



# SAFETY DATA SHEET

This safety data sheet complies with the requirements of: REACH Regulation (EC) No 1907/2006, as retained in UK law by (SI 2019/758 as amended)

**HERBERTS 2K-LF 520**  
**Supersedes Date:** 20-Jan-2023

**Revision date** 07-Aug-2023  
**Revision Number** 4.01

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

### 1.1. Product identifier

**Product Name** HERBERTS 2K-LF 520

**Pure substance/mixture** Mixture

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

**Recommended use** Hardener

**Uses advised against** Professional cleaning activities with Aprotic Polar Solvents are not supported Coatings (aprotic) Consumer applications that require heating above room temperature before or during use are not supported

**Reason why uses advised against** Use advised against in Chemical Safety Assessment per REACH Annex I point 7 2.3

### 1.3. Details of the supplier of the safety data sheet

**Company Name**

Bostik Limited  
Common Rd  
ST16 3EH  
Stafford UK  
Tel: +44 (1785) 27 26 25  
Fax: +44 (1785) 25 72 36

**E-mail address** SDS.box-EU@bostik.com

### 1.4. Emergency telephone number

**United Kingdom** Bostik: +44 (1785) 272650 (9am to 5pm Mon-Fri)  
NHS: 111

## SECTION 2: Hazards identification

### 2.1. Classification of the substance or mixture

GB CLP (SI 2020/1567 as amended)

<b>Acute toxicity - Inhalation (Dusts/Mists)</b>	Category 4 - (H332)
<b>Skin corrosion/irritation</b>	Category 2 - (H315)
<b>Serious eye damage/eye irritation</b>	Category 2 - (H319)
<b>Respiratory sensitisation</b>	Category 1 - (H334)
<b>Skin sensitisation</b>	Category 1 - (H317)
<b>Carcinogenicity</b>	Category 2 - (H351)
<b>Specific target organ toxicity — single exposure</b>	Category 3 - (H335)
Category 3 Respiratory irritation	
<b>Specific target organ toxicity — repeated exposure</b>	Category 2 - (H373)

### 2.2. Label elements

Contains o-(p-isocyanatobenzyl)phenyl isocyanate, 4,4'-Methylenediphenyl diisocyanate, 2,2'-methylenediphenyl diisocyanate

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**Signal word**  
Danger

## 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 - EU (§28, 1272/2008)

P260 - Do not breathe dust/fume/gas/mist/vapours/spray  
P264 - Wash face, hands and any exposed skin thoroughly after handling  
P280 - Wear protective gloves/protective clothing/eye protection/face protection  
P304 + P340 - IF INHALED: Remove person to fresh air and keep comfortable for breathing  
P342 + P311 - If experiencing respiratory symptoms: Call a POISON CENTER or doctor  
P501 - Dispose of contents/ container to an approved waste disposal plant

## Special provisions concerning the labelling of certain mixtures

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

## Additional information

This product requires tactile warnings if supplied to the general public.

## 2.3. Other hazards

Contact with water (moisture) liberates carbon dioxide, which causes pressure increase in closed containers.

## PBT & vPvB

This mixture contains no substance considered to be persistent, bioaccumulating or toxic (PBT). This mixture contains no substance considered to be very persistent nor very bioaccumulating (vPvB).

## SECTION 3: Composition/information on ingredients

### 3.1 Substances

Not applicable

### 3.2 Mixtures

Chemical name	EC No (EU Index No)	CAS No	Weight-%	Classification according to Regulation (EC) No. 1272/2008 [CLP]	Specific concentration limit (SCL)	REACH registration number
o-(p-isocyanatobenzyl)phenyl isocyanate	(615-005-00-9) 227-534-9	5873-54-1	10 - <20	Acute Tox. 4 (H332) Skin Irrit. 2 (H315) Eye Irrit. 2 (H319)	Eye Irrit. 2 :: C>=5% Resp. Sens. 1 :: C>=0.1% Skin Irrit. 2 :: C>=5% STOT SE 3 :: C>=5%	01-2119480143-45-XXXX

