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

1.1. Product identifier

WEVONAT 300

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

Use of the substance/mixture

Di- / poly-isocyanate component for the production of polyurethanes

Uses advised against

Consumer spray application is not supported.
Consumer applications that require heating above room temperature before or during use are not supported.
Professional cleaning activities with Aprotic Polar Solvents are not supported.

1.3. Details of the supplier of the safety data sheet

Company name:	WEVO-CHEMIE GmbH	
Street:	Schoenbergstrasse 14	
Place:	D-73760 Ostfildern-Kemnat	
Post-office box:	3108 D-73751 Ostfildern-Kemnat	
Telephone:	+49 (0) 711-16761-500	Telefax: +49 (0) 711-16761-544
e-mail:	info@wevo-chemie.de	
e-mail (Contact person):	MSDS@wevo-chemie.de	
Internet:	www.wevo-chemie.de	

1.4. Emergency telephone number:

+49 761 – 19240 (Poison Information Centre Freiburg)

SECTION 2: Hazards identification

2.1. Classification of the substance or mixture

Regulation (EC) No 1272/2008

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

Full text of hazard statements: see SECTION 16.

2.2. Label elements

Regulation (EC) No 1272/2008

Hazard components for labelling

Diphenylmethandiisocyanate, Isomers And Homologues
4,4'-methylenediphenyl diisocyanate; diphenylmethane-4,4'-diisocyanate
o-(p-isocyanatobenzyl)phenyl isocyanate; diphenylmethane-2,4'-diisocyanate
2,2'-methylenediphenyl diisocyanate; diphenylmethane-2,2'-diisocyanate

Signal word: Danger

Pictograms:

Hazard statements

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.

Precautionary statements

P201	Obtain special instructions before use.
P260	Do not breathe dust/fume/gas/mist/vapours/spray.
P264	Wash hands thoroughly after handling.
P280	Wear protective gloves/protective clothing/eye protection/face protection/hearing protection.
P304+P340	IF INHALED: Remove person to fresh air and keep comfortable for breathing.
P312	Call a POISON CENTER/doctor if you feel unwell.
P308+P313	IF exposed or concerned: Get medical advice/attention.

Special labelling of certain mixtures

EUH204	Contains isocyanates. May produce an allergic reaction.

Additional advice on labelling

As from 24 August 2023 adequate training is required before industrial or professional use.

2.3. Other hazards

In case of hypersensitivity of the respiratory tract and skin (e.g. asthmatics and those who suffer from chronic bronchitis and chronic skin complaint) it is inadvisable to work with the product.
Symptoms of the respiratory tract can still occur several hours after overexposure.
Dust, fumes and aerosols are the main respiratory hazard.

The substance/mixture does not contain components considered to have endocrine disrupting properties according to REACH Article 57(f) or Commission Delegated regulation (EU) 2017/2100 or Commission Regulation (EU) 2018/605 at levels of 0.1% or higher.

SECTION 3: Composition/information on ingredients

3.2. Mixtures

Chemical characterization

diphenylmethane-diisocyanate, isomers and homologues

Hazardous components

CAS No	Chemical name			Quantity
	EC No	Index No	REACH No	
	Classification (Regulation (EC) No 1272/2008)			
9016-87-9	Diphenylmethandiisocyanate, Isomers And Homologues			>=75 - <100 %
		615-005-01-6		
	Carc. 2, Acute Tox. 4, Skin Irrit. 2, Eye Irrit. 2, Resp. Sens. 1, Skin Sens. 1, STOT SE 3, STOT RE 2; H351 H332 H315 H319 H334 H317 H335 H373			
101-68-8	4,4'-methylenediphenyl diisocyanate; diphenylmethane-4,4'-diisocyanate			>=10 - <20 %
	202-966-0	615-005-00-9		
	Carc. 2, Acute Tox. 4, Skin Irrit. 2, Eye Irrit. 2, Resp. Sens. 1, Skin Sens. 1, STOT SE 3, STOT RE 2; H351 H332 H315 H319 H334 H317 H335 H373			
5873-54-1	o-(p-isocyanatobenzyl)phenyl isocyanate; diphenylmethane-2,4'-diisocyanate			>=5 - <10 %
	227-534-9	615-005-00-9		
	Carc. 2, Acute Tox. 4, Skin Irrit. 2, Eye Irrit. 2, Resp. Sens. 1, Skin Sens. 1, STOT SE 3, STOT RE 2; H351 H332 H315 H319 H334 H317 H335 H373			
2536-05-2	2,2'-methylenediphenyl diisocyanate; diphenylmethane-2,2'-diisocyanate			< 0,1 %
	219-799-4	615-005-00-9		
	Carc. 2, Acute Tox. 4, Skin Irrit. 2, Eye Irrit. 2, Resp. Sens. 1, Skin Sens. 1, STOT SE 3, STOT RE 2; H351 H332 H315 H319 H334 H317 H335 H373			

Full text of H and EUH statements: see section 16.

