

Product 9012 B  
 Revision date 27 February 2020  
 Revision 1



## Safety Data Sheet (SDS)

### Section 1: Identification of the substance/preparation and of the company/undertaking

#### 1.1 Product identifier

**Product name** 9012 B  
**Synonyms, Trade names** No information available.

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

**Identified uses** Vacuum casting.  
**Uses advised against** Any other purpose.

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

**Supplier** Scott AM Ltd  
 4 Holding  
 Beechcliffe Lane  
 Tittensor, Stoke-on-Trent  
 ST12 9HP  
 United Kingdom  
 Tel: +44 (0) 1782 367625 (during UK office hours 09:00 to 17:00 UTC).  
 info@scott-am.com

**Contact person**

#### 1.4 Emergency telephone number

**Emergency telephone** 999 / 911 or local emergency number.

### Section 2: Hazards identification

#### 2.1 Classification of the substance or mixture

**Classification (EC 1272/2008)**  
 Physical and chemical hazards Not classified  
 Human health Skin Irrit.2 - H315, Eye Irrit.2A - H319, Resp. Sens 1 - H334, Skin. Sens 1 - H317, Carc. 2 - H351, STOT SE 3 - H335, STOT RE 2 - H373, Acute Tox 4 - H332  
 Environment Not classified

#### 2.2 Label elements

**Contains** 4,4'-methylenediphenyl diisocyanate

**Label in accordance with (EC) no. 1272/2008**



**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****Prevention**

P202 Do not handle until all safety precautions have been read and understood.  
 P260 Do not breathe dust/fume/ gas/mist/vapours/spray.  
 P280 Wear protective gloves/ protective clothing/eye protection/face protection.  
 P285 In case of inadequate ventilation wear respiratory protection.

**Response**

P304 + P340 IF INHALED: Remove victim to fresh air and keep at rest in a position comfortable for breathing.  
 P308 + P313 IF exposed or concerned: Get medical advice/ attention.  
 P342 + P311 If experiencing respiratory symptoms: Call a POISON CENTRE or doctor/physician.

**Storage**

P403 + P233 Store in a well-ventilated place. Keep container tightly closed.

**EUH statements**

EUH204 Contains isocyanates. May produce an allergic reaction.

**2.3 Other hazards**

None known.

**Section 3: Composition/identification of ingredients****3.1 Substance**

Not applicable.

**3.2 Mixtures**

Name	Product identifier	Reg. EU 1272/2008	%
4,4'-methylenediphenyl diisocyanate	CAS-No.: 101-68-8 EC No.: 202-966-0	Acute Tox 4 - H332, Skin Irrit.2 - H315, Eye Irrit.2A - H319, Resp. Sens 1 - H334, Skin. Sens 1 - H317, Carc. 2 - H351, STOT SE 3 - H335, STOT RE 2 - H373	30-60%

The full text for all hazard statements are displayed in section 16.

**Composition comments**

The data shown are in accordance with the latest EC Directives.

**Section 4: First aid measures****4.1 Description of first aid measures****General information**

Provide general first aid, rest, warmth and fresh air. As a general rule, in case of doubt or if symptoms persist, always call a doctor. Seek medical attention for all burns and eye injuries, regardless how minor they may seem. First aid personnel must be aware of own risk during rescue. The first aid procedure should be established in consultation with the doctor responsible for industrial medicine.

**Inhalation**

If this product is inhaled and symptoms occur, move the exposed person to fresh air promptly. If necessary, clear the airway. If not breathing, give artificial respiration and get medical attention. If breathing is difficult, provide oxygen. If an allergic respiratory reaction occurs, get immediate medical attention.

**Ingestion**

If this product is ingested get medical attention immediately! Immediately rinse mouth and provide fresh air. If vomiting occurs, the head should be kept low so that stomach content doesn't enter the lungs, and is not swallowed.

**Skin contact**

Keep airway clear. Provide fresh air, warmth and rest, preferably in comfortable upright sitting position. Induce vomiting only when directed by medical personnel and person is conscious. Never give anything by mouth to an unconscious person. Remove affected person from source of contamination. Remove contaminated clothing. Wash the skin immediately with soap and water. Get medical attention promptly if symptoms occur after washing.

