relationship.
REACH	Registration, Evaluation, Authorisation and Restriction of Chemicals.
STEL	Short Term Exposure Limit.
TWA	Time Weighted Average.
UNXXXX	Number assigned by the United Nations Committee of Experts on the Transport of Dangerous Goods.
UVCB	Unknown or Variable composition, Complex reaction products or Biological materials.
vPvB	very Persistent and very Bioaccumulative.
WAF	Water Accommodated Fraction.

Data sources	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, amending and repealing Directives 67/548/EEC and 1999/45/EC, and amending Regulation (EC) No 1907/2006.
Other information	Classification procedure according to Regulation (EC) No. 1272/2008 [CLP]: Physical hazards: On basis of test data. Health hazards: Calculation method. Environmental hazards: Calculation method.

Full text of H- and EUH-statements:

Acute Tox. 4 (Inhalation)	Acute toxicity (inhal.), Category 4.
Carc. 2	Carcinogenicity, Category 2.
Eye Irrit. 2	Serious eye damage/eye irritation, Category 2.
Flam. Liq. 2	Flammable liquids, Category 2.
Resp. Sens. 1	Respiratory sensitisation, Category 1.
Skin Irrit. 2	Skin corrosion/irritation, Category 2.
Skin Sens. 1	Skin sensitisation, Category 1.
STOT RE 2	Specific target organ toxicity - Repeated exposure, Category 2.
STOT SE 3	Specific target organ toxicity - Single exposure, Category 3, Narcosis.
STOT SE 3	Specific target organ toxicity - Single exposure, Category 3, Respiratory tract irritation.
H225	Highly flammable liquid and vapour.
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.
H336	May cause drowsiness or dizziness.
H351	Suspected of causing cancer.
H373	May cause damage to organs through prolonged or repeated exposure.
EUH204	Contains isocyanates. May produce an allergic reaction.

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