Specific Conc. Limits, M-factors and ATE

CAS No	EC No	Chemical name	Quantity
	Specific Conc. Limits, M-factors and ATE		
9016-87-9		Diphenylmethandiisocyanate, Isomers And Homologues	>=75 - <100 %
	inhalation: ATE = 11 mg/l (vapours); inhalation: LC50 = 1,5 mg/l (dusts or mists); dermal: LD50 = > 9400 mg/kg; oral: LD50 = > 10000 mg/kg Skin Irrit. 2; H315: >= 5 - 100 Eye Irrit. 2; H319: >= 5 - 100 Resp. Sens. 1; H334: >= 0,1 - 100 STOT SE 3; H335: >= 5 - 100		
101-68-8	202-966-0	4,4'-methylenediphenyl diisocyanate; diphenylmethane-4,4'-diisocyanate	>=10 - <20 %
	inhalation: ATE = 11 mg/l (vapours); inhalation: ATE = 1,5 mg/l (dusts or mists); dermal: LD50 = > 9400 mg/kg; oral: LD50 = > 2000 mg/kg Skin Irrit. 2; H315: >= 5 - 100 Eye Irrit. 2; H319: >= 5 - 100 Resp. Sens. 1; H334: >= 0,1 - 100 STOT SE 3; H335: >= 5 - 100		
5873-54-1	227-534-9	o-(p-isocyanatobenzyl)phenyl isocyanate; diphenylmethane-2,4'-diisocyanate	>=5 - <10 %
	inhalation: ATE = 11 mg/l (vapours); inhalation: LC50 = >1,5 mg/l (dusts or mists); dermal: LD50 = > 9400 mg/kg; oral: LD50 = > 2000 mg/kg Skin Irrit. 2; H315: >= 5 - 100 Eye Irrit. 2; H319: >= 5 - 100 Resp. Sens. 1; H334: >= 0,1 - 100 STOT SE 3; H335: >= 5 - 100		
2536-05-2	219-799-4	2,2'-methylenediphenyl diisocyanate; diphenylmethane-2,2'-diisocyanate	< 0,1 %
	inhalation: LC50 = 0,370 mg/l (vapours); inhalation: ATE = 1,5 mg/l (dusts or mists); dermal: LD50 = > 9400 mg/kg; oral: LD50 = > 2000 mg/kg Skin Irrit. 2; H315: >= 5 - 100 Eye Irrit. 2; H319: >= 5 - 100 Resp. Sens. 1; H334: >= 0,1 - 100 STOT SE 3; H335: >= 5 - 100		

Further Information

This product contains no substances of very high concern in concentrations where an information obligation applies (REACH Regulation (EC) No. 1907/2006, Article 59).

SECTION 4: First aid measures

4.1. Description of first aid measures

General information

Remove contaminated clothing immediatley and dispose off safely.

After inhalation

Remove casualty to fresh air and keep warm and at rest. Get medical advice/attention if you feel unwell.

After contact with skin

In case of skin contact, wash immediately with large quantities of water/polyethylene glycol 400 (Roticlean).
If skin irritation occurs: Get medical advice/attention.

After contact with eyes

In case of contact with eyes, rinse immediately with plenty of flowing water for 10 to 15 minutes holding eyelids apart. Subsequently consult an ophthalmologist.

After ingestion

If accidentally swallowed rinse the mouth with plenty of water (only if the person is conscious) and obtain immediate medical attention. Do NOT induce vomiting. Get immediate medical advice/attention.

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

Notes to physician: The product irritates the respiratory tract and may trigger sensitisation of the skin and 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.

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

Therapeutic measures: No information available.

SECTION 5: Firefighting measures

5.1. Extinguishing media

Suitable extinguishing media

Carbon dioxide (CO2). Foam. Extinguishing powder.
For larger fires: Water spray.

Unsuitable extinguishing media

High power water jet.

5.2. Special hazards arising from the substance or mixture

In case of fire may be liberated: Carbon dioxide (CO2). Carbon monoxide Nitrogen oxides (NOx). Isocyanates.
Possible in traces: Hydrocyanic acid (hydrocyanic acid).
In case of fire and/or explosion do not breathe fumes.
Heating causes rise in pressure with risk of bursting. Use water spray jet to protect personnel and to cool endangered containers.
Move undamaged containers from immediate hazard area if it can be done safely.

5.3. Advice for firefighters

In case of fire: Wear a self-contained breathing apparatus and chemical protective clothing.

Additional information

Do not allow water used to extinguish fire to enter drains or waterways. Do not allow to enter into soil/subsoil.

SECTION 6: Accidental release measures

6.1. Personal precautions, protective equipment and emergency procedures

General advice

Use personal protective equipment as required. (See section 8) Provide adequate ventilation. Evacuate area.
Do not breathe gas/fumes/vapour/spray.

For non-emergency personnel

No information available.

For emergency responders

No information available.

6.2. Environmental precautions

Do not allow to enter into surface water or drains. Do not allow to enter into soil/subsoil.

6.3. Methods and material for containment and cleaning up

For containment

Absorb with liquid-binding material (sand, diatomaceous earth, acid- or universal binding agents). Treat the recovered material as prescribed in the section on waste disposal.

For cleaning up

Take up mechanically. Cover residue with moist, liquid-binding material (eg sawdust, chemical binder based on

calcium silicate hydrate, sand). After approx. 1 hour pick up in waste container, do not close (CO_2 development!). Keep moist and leave in a secure place outdoors for several days. Delivery to an approved waste disposal company.