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				Resp. Sens. 1 (H334) Skin Sens. 1 (H317) Carc. 2 (H351) STOT SE 3 (H335) STOT RE 2 (H373)		
4,4'-Methylenediphenyl diisocyanate	(615-005-00-9) (615-035-00-2) 202-966-0	101-68-8	10 - <20	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)	STOT SE 3 :: C>=5% Skin Irrit. 2 :: C>=5% Eye Irrit. 2 :: C>=5% Resp. Sens. 1 :: C>=0.1%	01-2119457014-47-XXXX
2,2'-methylenediphenyl diisocyanate	(615-005-00-9) 219-799-4	2536-05-2	0.1 - <0.3	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)	Eye Irrit. 2 :: C>=5% Resp. Sens. 1 :: C>=0.1% Skin Irrit. 2 :: C>=5% STOT SE 3 :: C>=5%	01-2119927323-43-XXXX

**Full text of H- and EUH-phrases: see section 16**

This product does not contain candidate substances of very high concern at a concentration  $\geq 0.1\%$  (Regulation (EC) No. 1907/2006 (REACH), Article 59)

## Notes

See section 16 for more information

Chemical name	Notes
o-(p-isocyanatobenzyl)phenyl isocyanate - 5873-54-1	C,2
4,4'-Methylenediphenyl diisocyanate - 101-68-8	C,2
2,2'-methylenediphenyl diisocyanate - 2536-05-2	C,2

## SECTION 4: First aid measures

### 4.1. Description of first aid measures

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<b>General advice</b>	Show this safety data sheet to the doctor in attendance. IF exposed or concerned: Get medical advice/attention.
<b>Inhalation</b>	May cause allergic respiratory reaction. If breathing has stopped, give artificial respiration. Get medical attention immediately. Remove to fresh air. Avoid direct contact with skin. Use barrier to give mouth-to-mouth resuscitation. Get immediate medical attention.
<b>Eye contact</b>	Rinse immediately with plenty of water, also under the eyelids, for at least 15 minutes. Remove contact lenses, if present and easy to do. Continue rinsing. Keep eye wide open while rinsing. Do not rub affected area. Get medical attention if irritation develops and persists.
<b>Skin contact</b>	May cause an allergic skin reaction. In the case of skin irritation or allergic reactions see a doctor. Wash off immediately with soap and plenty of water for at least 15 minutes.
<b>Ingestion</b>	May produce an allergic reaction. Do NOT induce vomiting. Rinse mouth. Never give anything by mouth to an unconscious person. Get immediate medical attention.
<b>Self-protection of the first aider</b>	Ensure that medical personnel are aware of the material(s) involved, take precautions to protect themselves and prevent spread of contamination. Avoid contact with skin, eyes or clothing. Avoid direct contact with skin. Use barrier to give mouth-to-mouth resuscitation. Use personal protective equipment as required. See section 8 for more information. Avoid breathing vapours or mists.

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

<b>Symptoms</b>	May cause allergy or asthma symptoms or breathing difficulties if inhaled. Coughing and/ or wheezing. Itching. Rashes. Hives. May cause redness and tearing of the eyes. Burning sensation. Difficulty in breathing.
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## 4.3. Indication of any immediate medical attention and special treatment needed

<b>Note to doctors</b>	May cause sensitisation in susceptible persons. Treat symptomatically.
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## **SECTION 5: Firefighting measures**

### 5.1. Extinguishing media

<b>Suitable Extinguishing Media</b>	Use extinguishing measures that are appropriate to local circumstances and the surrounding environment.
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<b>Unsuitable extinguishing media</b>	No information available.
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### 5.2. Special hazards arising from the substance or mixture

<b>Specific hazards arising from the chemical</b>	Product is or contains a sensitiser. May cause sensitisation by inhalation. May cause sensitisation by skin contact.
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<b>Hazardous combustion products</b>	Carbon dioxide (CO <sub>2</sub> ). Nitrogen oxides (NO <sub>x</sub> ). Hydrogen cyanide. Isocyanates.
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### 5.3. Advice for firefighters

<b>Special protective equipment and precautions for fire-fighters</b>	Firefighters should wear self-contained breathing apparatus and full firefighting turnout gear. Use personal protection equipment.
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## **SECTION 6: Accidental release measures**

### 6.1. Personal precautions, protective equipment and emergency procedures

<b>Personal precautions</b>	Avoid contact with skin, eyes or clothing. Ensure adequate ventilation. Use personal
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protective equipment as required. Evacuate personnel to safe areas. Keep people away from and upwind of spill/leak. Avoid breathing vapours or mists.