**Eye contact**

Do not rub eye. Avoid contaminating unaffected eye. Immediately flush eyes with plenty of water for at least 15 minutes, lifting lower and upper eyelids occasionally. Remove contact lenses if present and easy to do so. Get medical attention immediately.

**4.2 Most important symptoms and effects, both acute and delayed****General information**

The severity of the symptoms described will vary dependent on the concentration and the

	length of exposure. Symptoms of exposure include: Irritation of eyes, nose, throat; respiratory sensitization; cough, pulmonary secretions, chest pain, dyspnea (breathing difficulty); asthma.
<b>Inhalation</b>	Suspected of causing cancer. Causes damage to organs through prolonged or repeated exposure. Harmful if inhaled. May cause damage to the respiratory system through prolonged or repeated exposure by inhalation. May cause allergy or asthma symptoms or breathing difficulties if inhaled. Inhalation may cause respiratory irritation. If an allergic respiratory reaction occurs, get immediate medical attention.
<b>Ingestion</b>	May cause digestive tract irritation, pain or vomiting.
<b>Skin contact</b>	Causes skin irritation. May cause an allergic skin reaction.
<b>Eye contact</b>	Causes serious eye irritation.

#### **4.3 Indication of any immediate medical attention and special treatment needed**

<b>Notes to the physician</b>	Treat symptomatically. Sensitising effects: Severe allergic skin reactions, bronchospasm and anaphylactic shock, breathing difficulties, and lachrymation.
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### **Section 5: Fire-fighting measures**

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#### **5.1 Extinguishing media**

<b>Extinguishing media</b>	Use fire-extinguishing media appropriate for surrounding materials: Foam, powder, CO2.
<b>Unsuitable extinguishing media</b>	Do not use water jet as an extinguisher. Water spray may be used if no other available and then in copious quantities. Reaction between water and hot isocyanate may be vigorous.

#### **5.2 Special hazards arising from the substance or mixture**

<b>Hazardous combustion products</b>	Burning releases carbon monoxide, carbon dioxide, oxides of nitrogen, isocyanate vapors and traces of hydrogen cyanide.
<b>Unusual fire &amp; explosion hazards</b>	No unusual fire or explosion hazards noted.
<b>Specific hazards</b>	Floors may become slippery, avoid falls. Containers can burst violently when heated, due to excess pressure build-up

#### **5.3 Advice for firefighters**

<b>Special fire fighting procedures</b>	If possible, fight fire from protected position. Ventilate closed spaces before entering them. Keep up-wind to avoid fumes. Avoid breathing fire vapours. Containers close to fire should be removed immediately or cooled with water if safe to do so. For initial fire, use dry chemical, carbon dioxide or dry sand. In case of a massive fire, use foam extinguisher. After fire is extinguished, neutralize wet isocyanate. Take measures to avoid the spill of the products or chemicals to rivers or drains due to water-discharge from fire fighting. For neutralizing agent: see section 6.3.
<b>Protective equipment for firefighters</b>	Fire-fighters should wear appropriate protective equipment and self-contained breathing apparatus (SCBA) with a full face-piece operated in positive pressure mode. Clothing for fire-fighters (including helmets, protective boots and gloves) conforming to European standard EN 469 will provide a basic level of protection for chemical incidents.

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### **Section 6: Accidental release measures**

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

<b>Personal precautions</b>	Wear protective clothing as described in Section 8 of this safety data sheet. Eliminate all sources of ignition. Avoid inhalation of vapours and contact with skin and eyes. Provide adequate ventilation. In case of inadequate ventilation, use respiratory protection. Do not smoke, eat or drink while using this product. Read and follow manufacturer's recommendations. Do not touch or walk through spilled material. Keep unnecessary and unprotected personnel from entering. Avoid prolonged or repeated exposure.
<b>For emergency responders</b>	Follow safe handling advice and personal protective equipment recommendations for normal use of product.