The leakage area can be decontaminated with the following recommended decontaminant

Decontamination solution 1: 8-10% sodium carbonate and 2% of liquid soap in water

Decontamination solution 2: Liquid/yellow soap (potassium soap with ~15% anionic tenside): 20ml; Water: 700ml; Polyethylenglycol (PEG 400): 350ml

Decontamination solution 3: 30 % commercial laundry detergent containing monoethanolamine, 70 % water

6.4. Reference to other sections

Safe handling: see section 7
Personal protection equipment: see section 8
Disposal: see section 13

SECTION 7: Handling and storage

7.1. Precautions for safe handling

Advice on safe handling

Provide adequate ventilation as well as local exhaustion at critical locations.

At workplaces or parts of installations where isocyanate aerosols and / or vapors can be produced in higher concentrations (eg pressure relief, mold venting, blowing of mixing heads with compressed air), it is necessary to prevent the occupational hygiene limit values being exceeded by air extraction. The air must be moved away from the people. The effectiveness of the equipment must be checked periodically. Air limit values mentioned in section 8 must be controlled.

The personal protective measures described in chapter 8 must be observed. Avoid contact with skin and eyes and inhalation of vapors.

Keep away from food and beverages. Wash hands before breaks and at the end of work. Keep work clothes separate. Take off dirty, soaked clothes immediately. Decontaminate, destroy and dispose of contaminated protective clothing (see section 13).

Advice on protection against fire and explosion

No special fire protection measures are necessary.

Advice on general occupational hygiene

Keep away from food, drink and animal feeding stuffs. Wash hands before breaks and after work. Protect skin by using skin protective cream. Separate storage of work clothes. Decontaminate, destroy and dispose of contaminated protective clothing (see section 13).

Safety precautions for handling freshly molded polyurethane parts: see section 16

7.2. Conditions for safe storage, including any incompatibilities

Requirements for storage rooms and vessels

Cleaning with Aprotic Polar Solvents (meeting the IUPAC definition) may lead to formation of (hazardous) primary aromatic amines (> 0,1 %). See section 11.

Keep container tightly closed and dry.

Hints on joint storage

Keep away from food, drink and animal feeding stuffs.
Do not store together with: Water. Alcohol. amines. strong alkalis.
Do not mix with acids.

7.3. Specific end use(s)

Di- / poly-isocyanate component for the production of polyurethanes

SECTION 8: Exposure controls/personal protection

8.1. Control parameters

DNEL/DMEL values

CAS No	Name of agent			
DNEL type		Exposure route	Effect	Value
9016-87-9	Diphenylmethandiisocyanate, Isomers And Homologues			
Worker DNEL, acute		dermal	systemic	50 mg/kg bw/day
Worker DNEL, acute		inhalation	systemic	0,1 mg/m³
Worker DNEL, acute		dermal	local	27,8 mg/cm²
Worker DNEL, acute		inhalation	local	0,1 mg/m³
Worker DNEL, long-term		inhalation	systemic	0,05 mg/m³
Worker DNEL, long-term		inhalation	local	0,05 mg/m³
Consumer DNEL, acute		dermal	systemic	25 mg/kg bw/day
Consumer DNEL, acute		inhalation	systemic	0,05 mg/m³
Consumer DNEL, acute		oral	systemic	20 mg/kg bw/day
Consumer DNEL, acute		dermal	local	17,2 mg/cm²
Consumer DNEL, acute		inhalation	local	0,05 mg/m³
Consumer DNEL, long-term		inhalation	systemic	0,025 mg/m³
Consumer DNEL, long-term		inhalation	local	0,025 mg/m³
101-68-8	4,4'-methylenediphenyl diisocyanate; diphenylmethane-4,4'-diisocyanate			
Worker DNEL, long-term		inhalation	systemic	0,05 mg/m³
Worker DNEL, acute		inhalation	systemic	0,1 mg/m³
Worker DNEL, long-term		inhalation	local	0,05 mg/m³
Worker DNEL, acute		inhalation	local	0,1 mg/m³
Worker DNEL, long-term		dermal	systemic	
Worker DNEL, acute		dermal	systemic	50 mg/kg bw/day
Worker DNEL, long-term		dermal	local	
Worker DNEL, acute		dermal	local	28,7 mg/cm²
Consumer DNEL, long-term		inhalation	systemic	0,025 mg/m³
Consumer DNEL, acute		inhalation	systemic	0,05 mg/m³
Consumer DNEL, long-term		inhalation	local	0,025 mg/m³
Consumer DNEL, acute		inhalation	local	0,05 mg/m³
Consumer DNEL, long-term		dermal	systemic	
Consumer DNEL, acute		dermal	systemic	25 mg/kg bw/day
Consumer DNEL, long-term		dermal	local	
Consumer DNEL, acute		dermal	local	17,2 mg/cm²
Consumer DNEL, long-term		oral	systemic	
Consumer DNEL, acute		oral	systemic	20 mg/kg bw/day
5873-54-1	o-(p-isocyanatobenzyl)phenyl isocyanate; diphenylmethane-2,4'-diisocyanate			
Worker DNEL, long-term		inhalation	systemic	0,05 mg/m³
Worker DNEL, acute		inhalation	systemic	0,1 mg/m³
Worker DNEL, long-term		inhalation	local	0,05 mg/m³
Worker DNEL, acute		inhalation	local	0,1 mg/m³
Worker DNEL, long-term		dermal	systemic	
Worker DNEL, acute		dermal	systemic	50 mg/kg bw/day
Worker DNEL, long-term		dermal	local	
Worker DNEL, acute		dermal	local	28,7 mg/cm²
Consumer DNEL, long-term		inhalation	systemic	0,025 mg/m³