**Other information** Refer to protective measures listed in Sections 7 and 8.

**For emergency responders** Use personal protection recommended in Section 8.

## 6.2. Environmental precautions

**Environmental precautions** Prevent further leakage or spillage if safe to do so.

## 6.3. Methods and material for containment and cleaning up

**Methods for containment** Do NOT close container (evolution of carbon dioxide - CO<sub>2</sub>). Keep wet and put outdoors in a secured place for a few days. Then dispose to of according to local / national regulations (see Section 13). Dyke far ahead of liquid spill for later disposal. Absorb with earth, sand or other non-combustible material and transfer to containers for later disposal.

**Methods for cleaning up** 2%, Liquid dishwashing soap, a mixture of 90% water and 8-10% sodium carbonate. Dam up. Soak up with inert absorbent material. Pick up and transfer to properly labelled containers. Decontaminate floor with decontamination solution letting stand for at least 15 minutes.

**Prevention of secondary hazards** Clean contaminated objects and areas thoroughly observing environmental regulations.

## 6.4. Reference to other sections

**Reference to other sections** See section 8 for more information. See section 13 for more information.

## **SECTION 7: Handling and storage**

### 7.1. Precautions for safe handling

**Advice on safe handling** Handle in accordance with good industrial hygiene and safety practice. Avoid contact with skin, eyes or clothing. Ensure adequate ventilation. In case of insufficient ventilation, wear suitable respiratory equipment. Do not eat, drink or smoke when using this product. Take off contaminated clothing and wash it before reuse. Avoid breathing vapours or mists.

**General hygiene considerations** Avoid contact with skin, eyes or clothing. Wear suitable gloves and eye/face protection. Do not eat, drink or smoke when using this product. Remove and wash contaminated clothing and gloves, including the inside, before re-use. Wash hands before breaks and immediately after handling the product.

### 7.2. Conditions for safe storage, including any incompatibilities

**Storage Conditions** Keep containers tightly closed in a dry, cool and well-ventilated place. Store locked up. Keep out of the reach of children.

**Recommended storage temperature** Keep at temperatures between 10 and 35 °C.

### 7.3. Specific end use(s)

**Specific use(s)**  
Hardener.

**Risk Management Methods (RMM)** The information required is contained in this Safety Data Sheet.

**Other information** Observe technical data sheet.

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## SECTION 8: Exposure controls/personal protection

### 8.1. Control parameters

#### Exposure Limits

Chemical name	European Union	United Kingdom
o-(p-isocyanatobenzyl)phenyl isocyanate 5873-54-1	-	TWA: 0.02 mg/m <sup>3</sup> STEL: 0.07 mg/m <sup>3</sup> Sen+
4,4'-Methylenediphenyl diisocyanate 101-68-8	-	TWA: 0.02 mg/m <sup>3</sup> STEL: 0.07 mg/m <sup>3</sup> Sen+
2,2'-methylenediphenyl diisocyanate 2536-05-2	-	TWA: 0.02 mg/m <sup>3</sup> STEL: 0.07 mg/m <sup>3</sup> Sen+

Chemical name	European Union	Ireland	United Kingdom
o-(p-isocyanatobenzyl)phenyl isocyanate 5873-54-1	-	1 µmol/mol Creatinine (urine - urinary Diamine post task)	-
4,4'-Methylenediphenyl diisocyanate 101-68-8	-	1 µmol/mol Creatinine (urine - urinary Diamine post task)	1 mmol isocyanate-derived diamine/mol creatinine urine
2,2'-methylenediphenyl diisocyanate 2536-05-2	-	1 µmol/mol Creatinine (urine - urinary Diamine post task)	-

**Derived No Effect Level (DNEL)** No information available

#### Derived No Effect Level (DNEL)

##### o-(p-isocyanatobenzyl)phenyl isocyanate (5873-54-1)

Type	Exposure route	Derived No Effect Level (DNEL)	Safety factor
worker Long term Local health effects	Inhalation	0.05 mg/m <sup>3</sup>	
worker Short term Local health effects	Inhalation	0.1 mg/m <sup>3</sup>	