#### **6.2 Environmental precautions**

<b>Environmental precautions</b>	Do not discharge into drains, water courses or onto the ground.
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**6.3 Methods and material for containment and cleaning up**

**Spill clean up methods**

Stop leak if possible without risk. Wear respirator if ventilation is not adequate. Eliminate all sources of ignition. Ventilate and evacuate the area. Wear necessary protective equipment. DO NOT touch spilled material!

Use non sparking tools or equipment for clean up. Contain and cover the spillage with inert absorbent (sand, earth, vermiculite) and decontaminant/commercial decontaminant. In case of a large scale of spill, dyke area with sand to stop the spill spreading. Neutralize by dispersing neutralizing agent and absorb with sand. Leave to react for at least 30 minutes. Shovel residues into open-top drums and remove for further decontamination if necessary.

Ensure that waste and contaminated materials are collected and removed from the work area as soon as possible in a suitably labelled container. Example of neutralizing agent: water/sodium carbonate/liquid detergent (parts by weight)=90-95 / 5-10 / 0.2-0.5. Suitable decontaminant solution: Commercial solution or water 90-95%, concentrated ammonia solution 5-10%, liquid detergent 0,2-2%.

**6.4 Reference to other sections**

**Reference to other sections**

See section 1 for emergency contact. For personal protection, see section 8. For waste disposal, see section 13.

**Section 7: Handling and storage**

**7.1 Precautions for safe handling**

**Handling**

Use proper personal protection when handling (refer to Section 8). Provide good ventilation. Wear appropriate respirator when ventilation is inadequate. Keep away from heat, sparks and open flame. Static electricity and formation of sparks must be prevented. Do not eat, drink or smoke when using the product. Avoid inhalation of vapours. Avoid contact with skin and eyes. Do not use contact lenses. Avoid prolonged or repeated contact. Read and follow manufacturer's recommendations. Do not mix with other chemicals. Loosen drum bungs before heating to prevent any pressure build up.

**7.2 Conditions for safe storage, including any incompatibilities**

**Storage precautions**

Keep locked up and out of reach of children. Keep away from heat, sparks, direct sunlight and open flames. Avoid contact with water, amine compounds and polyol reacting with isocyanate. Store in tightly closed original container in a dry, cool and well-ventilated place. To avoid static electricity, ground equipment. After opening containers, replace with dry nitrogen or dry air and tightly seal the container to prevent leaks. Container can be pressurized by carbon dioxide due to reaction with humid air and/or water.

**Storage class**

Chemical storage.

**7.3 Specific end use(s)**

**Specific end use(s)  
Usage description**

The identified uses for this product are detailed in Section 1.  
Use only according to directions. Replace and tighten cap after use. Avoid static build up by suitable earthing arrangements.

**Section 8: Exposure controls/Personal protection**

**8.1 Control parameters**

Component	STD	TWA (8 Hrs)		STEL (15mins)		Notes
4,4'-methylenediphenyl diisocyanate	NIOSH	0,005 ppm	0,05 mg/m <sup>3</sup>	0,02 (1) ppm	0,2 (1) mg/m <sup>3</sup>	
4,4'-methylenediphenyl diisocyanate	WEL		0.02 mg/m <sup>3</sup>		0.07 mg/m <sup>3</sup>	Sen.

**Ingredient comments**

WEL - Workplace Exposure Limits - EH40/2005 Workplace exposure limits. The National Institute for Occupational Safety and Health (NIOSH). Biological occupational exposure limits: Diphenylmethane- 4,4'-diisocyanate (CAS 101-68-8). Parameter: Urinary diamine. Value:1µmol/mol creatinine. Biological specimen: Urine. Basis: UK. biological monitoring guidance values.

**8.2 Exposure Controls**

**Protective equipment**



**Engineering measures**

Provide adequate ventilation, including appropriate local extraction, to ensure that the defined occupational exposure limit is not exceeded. Facilities for handling this product should be closed system. Ensure surfaces and floors are made from non-permeable material. Where risk assessment shows air-purifying respirators are appropriate a full face respirator conforming to EN143 should be used, and suitable respirator cartridges as a backup to engineering controls. Recommended: Respirator with combination filter for organic vapour/particulate (EN 141). ABEK (EN 14387). Consult manufacturer for specific advice. If the respirator is the sole means of protection, use a full-face supplied air respirator. Use respirators and components tested and approved under appropriate government standards such as CEN (EU).