Consumer DNEL, acute	inhalation	systemic	0,05 mg/m³
Consumer DNEL, long-term	inhalation	local	0,025 mg/m³
Consumer DNEL, acute	inhalation	local	0,05 mg/m³
Consumer DNEL, long-term	dermal	systemic	
Consumer DNEL, acute	dermal	systemic	25 mg/kg bw/day
Consumer DNEL, long-term	dermal	local	
Consumer DNEL, acute	dermal	local	17,2 mg/cm²
Consumer DNEL, long-term	oral	systemic	
Consumer DNEL, acute	oral	systemic	20 mg/kg bw/day
2536-05-2	2,2'-methylenediphenyl diisocyanate; diphenylmethane-2,2'-diisocyanate		
Worker DNEL, long-term	inhalation	local	0,05 mg/m³
Worker DNEL, acute	inhalation	local	0,1 mg/m³
Consumer DNEL, long-term	inhalation	local	0,025 mg/m³
Consumer DNEL, acute	inhalation	local	0,05 mg/m³

PNEC values

CAS No	Name of agent	
Environmental compartment		Value
9016-87-9	Diphenylmethandiisocyanate, Isomers And Homologues	
Freshwater		1 mg/l
Freshwater (intermittent releases)		10 mg/l
Marine water		0,1 mg/l
Micro-organisms in sewage treatment plants (STP)		1 mg/l
Soil		1 mg/l
101-68-8	4,4'-methylenediphenyl diisocyanate; diphenylmethane-4,4'-diisocyanate	
Freshwater		0,0037 mg/l
Freshwater (intermittent releases)		0,037 mg/l
Marine water		0,00037 mg/l
Freshwater sediment		11,7 mg/kg
Marine sediment		1,17 mg/kg
Secondary poisoning		
Micro-organisms in sewage treatment plants (STP)		1 mg/l
Soil		2,33 mg/kg
5873-54-1	o-(p-isocyanatobenzyl)phenyl isocyanate; diphenylmethane-2,4'-diisocyanate	
Freshwater		0,0037 mg/l
Freshwater (intermittent releases)		0,037 mg/l
Marine water		0,00037 mg/l
Freshwater sediment		11,7 mg/kg
Marine sediment		1,17 mg/kg
Secondary poisoning		
Micro-organisms in sewage treatment plants (STP)		1 mg/l
Soil		2,33 mg/kg
2536-05-2	2,2'-methylenediphenyl diisocyanate; diphenylmethane-2,2'-diisocyanate	
Freshwater		0,0037 mg/l
Freshwater (intermittent releases)		0,037 mg/l
Marine water		0,00037 mg/l
Freshwater sediment		11,7 mg/kg
Marine sediment		1,17 mg/kg
Micro-organisms in sewage treatment plants (STP)		1 mg/l
Soil		2,33 mg/kg

Additional advice on limit values

To date, no national critical limit values exist.

8.2. Exposure controls

Appropriate engineering controls

Use in closed process, no likelihood of exposure.
If local exhaust ventilation is not possible or not sufficient, the entire working area must be ventilated by technical means.

Individual protection measures, such as personal protective equipment

Eye/face protection

Wear eye/face protection.

Hand protection

Suitable materials for safety gloves; EN 374:

Butyl rubber, nitrile rubber, chloroprene rubber (neoprene).
Notice: suitable materials that provide sufficient protection for industrial cleaning with Aprotic Polar Solvents (meeting the IUPAC definition): butyl rubber.
When prolonged or frequently repeated contact may occur, a glove with a protection class of 5 or higher (breakthrough time greater than 240 minutes according to EN374) is recommended. When only brief contact is expected, a glove with a protection class of 3 or higher (breakthrough time greater than 60 minutes according to EN374) is recommended.
Glove thickness alone is not a good indicator of the level of protection a glove provides against a chemical substance as this level of protection is also highly dependent of the specific composition of the material a glove is fabricated from. The thickness of the glove must depending on model and type of material, generally be more than 0,35 mm to offer sufficient protection for prolonged and frequent contact with the substance. As an exception to this general rule it is known that multilayer laminate gloves may offer prolonged protection at thicknesses less than 0,35 mm. Other glove materials with a thickness of less than 0,35 mm may offer sufficient protection when only brief contact is expected.
Example:
Polychloroprene - CR: thickness >=0,5mm; breakthrough time >=480min.
Nitrile rubber - NBR: thickness >=0,35mm; breakthrough time >=480min.
Butyl rubber - IIR: thickness >=0,5mm; breakthrough time >=480min.
Fluorinated rubber - FKM: thickness >=0,4mm; breakthrough time >=480min.
Recommendation: contaminated gloves should be disposed of.

Skin protection

Wear suitable protective clothing.

Respiratory protection

At insufficiently ventilated workplaces and at spray-processing respiratory protection required.
Recommended are fresh air mask or for short-term work combination filter A2-P2.