##### 4,4'-Methylenediphenyl diisocyanate (101-68-8)

Type	Exposure route	Derived No Effect Level (DNEL)	Safety factor
worker Short term Systemic health effects	Dermal	50 mg/kg bw/d	
worker Short term Systemic health effects	Inhalation	0.1 mg/m <sup>3</sup>	
worker Short term Local health effects	Dermal	28700 µg/cm <sup>2</sup>	
worker Short term Local health effects	Inhalation	0.1 mg/m <sup>3</sup>	
worker Long term Systemic health effects	Inhalation	0.05 mg/m <sup>3</sup>	
worker Long term Local health effects	Inhalation	0.05 mg/m <sup>3</sup>	

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Derived No Effect Level (DNEL)			
4,4'-Methylenediphenyl diisocyanate (101-68-8)			
Type	Exposure route	Derived No Effect Level (DNEL)	Safety factor
Consumer Short term Systemic health effects	Dermal	25 mg/kg bw/d	
Consumer Short term Systemic health effects	Inhalation	0.05 mg/m <sup>3</sup>	
Consumer Short term Systemic health effects	Oral	20 mg/kg bw/d	
Consumer Short term Local health effects	Dermal	17200 µg/cm <sup>2</sup>	
Consumer Short term Local health effects	Inhalation	0.05 mg/m <sup>3</sup>	
Consumer Long term Systemic health effects	Inhalation	0.025 mg/m <sup>3</sup>	
Consumer Long term Local health effects	Inhalation	0.025 mg/m <sup>3</sup>	

## Predicted No Effect Concentration (PNEC)

Predicted No Effect Concentration (PNEC)	
o-(p-isocyanatobenzyl)phenyl isocyanate (5873-54-1)	
Environmental compartment	Predicted No Effect Concentration (PNEC)
Freshwater	1 mg/l
Marine water	0.1 mg/l
Sewage treatment plant	1 mg/l
Soil	1 mg/kg dry weight
Freshwater - intermittent	10 mg/l

4,4'-Methylenediphenyl diisocyanate (101-68-8)	
Environmental compartment	Predicted No Effect Concentration (PNEC)
Freshwater	1 mg/l
Marine water	0.1 mg/l
Soil	1 mg/kg dry weight
Sewage treatment plant	1 mg/l
Freshwater - intermittent	10 mg/l

2,2'-methylene-diphenyl diisocyanate (2536-05-2)	
Environmental compartment	Predicted No Effect Concentration (PNEC)
Freshwater	1 mg/l
Marine water	0.1 mg/l
Sewage treatment plant	1 mg/l
Soil	1 mg/kg dry weight
Freshwater - intermittent	10 mg/l

## 8.2. Exposure controls

### Engineering controls

Ensure adequate ventilation, especially in confined areas. Vapours/aerosols must be exhausted directly at the point of origin.

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## Personal protective equipment

<b>Eye/face protection</b>	Wear safety glasses with side shields (or goggles). Eye protection must conform to standard EN 166.
<b>Hand protection</b>	Wear suitable gloves. Gloves must conform to standard EN 374. Recommended Use: Nitrile rubber. Viton™. Unsuitable protective clothing. Natural rubber. Disposable gloves. Glove thickness > 0.7mm. The breakthrough time for the mentioned glove material is in general greater than 480 min. Ensure that the breakthrough time of the glove material is not exceeded. Refer to glove supplier for information on breakthrough time for specific gloves.
<b>Skin and body protection</b>	Wear suitable protective clothing.
<b>Respiratory protection</b>	In case of inadequate ventilation wear respiratory protection. During spraying wear suitable respiratory equipment.
<b>Recommended filter type:</b>	Wear a respirator conforming to EN 140 with Type A/P2 filter or better. Organic gases and vapours filter conforming to EN 14387.

**Environmental exposure controls** Do not allow uncontrolled discharge of product into the environment.

## SECTION 9: Physical and chemical properties

### 9.1. Information on basic physical and chemical properties

<b>Physical state</b>	Liquid
<b>Appearance</b>	Very viscous
<b>Colour</b>	No information available
<b>Odour</b>	No information available.