**Respiratory equipment**

**Hand protection**

Selection of the glove material depends on consideration of the penetration times, rates of diffusion and degradation, and concentration specific to the workplace. Where hand contact with the product may occur the use of gloves approved to relevant standards (e.g. Europe: EN374) is recommended. Gloves must be inspected prior to use. Use suitable organic solvent resistant gloves if there is a risk of skin contact. Suggested material: Chloroprene. Nitrile rubber. Consult manufacturer for specific advice. Use proper glove removal technique (without touching glove's outer surface) to avoid skin contact with this product. Dispose of contaminated gloves after use in accordance with applicable laws and good laboratory practices.

**Eye protection**

Wear safety goggles or face shield to prevent any possibility of eye contact. Use equipment for eye protection tested and approved under appropriate government standards such as EN 166(EU).

**Other protection**

Wear appropriate clothing to prevent any possibility of skin contact. Chemical resistant anti-static work clothes and safety shoes are recommended. Select appropriate protective clothing based on chemical resistance data and an assessment of local exposure potential. Personal protective equipment for the body should be selected based on the task being performed and the risks involved and should be approved by a specialist before handling this product.

**Hygiene measures**

Wash promptly if skin becomes contaminated. Handle in accordance with good industrial hygiene and safety practice. DO NOT SMOKE IN WORK AREA! Wash hands at the end of each work shift and before eating, smoking and using the toilet.

**Process conditions**

Use only according to directions. Ensure that eye flushing systems and safety showers are located close by in the work place. Keep container tightly sealed when not in use. Ground/bond container and receiving equipment. Take precautionary measures against static discharge.

**Section 9: Physical and chemical properties**

**9.1 Information on basic physical and chemical properties**

<b>Appearance</b>	Viscous liquid.
<b>Colour</b>	No information available.
<b>Odour</b>	Slight.
<b>Odour threshold - lower</b>	No information available.
<b>Odour threshold - upper</b>	No information available.
<b>pH-Value, Conc. Solution</b>	No information available.
<b>pH-Value, Diluted solution</b>	No information available.
<b>Melting point</b>	No information available.
<b>Initial boiling point and boiling range</b>	No information available.
<b>Flash point</b>	204.00 °C
<b>Evaporation rate</b>	No information available.

<b>Flammability state</b>	No information available.
<b>Flammability limit - lower(%)</b>	No information available.
<b>Flammability limit - upper(%)</b>	No information available.
<b>Vapour pressure</b>	No information available.
<b>Vapour density (air=1)</b>	No information available.
<b>Relative density</b>	No information available.
<b>Bulk density</b>	No information available.
<b>Solubility</b>	Completely soluble in: Dimethylformamide. Tetrahydrofuran.
<b>Decomposition temperature</b>	No information available.
<b>Partition coefficient; n- Octanol/Water</b>	No information available.
<b>Auto ignition temperature (°C)</b>	No information available.
<b>Viscosity</b>	No information available.
<b>Explosive properties</b>	Not classified as explosive.
<b>Oxidising properties</b>	No information available.

## 9.2 Other information

<b>Molecular weight</b>	No information available.
<b>Volatile organic compound</b>	No information available.
<b>Other information</b>	None noted.

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## Section 10: Stability and reactivity

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### 10.1 Reactivity

<b>Reactivity</b>	Stable under recommended transport and storage conditions and under recommended use.
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### 10.2 Chemical stability

<b>Stability</b>	Relatively stable when stored in a cool and dark place.
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### 10.3 Possibility of hazardous reactions

<b>Hazardous reactions</b>	Reacts with active hydrogen compounds such as water, alcohol and amine and generates heat. If mixed with water, carbon dioxide is generated which may cause containers to rupture or explode. Contact with basic substances or organic metallic compounds, may generate heat due to polymerization.
<b>Hazardous polymerisation</b>	Contact with basic substances or organic metallic compounds, may generate heat due to polymerization.
<b>Polymerisation description</b>	Unknown.