SECTION 9: Physical and chemical properties

9.1. Information on basic physical and chemical properties

Physical state:	liquid
Colour:	brown
Odour:	earthy, musty

		Test method
Changes in the physical state		
Melting point/freezing point:	No data available	
Boiling point or initial boiling point and boiling range:	> 300 °C	DIN 53171
Flash point:	229 °C	DIN EN 22719
Flammability		
Solid/liquid:	not applicable	
Gas:	not applicable	
Explosive properties		
The product is not: Explosive. not determined		
Lower explosion limits:	No data available	
Upper explosion limits:	No data available	
Auto-ignition temperature:	> 500 °C	DIN 51794
Self-ignition temperature		
Solid:	not applicable	
Gas:	not applicable	
Decomposition temperature:	not determined	
pH-Value:	not determined	
Viscosity / dynamic: (at 25 °C)	70 - 120 mPa·s	

Water solubility: (at 15 °C)	Immiscible

Solubility in other solvents

No data available

Partition coefficient n-octanol/water:	not determined
Vapour pressure: (at 20 °C)	<0,00001 hPa
Vapour pressure: (at 50 °C)	0,0004999 hPa
Density (at 22 °C):	1,20 - 1,24 g/cm³
Relative vapour density:	not determined

9.2. Other information

Information with regard to physical hazard classes

Oxidizing properties

not determined

Other safety characteristics

Solid content:	not determined
Evaporation rate:	not determined

Further Information

For products with a very low vapor pressure, the apparent vapor pressure may exceed the vapor pressure of the pure product due to conditions of manufacturing, storage or transportation, e.g. by solved gases like nitrogen or carbon dioxide.

SECTION 10: Stability and reactivity

10.1. Reactivity

No hazardous reaction when handled and stored according to provisions.

10.2. Chemical stability

> 200 °C: Polymerization.
Formation of: Carbon dioxide (CO2).

10.3. Possibility of hazardous reactions

Exothermic reactions with: amines., Alcohol.
Avoid contact with water. Formation of: Carbon dioxide (CO2).
Due to gaseous decomposition products, overpressure can occur in tightly sealed containers. Danger of bursting container.

10.4. Conditions to avoid

No data available

10.5. Incompatible materials

Water. Alcohol. amines. strong alkalis. Do not mix with acids.

10.6. Hazardous decomposition products

No hazardous decomposition products when properly stored and handled.

SECTION 11: Toxicological information

11.1. Information on hazard classes as defined in Regulation (EC) No 1272/2008

Acute toxicity

Harmful if inhaled.

ATEmix calculated

ATE (inhalation vapour) 11,01 mg/l; ATE (inhalation dust/mist) 1,501 mg/l

CAS No	Chemical name					
	Exposure route	Dose		Species	Source	Method
9016-87-9	Diphenylmethandiisocyanate, Isomers And Homologues					
	oral	LD50 mg/kg	> 10000	Rat		OECD 401
	dermal	LD50 mg/kg	> 9400	Rabbit		OECD 402
	inhalation vapour	ATE	11 mg/l			
	inhalation (4 h) dust/mist	LC50	1,5 mg/l	Rabbit		OECD 403
101-68-8	4,4'-methylenediphenyl diisocyanate; diphenylmethane-4,4'-diisocyanate					
	oral	LD50 mg/kg	> 2000	Rat	Study report (1990)	other: 84/449/EEC
	dermal	LD50 mg/kg	> 9400	Rabbit	Study report (1964)	OECD Guideline 402
	inhalation vapour	ATE	11 mg/l			
	inhalation dust/mist	ATE	1,5 mg/l			OECD 403
5873-54-1	o-(p-isocyanatobenzyl)phenyl isocyanate; diphenylmethane-2,4'-diisocyanate					
	oral	LD50 mg/kg	> 2000	Rat	Study report (1990)	other: 84/449/EEC
	dermal	LD50 mg/kg	> 9400	Rabbit	Study report (1964)	OECD Guideline 402
	inhalation vapour	ATE	11 mg/l			
	inhalation (4 h) dust/mist	LC50	>1,5 mg/l	Rat		OECD 403
2536-05-2	2,2'-methylenediphenyl diisocyanate; diphenylmethane-2,2'-diisocyanate					
	oral	LD50 mg/kg	> 2000	Rat	Study report (1990)	OECD Guideline 425
	dermal	LD50 mg/kg	> 9400	Rabbit	Study report (1964)	OECD Guideline 402
	inhalation vapour	LC50 mg/l	0,370	Rat		
	inhalation dust/mist	ATE	1,5 mg/l			

Irritation and corrosivity

Causes skin irritation.
Causes serious eye irritation.

Sensitising effects

Contains isocyanates. May produce an allergic reaction.May cause allergy or asthma symptoms or breathing difficulties if inhaled. (Diphenylmethandiisocyanate, Isomers And Homologues; 4,4'-methylenediphenyl diisocyanate; diphenylmethane-4,4'-diisocyanate; o-(p-isocyanatobenzyl)phenyl isocyanate; diphenylmethane-2,4'-diisocyanate; 2,2'-methylenediphenyl diisocyanate; diphenylmethane-2,2'-diisocyanate)
May cause an allergic skin reaction. (Diphenylmethandiisocyanate, Isomers And Homologues; 4,4'-methylenediphenyl diisocyanate; diphenylmethane-4,4'-diisocyanate; o-(p-isocyanatobenzyl)phenyl isocyanate; diphenylmethane-2,4'-diisocyanate; 2,2'-methylenediphenyl diisocyanate; diphenylmethane-2,2'-diisocyanate)

Carcinogenic/mutagenic/toxic effects for reproduction

Suspected of causing cancer. (Diphenylmethandiisocyanate, Isomers And Homologues; 4,4'-methylenediphenyl diisocyanate; diphenylmethane-4,4'-diisocyanate; o-(p-isocyanatobenzyl)phenyl isocyanate; diphenylmethane-2,4'-diisocyanate; 2,2'-methylenediphenyl diisocyanate; diphenylmethane-2,2'-diisocyanate)
Germ cell mutagenicity: Based on available data, the classification criteria are not met.
Reproductive toxicity: Based on available data, the classification criteria are not met.