<u>Property</u>	<u>Values</u>	<u>Remarks • Method</u>
<b>Melting point / freezing point</b>	No data available	
<b>Initial boiling point and boiling range</b>	No data available	None known
<b>Flammability</b>	Not applicable for liquids	
<b>Flammability Limit in Air</b>		None known
<b>Upper flammability or explosive limits</b>	No data available	
<b>Lower flammability or explosive limits</b>	No data available	
<b>Flash point</b>	> 200 °C	
<b>Autoignition temperature</b>	No data available	None known
<b>Decomposition temperature</b>		None known
<b>pH</b>	No data available	None known.
<b>pH (as aqueous solution)</b>	No data available	None known
<b>Kinematic viscosity</b>	No data available	None known
<b>Dynamic viscosity</b>	2000 - 3500 mPa s	@ 23 °C
<b>Water solubility</b>	Insoluble in water.	
<b>Solubility(ies)</b>	No data available	None known
<b>Partition coefficient</b>	No data available	None known
<b>Vapour pressure</b>	No data available	None known
<b>Relative density</b>	1.15	@ 23 °C
<b>Bulk Density</b>	No data available	
<b>Density</b>	1.15 g/cm <sup>3</sup>	
<b>Relative vapour density</b>	No data available	None known
<b>Particle characteristics</b>		
<b>Particle Size</b>	No information available	
<b>Particle Size Distribution</b>	No information available	

### 9.2. Other information

<b>Solid content (%)</b>	No information available
<b>VOC content</b>	No data available

9.2.1. Information with regards to physical hazard classes  
Not applicable

9.2.2. Other safety characteristics



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No information available

## SECTION 10: Stability and reactivity

### 10.1. Reactivity

**Reactivity** No information available.

### 10.2. Chemical stability

**Stability** Stable under normal conditions.

### Explosion data

**Sensitivity to mechanical impact** None.

**Sensitivity to static discharge** None.

### 10.3. Possibility of hazardous reactions

**Possibility of hazardous reactions** Contact with water (moisture) liberates carbon dioxide, which causes pressure increase in closed containers. Exothermic reaction with. Amines. Alcohols.

**Hazardous polymerisation** Hazardous polymerisation may occur. Hazardous polymerisation may take place during a fire due to heat. Closed containers could violently rupture.

### 10.4. Conditions to avoid

**Conditions to avoid** Excessive heat.

### 10.5. Incompatible materials

**Incompatible materials** Strong acids. Strong bases. Strong oxidising agents.

### 10.6. Hazardous decomposition products

**Hazardous decomposition products** None under normal use conditions.

## SECTION 11: Toxicological information

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

#### Information on likely routes of exposure

#### Product Information

**Inhalation** Specific test data for the substance or mixture is not available. May cause sensitisation in susceptible persons. (based on components). May cause irritation of respiratory tract. Harmful by inhalation.

**Eye contact** Specific test data for the substance or mixture is not available. Causes serious eye irritation. (based on components). May cause redness, itching, and pain.

**Skin contact** Specific test data for the substance or mixture is not available. Repeated or prolonged skin contact may cause allergic reactions with susceptible persons. (based on components). May cause sensitisation by skin contact. Causes skin irritation.

**Ingestion** Specific test data for the substance or mixture is not available. May cause additional affects as listed under "Inhalation". Ingestion may cause gastrointestinal irritation, nausea, vomiting and diarrhoea.

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## Symptoms related to the physical, chemical and toxicological characteristics

**Symptoms** Symptoms of allergic reaction may include rash, itching, swelling, trouble breathing, tingling of the hands and feet, dizziness, lightheadedness, chest pain, muscle pain, or flushing. Coughing and/ or wheezing. Itching. Rashes. Hives. Redness. May cause redness and tearing of the eyes.

## Acute toxicity

### Numerical measures of toxicity

The following values are calculated based on chapter 3.1 of the GHS document

ATEmix (oral) >5000 mg/kg  
ATEmix (dermal) >5000 mg/kg  
ATEmix (inhalation-gas) >20000 ppm  
ATEmix (inhalation-vapour) >20 mg/l