### 10.4 Conditions to Avoid

<b>Conditions to avoid</b>	Fire and high temperature.
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### 10.5 Incompatible materials

<b>Materials to avoid</b>	Avoid contact with water, alcohol, amines, basic substance or organic metallic compounds. Avoid strong oxidising agents, bases, strong acids.
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### 10.6 Hazardous decomposition products

**Hazardous decomposition products** When heated, vapours/gases hazardous to health may be formed. Decomposition products may include: Oxides of carbon. Unburned hydrocarbons. Nitrogen oxides (NOx). Hydrogen cyanide (HCN). Isocyanates.

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## Section 11: Toxicological information

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### 11.1 Information on toxicological effects

<b>Toxicological information</b>	No toxicological information for the overall finished product. Allergic reactions may develop after inhalation of low concentrations, also several hours after exposure. Regular medical checks, including lung function, are recommended for long term and repeated use of isocyanates.
<b>Acute toxicity (Oral LD50)</b>	4,4'-methylenediphenyl diisocyanate: LD50 (Rat): 31,690 mg/kg.
<b>Acute toxicity (Dermal LD50)</b>	No information available.
<b>Acute toxicity (Inhalation LD50)</b>	No information available.
<b>Serious eye damage/irritation</b>	Causes serious eye irritation.
<b>Skin corrosion/irritation</b>	The product is classified as a skin corrosion/irritation hazard.
<b>Respiratory sensitisation</b>	The product is classified as a respiratory hazard.
<b>Skin sensitisation</b>	The product is classified as a skin sensitisation hazard.
<b>Germ cell mutagenicity</b>	No information available.
<b>Carcinogenicity</b>	The product is classified as a carcinogen hazard.
<b>Specific target organ toxicity - Single exposure:</b>	
<b>STOT - Single exposure</b>	No information available.
<b>Specific target organ toxicity - Repeated exposure:</b>	
<b>STOT - Repeated exposure</b>	No information available.
<b>Inhalation</b>	Harmful if inhaled. May cause damage to the respiratory system through prolonged or repeated exposure by inhalation. May cause allergy or asthma symptoms or breathing difficulties if inhaled. Inhalation may cause respiratory irritation. If an allergic respiratory reaction occurs, get immediate medical attention.
<b>Ingestion</b>	May cause digestive tract irritation, pain or vomiting.
<b>Skin contact</b>	Causes skin irritation. May cause an allergic skin reaction.
<b>Eye contact</b>	Causes serious eye irritation.
<b>Waste management</b>	When handling waste, consideration should be made to the safety precautions applying to handling of the product. Curing in large quantities or under improper conditions may cause fire. Dispose of without curing and mixing with other materials. Do not discharge wastewater used for washing of container and equipment into ground or drain without treatment.
<b>Routes of entry</b>	No information available.
<b>Target organs</b>	Eyes, skin, digestive system, respiratory system.
<b>Aspiration hazards:</b>	No information available.
<b>Reproductive toxicity:</b>	No information available.

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## Section 12: Ecological information

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### 12.1 Toxicity

<b>Acute toxicity - Fish</b>	4,4'-methylenediphenyl diisocyanate: LC50 (Danio rerio (zebra fish)): > 1,000 mg/l Exposure time: 96 h.
<b>Acute toxicity - Aquatic invertebrates</b>	4,4'-methylenediphenyl diisocyanate: LC50 (Daphnia magna (Water flea)): > 1,000 mg/l Exposure time: 48 h.
<b>Acute toxicity - Aquatic plants</b>	No information available.
<b>Acute toxicity - Microorganisms</b>	No information available.
<b>Chronic toxicity - Fish</b>	No information available.
<b>Chronic toxicity - Aquatic invertebrates</b>	No information available.
<b>Chronic toxicity - Aquatic plants</b>	No information available.
<b>Chronic toxicity - Microorganisms</b>	No information available.