STOT-single exposure

May cause respiratory irritation. (Diphenylmethandiisocyanate, Isomers And Homologues; 4,4'-methylenediphenyl diisocyanate; diphenylmethane-4,4'-diisocyanate; o-(p-isocyanatobenzyl)phenyl isocyanate; diphenylmethane-2,4'-diisocyanate)

STOT-repeated exposure

May cause damage to organs through prolonged or repeated exposure. (Diphenylmethandiisocyanate, Isomers And Homologues; 4,4'-methylenediphenyl diisocyanate; diphenylmethane-4,4'-diisocyanate)

Aspiration hazard

Based on available data, the classification criteria are not met.

11.2. Information on other hazards

Endocrine disrupting properties

The substance/mixture does not contain components considered to have endocrine disrupting properties according to REACH Article 57(f) or Commission Delegated regulation (EU) 2017/2100 or Commission Regulation (EU) 2018/605 at levels of 0.1% or higher.

Other information

Industrial cleaning with Aprotic Polar Solvents (meeting the IUPAC definition) may lead to formation of (hazardous) primary aromatic amines (> 0.1 %). Primary aromatic amines are chemicals that are regarded as potentially carcinogenic for humans based on animal testing. Some of these chemicals are known human carcinogens. Compliance with the control measures recommended in the exposure scenario is expected to protect against these effects.

Further information

Special properties / effects: In case of overexposure, there is a risk of a concentration-dependent irritant effect on eyes, nose, throat and respiratory tract. Delayed onset of symptoms and development of hypersensitivity (difficulty in breathing, cough, asthma) are possible. In hypersensitive individuals reactions can be triggered even at very low isocyanate concentrations, even below the occupational exposure limit. After prolonged contact with the skin, tanning and irritation effects are possible.

Animal tests and other research indicate that skin contact with diisocyanates can play a role in causing isocyanate sensitization and respiratory reaction.

SECTION 12: Ecological information

12.1. Toxicity

The product is not: Ecotoxic.

CAS No	Chemical name						
	Aquatic toxicity	Dose		[h] | [d]	Species	Source	Method
9016-87-9	Diphenylmethandiisocyanate, Isomers And Homologues						
	Acute fish toxicity	LC50	> 1000 mg/l	96 h	Danio rerio (zebrafish)		OECD 203
	Acute algae toxicity	ErC50	> 1640 mg/l	72 h	Scenedesmus subspicatus		OECD 201
	Acute crustacea toxicity	EC50	> 1000 mg/l	48 h	Daphnia magna		OECD 202
	Crustacea toxicity	NOEC	>=10 mg/l	21 d	Daphnia magna		OECD 202
	Acute bacteria toxicity	(EC50	>100 mg/l)	3 h	Activated sludge		OECD 209.
101-68-8	4,4'-methylenediphenyl diisocyanate; diphenylmethane-4,4'-diisocyanate						
	Acute fish toxicity	LL50	> 100 mg/l	96 h	Danio rerio	Study report (2020)	OECD Guideline 203
	Acute algae toxicity	ErC50	> 100 mg/l	72 h	Desmodesmus subspicatus	Study report (2020)	OECD Guideline 201
	Acute crustacea toxicity	EL50	9 mg/l	48 h	Daphnia magna	Study report (2019)	EU Method C.2
	Algae toxicity	NOEC	1640 mg/l	3 d	Desmodesmus subspicatus	Study report (1994)	OECD Guideline 201
	Crustacea toxicity	NOEC	>= 10 mg/l	21 d	Daphnia magna	Study report (1986)	OECD Guideline 211
	Acute bacteria toxicity	(EC50	> 100 mg/l)	3 h	Activated sludge	Study report (1986)	OECD Guideline 209
5873-54-1	o-(p-isocyanatobenzyl)phenyl isocyanate; diphenylmethane-2,4'-diisocyanate						
	Acute fish toxicity	LL50	> 100 mg/l	96 h	Danio rerio	Study report (2020)	OECD Guideline 203
	Acute algae toxicity	ErC50	> 100 mg/l	72 h	Scenedesmus subspicatus	Study report (2020)	OECD 201
	Acute crustacea toxicity	EL50	3,7 mg/l	48 h	Daphnia magna	Study report (2019)	EU Method C.2
	Algae toxicity	NOEC	1640 mg/l	3 d	Desmodesmus subspicatus	Study report (1994)	OECD Guideline 201
	Crustacea toxicity	NOEC	>= 10 mg/l	21 d	Daphnia magna	Study report (1986)	OECD Guideline 211
	Acute bacteria toxicity	(EC50	> 100 mg/l)	3 h	Activated sludge	Study report (1986)	OECD Guideline 209
2536-05-2	2,2'-methylenediphenyl diisocyanate; diphenylmethane-2,2'-diisocyanate						
	Acute fish toxicity	LL50	> 100 mg/l	96 h	Danio rerio	Study report (2020)	OECD Guideline 203
	Acute algae toxicity	ErC50	> 100 mg/l	72 h		Study report (2020)	
	Acute crustacea toxicity	EL50	> 100 mg/l	48 h	Daphnia magna	Study report (2021)	
	Algae toxicity	NOEC	1640 mg/l	3 d	Desmodesmus subspicatus	Study report (1994)	OECD Guideline 201
	Crustacea toxicity	NOEC	>= 10 mg/l	21 d	Daphnia magna	Study report (1986)	OECD Guideline 211
	Acute bacteria toxicity	(EC50	> 100 mg/l)	3 h	Activated sludge	Study report (1986)	OECD Guideline 209