### Component Information

Chemical name	Oral LD50	Dermal LD50	Inhalation LC50
o-(p-isocyanatobenzyl)phenyl isocyanate	LD50 >2000 mg/Kg (Rattus)	LD 50 > 9400 mg/kg (Oryctolagus cuniculus) OECD 402	1.5 mg/L (4h) Rat
4,4'-Methylenediphenyl diisocyanate	=31600 mg/kg (Rattus) = 9200 mg/kg (Rattus)	LD 50 > 9400 mg/kg (Oryctolagus cuniculus) OECD 402	=1.5 mg/L (Rattus) 4 h
2,2'-methylenediphenyl diisocyanate	LD50 > 2000 mg/kg (Rattus)	LD 50 > 9400 mg/kg (Oryctolagus cuniculus) OECD 402	1.5 mg/L (4h) Rat

## Delayed and immediate effects as well as chronic effects from short and long-term exposure

**Skin corrosion/irritation** Classification based on data available for ingredients. Causes skin irritation.

o-(p-isocyanatobenzyl)phenyl isocyanate (5873-54-1)

Method	Species	Exposure route	Effective dose	Exposure time	Results
OECD Test No. 404: Acute Dermal Irritation/Corrosion	Rabbit				irritant

4,4'-Methylenediphenyl diisocyanate (101-68-8)

Method	Species	Exposure route	Effective dose	Exposure time	Results
OECD Test No. 404: Acute Dermal Irritation/Corrosion	Rabbit	Dermal			Irritant

**Serious eye damage/eye irritation** Classification based on data available for ingredients. Causes serious eye irritation.

4,4'-Methylenediphenyl diisocyanate (101-68-8)

Method	Species	Exposure route	Effective dose	Exposure time	Results
OECD Test No. 405: Acute Eye Irritation/Corrosion	Rabbit	Eye	0.1 mL	24 hours	Mild eye irritation

**Respiratory or skin sensitisation** May cause allergy or asthma symptoms or breathing difficulties if inhaled. May cause an allergic skin reaction.

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4,4'-Methylenediphenyl diisocyanate (101-68-8)

Method	Species	Exposure route	Results
OECD GD 39	Rat	Inhalation	Sensitizing
OECD Test No. 406: Skin Sensitisation	Guinea pig	Dermal	Sensitizing

**Germ cell mutagenicity** Based on available data, the classification criteria are not met.

Component Information

4,4'-Methylenediphenyl diisocyanate (101-68-8)

Method	Species	Results
Regulation (EC) No. 440/2008, Annex, B.13/14 (Ames test)	in vitro	Not mutagenic
OECD Test No. 474: Mammalian Erythrocyte Micronucleus Test	Rat, in vivo	Not mutagenic

**Carcinogenicity** Contains a known or suspected carcinogen. Classification based on data available for ingredients. Suspected of causing cancer.

The table below indicates whether each agency has listed any ingredient as a carcinogen.

Component Information

o-(p-isocyanatobenzyl)phenyl isocyanate (5873-54-1)

Method	Species	Results
OECD Test No. 453: Combined Chronic Toxicity/Carcinogenicity Studies	Rat	Carcinogenic

4,4'-Methylenediphenyl diisocyanate (101-68-8)

Method	Species	Results
OECD Test No. 453: Combined Chronic Toxicity/Carcinogenicity Studies	Rat	Limited evidence of a carcinogenic effect

Chemical name	European Union
o-(p-isocyanatobenzyl)phenyl isocyanate	Carc. 2
4,4'-Methylenediphenyl diisocyanate	Carc. 2
2,2'-methylenediphenyl diisocyanate	Carc. 2

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

4,4'-Methylenediphenyl diisocyanate (101-68-8)

Method	Species	Results
OECD Test No. 414: Pre-natal Development Toxicity Study	Rat	LOAEL 9 mg/m <sup>3</sup>

**STOT - single exposure** May cause respiratory irritation.

**STOT - repeated exposure** May cause damage to organs through prolonged or repeated exposure.

4,4'-Methylenediphenyl diisocyanate (101-68-8)

Method	Species	Exposure route	Effective dose	Exposure time	Results
	Rat, female	Inhalation,	0,0.2,0.7, 2.1 mg/m <sup>3</sup>	2 Years	Category 2

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		Dust/Mist			
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**Aspiration hazard** Based on available data, the classification criteria are not met.