**Ecotoxicity**  
**Eco toxicological information** No Ecological information on the finished product.  
Not classified as dangerous for the environment according to the criteria of Regulation (EC) No 1272/2008.

**12.2 Persistence and degradability**

**Degradability** No information available.  
**Biological oxygen demand** No information available.  
**Chemical oxygen demand** No information available.

**12.3 Bioaccumulative potential**

**Bioaccumulative potential** No data available on bioaccumulation.  
**Bioaccumulation factor** No information available.  
**Partition coefficient; n-Octanol/Water** No information available.

**12.4 Mobility in soil**

**Mobility** No information available.

**12.5 Results of PBT and vPvB assessment**

**Results of PBT and vPvB assessment** No component classified as PBT / vPvB substance.

**12.6 Other adverse effects**

**Other adverse effects** No information available.

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**Section 13: Disposal considerations**

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**Waste management** When handling waste, consideration should be made to the safety precautions applying to handling of the product.  
Curing in large quantities or under improper conditions may cause fire. Dispose of without curing and mixing with other materials. Do not discharge wastewater used for washing of container and equipment into ground or drain without treatment.

**13.1 Waste treatment methods**

**Disposal methods** Dispose of in accordance with national and local regulations for special waste via an appropriately licensed waste contractor.

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**Section 14: Transport information**

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**14.1 UN number**

**UN no. (ADR)** Not applicable.  
**UN no. (IMDG)** Not applicable.  
**UN no. (IATA)** Not applicable.

**14.2 UN proper shipping name**

**ADR proper shipping name** Not applicable.  
**IMDG proper shipping name** Not applicable.  
**IATA proper shipping name** Not applicable.

**14.3 Transport hazard class(es)**

**ADR class** Not applicable.  
**IMDG class** Not applicable.  
**IATA class** Not applicable.

**Transport labels** Not applicable

**14.4 Packing group**

**ADR/RID/ADN packing group** Not applicable.  
**IMDG packing group** Not applicable.



IATA packing group Not applicable.

#### 14.5 Environmental hazards

ADR No  
IMDG No  
IATA No

#### 14.6 Special precautions for user

EMS Not applicable.  
Emergency action code Not applicable.  
Hazard no. (ADR) Not applicable.  
Tunnel restriction code Not applicable.

#### 14.7 Transport in bulk according to annex II of MARPOL73/78 and the IBC code

Not applicable.

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### Section 15: Regulatory information

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

**EU legislation** Regulation (EC) No 1272/2008 of the European Parliament and of the Council of 16 December 2008 on classification, labelling and packaging of substances and mixtures, amending and repealing Directives 67/548/EEC and 1999/45/EC, and amending Regulation (EC) No 1907/2006 with amendments. The UN Globally Harmonized System (GHS) Safety Data Sheet format (Annex IV) is implemented as Annex II of REACH EU No 453/2010 of 20th May 2010 amending regulation (EC) No 1907/2006.

**Approved code of practice** Workplace Exposure Limits Guidance Note EH40/2005.

**Chemical safety assessment** No chemical safety assessment has been carried out.

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### Section 16: Other information

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**General information** This Safety Data Sheet is in accordance with Reach Regulation (EC) No 453/2010.  
**Revision comments** This is a first issue.  
**Revision date** 27 February 2020  
**Revision** 1  
**Safety data sheet status** Approved.

#### Hazard statements in full

**H315** Causes skin irritation.  
**H317** May cause an allergic skin reaction.  
**H319** Causes serious eye irritation.  
**H332** Harmful if inhaled.  
**H334** May cause allergy or asthma symptoms or breathing difficulties if inhaled.  
**H335** May cause respiratory irritation.  
**H351** Suspected of causing cancer .  
**H373** May cause damage to organs through prolonged or repeated exposure .  
**EUH204** Contains isocyanates. May produce an allergic reaction.

#### Disclaimer

This 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. Such information is, to the best of the company's knowledge and belief, accurate and reliable as of the date indicated. However, no warranty guarantee or representation is made to its accuracy, reliability or completeness. It is the user's responsibility to satisfy himself as to the suitability of such information for his own particular use.