12.2. Persistence and degradability

The product has not been tested.

CAS No	Chemical name			
	Method	Value	d	Source
	Evaluation			
9016-87-9	Diphenylmethandiisocyanate, Isomers And Homologues			
	OECD 302C	0%0%	28	
	Not easily bio-degradable (according to OECD-criteria).			
101-68-8	4,4'-methylenediphenyl diisocyanate; diphenylmethane-4,4'-diisocyanate			
	OECD 302C	0%	28	
	Not easily bio-degradable (according to OECD-criteria).			
5873-54-1	o-(p-isocyanatobenzyl)phenyl isocyanate; diphenylmethane-2,4'-diisocyanate			
	OECD 302C	0%	28	
	Not easily bio-degradable (according to OECD-criteria).			

12.3. Bioaccumulative potential

The product has not been tested.

Partition coefficient n-octanol/water

CAS No	Chemical name	Log Pow
101-68-8	4,4'-methylenediphenyl diisocyanate; diphenylmethane-4,4'-diisocyanate	4,51
5873-54-1	o-(p-isocyanatobenzyl)phenyl isocyanate; diphenylmethane-2,4'-diisocyanate	4,52
2536-05-2	2,2'-methylenediphenyl diisocyanate; diphenylmethane-2,2'-diisocyanate	5,22

BCF

CAS No	Chemical name	BCF	Species	Source
9016-87-9	Diphenylmethandiisocyanate, Isomers And Homologues	< 14	Cyprinus carpio (Common Carp)	
101-68-8	4,4'-methylenediphenyl diisocyanate; diphenylmethane-4,4'-diisocyanate	92	Cyprinus carpio	Study report (2002)
5873-54-1	o-(p-isocyanatobenzyl)phenyl isocyanate; diphenylmethane-2,4'-diisocyanate	439	Cyprinus carpio	Other company data (
2536-05-2	2,2'-methylenediphenyl diisocyanate; diphenylmethane-2,2'-diisocyanate	439	Cyprinus carpio	Other company data (

12.4. Mobility in soil

No data available

12.5. Results of PBT and vPvB assessment

The substances in the mixture do not meet the PBT/vPvB criteria according to REACH, annex XIII.

12.6. Endocrine disrupting properties

This product does not contain a substance that has endocrine disrupting properties with respect to non-target organisms as no components meets the criteria.

12.7. Other adverse effects

The product reacts with water at the interface under formation of carbon dioxide to a solid, high-melting and insoluble reaction product (polyurea). This reaction is greatly promoted by surfactants (eg, liquid soaps) or water-soluble solvents. Polyurea is according to previous experience inert and non-degradable.

Further information

Avoid release to the environment.

SECTION 13: Disposal considerations

13.1. Waste treatment methods

Disposal recommendations

Disposal under consideration of all applicable international, national and local laws, ordinances and statutes

For disposal within the EC, the appropriate code according to the European Waste Catalogue (EWC) should be used.

Contaminated packaging

After final product withdrawal, all residues must be removed from containers (drip-free, powder-free or paste-free). Packaging empty of usable product can be handed to a professional waste management company; in the EU, this is done per packaging type at collection points run by the existing take-back systems for the chemicals industry. The product and hazardous substance labelling must be left intact on the packaging.

Alternatively, the product and hazardous substance labelling can be removed if the product residues adhering to the sides are rendered non-hazardous. This packaging can also be handed to the collection points run by the existing take-back systems for the chemicals industry for packaging type-specific recycling. Containers must be recycled in compliance with national legislation and environmental regulations.

No disposal to the sewer.

SECTION 14: Transport information

Land transport (ADR/RID)

14.1. UN number or ID number:	No dangerous good in sense of this transport regulation.
14.2. UN proper shipping name:	No dangerous good in sense of this transport regulation.
14.3. Transport hazard class(es):	No dangerous good in sense of this transport regulation.
14.4. Packing group:	No dangerous good in sense of this transport regulation.

Inland waterways transport (ADN)

14.1. UN number or ID number:	No dangerous good in sense of this transport regulation.
14.2. UN proper shipping name:	No dangerous good in sense of this transport regulation.
14.3. Transport hazard class(es):	No dangerous good in sense of this transport regulation.
14.4. Packing group:	No dangerous good in sense of this transport regulation.