## 11.2. Information on other hazards

### 11.2.1. Endocrine disrupting properties

**Endocrine disrupting properties** No information available.

### 11.2.2. Other information

**Other adverse effects** No information available.

## SECTION 12: Ecological information

### 12.1. Toxicity

#### Ecotoxicity

Chemical name	Algae/aquatic plants	Fish	Toxicity to microorganisms	Crustacea	M-Factor	M-Factor (long-term)
o-(p-isocyanatobenzyl) phenyl isocyanate 5873-54-1	ErC50 (72h) >1640 mg/L Algae (scenedesmus subspicatus) (OECD 201)	LC50 (96 h) > 1000 mg/l Danio rerio (OECD 203)	-	EC50 (24H) >1000 mg/L Daphnia magna		
4,4'-Methylenediphenyl diisocyanate 101-68-8	ErC50 (72h) >1640 mg/L Algae (scenedesmus subspicatus) (OECD 201)	>1000 mg/l (Danio rerio)	-	EC50 (24H) >1000 mg/L Daphnia magna		
2,2'-methylenediphenyl diisocyanate 2536-05-2	-	LC50 (96 h) > 1000 mg/l Danio rerio (OECD 203)	-	-		

### 12.2. Persistence and degradability

**Persistence and degradability** No information available.

4,4'-Methylenediphenyl diisocyanate (101-68-8)

Method	Exposure time	Value	Results
OECD Test No. 302C: Inherent Biodegradability: Modified MITI Test (II)	28 days	0% biodegradation	Not readily biodegradable

### 12.3. Bioaccumulative potential

#### Bioaccumulation

##### Component Information

Chemical name	Partition coefficient
4,4'-Methylenediphenyl diisocyanate	4.51

### 12.4. Mobility in soil

**Mobility in soil** No information available.

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## 12.5. Results of PBT and vPvB assessment

**PBT and vPvB assessment** The product does not contain any substance(s) classified as PBT or vPvB above the threshold of declaration.

Chemical name	PBT and vPvB assessment
o-(p-isocyanatobenzyl)phenyl isocyanate	The substance is not PBT / vPvB
4,4'-Methylenediphenyl diisocyanate	The substance is not PBT / vPvB
2,2'-methylenediphenyl diisocyanate	The substance is not PBT / vPvB

## 12.6. Endocrine disrupting properties

**Endocrine disrupting properties** No information available.

## 12.7. Other adverse effects

No information available.

## SECTION 13: Disposal considerations

### 13.1. Waste treatment methods

**Waste from residues/unused products** Dispose of in accordance with local regulations. Dispose of waste in accordance with environmental legislation.

**Contaminated packaging** Do not reuse empty containers.

**Waste codes / waste designations according to EWC** 16 05 05 gases in pressure containers other than those mentioned in 16 05 04. Waste codes should be assigned by the user based on the application for which the product was used.

**European Waste Catalogue** 08 04 09\* waste adhesives and sealants containing organic solvents or other dangerous substances  
15 01 10\*: Packaging containing residues of or contaminated by dangerous substances

**Other information** Waste codes should be assigned by the user based on the application for which the product was used.

## SECTION 14: Transport information

### Land transport (ADR/RID)

14.1 UN number or ID number Not regulated  
14.2 UN proper shipping name Not regulated  
14.3 Transport hazard class(es) Not regulated  
14.4 Packing group Not regulated  
14.5 Environmental hazards Not applicable  
14.6 Special precautions for user  
Special Provisions None

### IMDG

14.1 UN number or ID number Not regulated  
14.2 UN proper shipping name Not regulated  
14.3 Transport hazard class(es) Not regulated  
14.4 Packing group Not regulated  
14.5 Marine pollutant NP  
14.6 Special precautions for user  
Special Provisions None

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## 14.7 Maritime transport in bulk according to IMO instruments

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

## Air transport (ICAO-TI / IATA-DGR)

14.1 UN number or ID number	Not regulated
14.2 UN proper shipping name	Not regulated
14.3 Transport hazard class(es)	Not regulated
14.4 Packing group	Not regulated
14.5 Environmental hazards	Not applicable
14.6 Special precautions for user	
Special Provisions	None

## Section 15: REGULATORY INFORMATION

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

#### European Union

Take note of Directive 98/24/EC on the protection of the health and safety of workers from the risks related to chemical agents at work

Check whether measures in accordance with Directive 94/33/EC for the protection of young people at work must be taken.

Take note of Directive 92/85/EC on the protection of pregnant and breastfeeding women at work

#### Registration, Evaluation, Authorization, and Restriction of Chemicals (REACH) Regulation (EC 1907/2006)

##### SVHC: Substances of Very High Concern for Authorisation:

This product does not contain candidate substances of very high concern at a concentration  $\geq 0.1\%$  (Regulation (EC) No. 1907/2006 (REACH), Article 59)

#### EU-REACH (1907/2006) - Annex XVII - Substances subject to Restriction

This product contains one or more substance(s) subject to restriction (Regulation (EC) No. 1907/2006 (REACH), Annex XVII).

Chemical name	CAS No	Restricted substance per REACH Annex XVII
o-(p-isocyanatobenzyl)phenyl isocyanate	5873-54-1	56[b]. 75. 74.
4,4'-Methylenediphenyl diisocyanate	101-68-8	56[a]. 75. 74.
Diisocyanates	--	74
2,2'-methylenediphenyl diisocyanate	2536-05-2	56[c]. 75. 74.

**56** . If product supplied to the general public with substance  $\geq 0.1\%$ , then gloves must be provided with the product. **74** If product supplied to the industrial or professional users with total monomeric diisocyanates  $\geq 0.1\%$ , then its packaging must mention "As from 24 August 2023 adequate training is required before industrial or professional use".

#### Substance subject to authorisation per REACH Annex XIV

This product does not contain substances subject to authorisation (Regulation (EC) No. 1907/2006 (REACH), Annex XIV)

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**Ozone-depleting substances (ODS) regulation (EC) 1005/2009**  
Not applicable

**Persistent Organic Pollutants**  
Not applicable

## National regulations

### 15.2. Chemical safety assessment

Chemical Safety Assessments have been carried out by the Reach registrants for substances registered at >10 tpa. No Chemical Safety Assessment has been carried out for this mixture

## **SECTION 16: Other information**

### Key or legend to abbreviations and acronyms used in the safety data sheet

#### Full text of H-Statements referred to under section 3

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

#### **Notes relating to the identification, classification and labelling of substances**

**Note C:** Some organic substances may be marketed either in a specific isomeric form or as a mixture of several isomers. In this case the supplier must state on the label whether the substance is a specific isomer or a mixture of isomers

#### **Notes relating to the classification and labelling of mixtures**

**Note 2:** The concentration of isocyanate stated is the percentage by weight of the free monomer calculated with reference to the total weight of the mixture

#### **Legend**

TWA	TWA (time-weighted average)
STEL	STEL (Short Term Exposure Limit)
Ceiling	Ceiling Limit Value
*	Skin designation
SVHC	Substance(s) of Very High Concern
PBT	Persistent, Bioaccumulative, and Toxic (PBT) Chemicals
vPvB	Very Persistent and very Bioaccumulative (vPvB) Chemicals
STOT RE	Specific target organ toxicity - Repeated exposure
STOT SE	Specific target organ toxicity - Single exposure
EWC	European Waste Catalogue
ADR	European Agreement concerning the International Carriage of Dangerous Goods by Road
IMDG	International Maritime Dangerous Goods (IMDG)
IATA	International Air Transport Association (IATA)
RID	Regulations concerning the International Transport of Dangerous Goods by Rail

#### **Key literature references and sources for data**

No information available

**Prepared By** Product Safety & Regulatory Affairs  
**Revision date** 07-Aug-2023

#### Indication of changes

**Revision note** SDS sections updated, 1.  
**Training Advice** When working with hazardous materials, regular training of operators is required by law

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AS FROM 24 AUGUST 2023 ADEQUATE TRAINING IS REQUIRED BEFORE INDUSTRIAL OR PROFESSIONAL USE For further information, please contact:

<https://www.safeusediisocyanates.eu/>

**Further information**

No information available

**This material safety data sheet complies with requirements of UK REACH Regulations (SI 2019/758 as amended)**

**Disclaimer**

The information provided in this Safety Data Sheet is correct to the best of our knowledge, information and belief at the date of its publication. The information given is designed only as a guidance for safe handling, use, processing, storage, transportation, disposal and release and is not to be considered a warranty or quality specification. The information relates only to the specific material designated and may not be valid for such material used in combination with any other materials or in any process, unless specified in the text.

**End of Safety Data Sheet**