Marine transport (IMDG)

14.1. UN number or ID number:	No dangerous good in sense of this transport regulation.
14.2. UN proper shipping name:	No dangerous good in sense of this transport regulation.
14.3. Transport hazard class(es):	No dangerous good in sense of this transport regulation.
14.4. Packing group:	No dangerous good in sense of this transport regulation.

Air transport (ICAO-TI/IATA-DGR)

14.1. UN number or ID number:	No dangerous good in sense of this transport regulation.
14.2. UN proper shipping name:	No dangerous good in sense of this transport regulation.
14.3. Transport hazard class(es):	No dangerous good in sense of this transport regulation.
14.4. Packing group:	No dangerous good in sense of this transport regulation.

14.5. Environmental hazards

ENVIRONMENTALLY HAZARDOUS: No

14.6. Special precautions for user

Irritating to eyes and skin.
Sensitive to cold from +5 °C Heat sensitive from +40 °C
Protect from moisture.
Keep away from food, drink and animal feeding stuffs.

14.7. Maritime transport in bulk according to IMO instruments

No dangerous good in sense of this transport regulation.

SECTION 15: Regulatory information

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

EU regulatory information

Restrictions on use (REACH, annex XVII):
Entry 3, Entry 56

Information according to 2012/18/EU (SEVESO III): Not subject to 2012/18/EU (SEVESO III)

National regulatory information

Employment restrictions:	Observe restrictions to employment for juveniles according to the 'juvenile work protection guideline' (94/33/EC). Observe employment restrictions under the Maternity Protection Directive (92/85/EEC) for expectant or nursing mothers.
Water hazard class (D):	1 - slightly hazardous to water
Skin resorption/Sensitization:	Causes allergic hypersensitivity reactions.

Additional information

Please note the leaflet of BG Chemie M 044 "Polyurethane Production and Processing / Isocyanates".

15.2. Chemical safety assessment

Chemical safety assessments for substances in this mixture were not carried out.

SECTION 16: Other information

Changes

This data sheet contains changes from the previous version in section(s): 2,4,5,6,7,8,9,10,11,12,13,14,15,16.

Abbreviations and acronyms

CLP: Classification, labelling and Packaging
REACH: Registration, Evaluation and Authorization of Chemicals
GHS: Globally Harmonised System of Classification, Labelling and Packaging of Chemicals
UN: United Nations
CAS: Chemical Abstracts Service
DNEL: Derived No Effect Level
DMEL: Derived Minimal Effect Level
PNEC: Predicted No Effect Concentration
ATE: Acute toxicity estimate
LC50: Lethal concentration, 50%
LD50: Lethal dose, 50%
LL50: Lethal loading, 50%
EL50: Effect loading, 50%
EC50: Effective Concentration 50%
ErC50: Effective Concentration 50%, growth rate
NOEC: No Observed Effect Concentration
BCF: Bio-concentration factor
PBT: persistent, bioaccumulative, toxic
vPvB: very persistent, very bioaccumulative
ADR: Accord européen sur le transport des marchandises dangereuses par Route
(European Agreement concerning the International Carriage of Dangerous Goods by Road)
RID: Regulations concerning the international carriage of dangerous goods by rail
ADN: European Agreement concerning the International Carriage of Dangerous Goods by Inland Waterways
(Accord européen relatif au transport international des marchandises dangereuses par voies de navigation intérieures)
IMDG: International Maritime Code for Dangerous Goods
EmS: Emergency Schedules
MFAG: Medical First Aid Guide
IATA: International Air Transport Association
ICAO: International Civil Aviation Organization
MARPOL: International Convention for the Prevention of Marine Pollution from Ships
IBC: Intermediate Bulk Container
SVHC: Substance of Very High Concern
For abbreviations and acronyms, see table at http://abbrev.esdscom.eu

Classification for mixtures and used evaluation method according to regulation (EC) No 1272/2008 [CLP]

Classification	Classification procedure
Acute Tox. 4; H332	Calculation method
Skin Irrit. 2; H315	Calculation method
Eye Irrit. 2; H319	Calculation method
Resp. Sens. 1; H334	Calculation method
Skin Sens. 1; H317	Calculation method
Carc. 2; H351	Calculation method
STOT SE 3; H335	Calculation method
STOT RE 2; H373	Calculation method

Relevant H and EUH statements (number and full text)

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.
EUH204	Contains isocyanates. May produce an allergic reaction.

Further Information

ISOPA directives for safe loading/unloading, transport and storage of TDI and MDI. See ISOPA website: www.isopa.org (Product Stewardship „Walk the Talk“).

Safety precautions for handling freshly molded polyurethane parts:

Depending on the production parameters, any uncovered surfaces of freshly molded polyurethane parts using this raw material may contain traces of substances (e. g. starting and reaction products, catalysts, release agents) with hazardous characteristics. Skin contact with traces of these substances must be avoided. Therefore, during demolding or other handling of fresh molded parts, protective gloves tested according to DIN-EN 374 (e.g. nitrile rubber >= 0,35 mm thick, breakthrough time >= 480 min, or according to recommendations from glove makers thinner gloves that need to be changed in compliance with breakthrough times more frequently) must be used. Depending on formulation and processing conditions, the requirements may be different from handling of the pure substances. Closed protective clothing is required for the protection of other areas of skin.

(The data for the hazardous ingredients were taken respectively from the last version of the sub-contractor's safety data sheet.)