



STOT, single exposure, category 3, RTI  
 Skin Irritation, category 2  
 Skin Sensitizer, category 1

H335  
 H315  
 H317

## 2.2 Label elements

### Symbol(s) of Product



### Signal Word

Danger

### Named Chemicals on Label

4,4'-methylenediphenyl diisocyanate, (r)-p-mentha-1,8-diene

#### HAZARD STATEMENTS

Hazardous to the aquatic environment, Chronic, category 2	H411	Toxic to aquatic life with long lasting effects.
Carcinogenicity, category 2	H351	Suspected of causing cancer.
Eye Irritation, category 2	H319	Causes serious eye irritation.
Respiratory Sensitizer, category 1	H334	May cause allergy or asthma symptoms or breathing difficulties if inhaled.
STOT, repeated exposure, category 2	H373	May cause damage to organs through prolonged or repeated exposure.
STOT, single exposure, category 3, RTI	H335	May cause respiratory irritation.
Skin Irritation, category 2	H315	Causes skin irritation.
Skin Sensitizer, category 1	H317	May cause an allergic skin reaction.

#### PRECAUTION PHRASES

P260	Do not breathe dust/fume/gas/mist/vapours/spray.
P273	Avoid release to the environment
P280	Wear protective gloves/protective clothing/eye protection/face protection.
P284	Wear respiratory protection.
P285	In case of inadequate ventilation wear respiratory protection.
P302+352	IF ON SKIN: Wash with plenty of soap and water.
P304+340	IF INHALED: Remove victim to fresh air and keep at rest in a position comfortable for breathing.
P305+351+338	IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do so. Continue rinsing.
P308+313	IF exposed or concerned: Get medical advice/attention
P314	Get medical advice/attention if you feel unwell.
P333+313	If skin irritation or rash occurs: Get medical advice/attention.
P341	If breathing is difficult, remove victim to fresh air and keep at rest in a position comfortable for breathing.
P342+311	If experiencing respiratory symptoms: Call a POISON CENTER or doctor/physician.
P391	Collect spillage.

## 2.3 Other hazards

Not applicable

### Results of PBT and vPvB assessment

The product does not meet the criteria for PBT/vPvB in accordance with Annex XIII.

### 3. Composition/Information On Ingredients

#### 3.2 Mixtures

##### Hazardous Ingredients

<u>CAS-No.</u>	<u>EINEC No.</u>	<u>Name According to EEC</u>	<u>%</u>
101-68-8	202-966-0	4,4'-methylenediphenyl diisocyanate	25-50
5989-27-5	227-813-5	(r)-p-mentha-1,8-diene	10-25

<u>CAS-No.</u>	<u>REACH Reg No.</u>	<u>CLP Symbols</u>	<u>CLP Hazard Statements</u>	<u>M-Factors</u>
101-68-8		GHS07-GHS08	H315-317-319-332-334-335-351-373	
5989-27-5		GHS02-GHS07-GHS09	H226-315-317-400-410	

**Additional Information:** The text for CLP Hazard Statements shown above (if any) is given in Section 16.

### 4. First-aid Measures

#### 4.1 Description of First Aid Measures

**GENERAL NOTES:** When symptoms persist or in all cases of doubt seek medical advice.

**AFTER INHALATION:** Move to fresh air. Consult a physician after significant exposure.

**AFTER SKIN CONTACT:** Use a mild soap if available. Wash off immediately with soap and plenty of water while removing all contaminated clothes and shoes.

**AFTER EYE CONTACT:** Rinse immediately with plenty of water, also under the eyelids, for at least 15 minutes. Remove contact lenses.

**AFTER INGESTION:** Do NOT induce vomiting. Never give anything by mouth to an unconscious person.

#### Self protection of the first aider:

No action shall be taken involving any personal risk or without suitable training. It may be dangerous to the person providing aid to give mouth-to-mouth resuscitation. Wash contaminated clothing thoroughly with water before removing it, or wear gloves.

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

Harmful by inhalation, in contact with skin and if swallowed. Irritating to eyes and respiratory system.

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

No information available on clinical testing and medical monitoring. Specific toxicological information on substances, if available, can be found in section 11.

### 5. Fire-fighting Measures

#### 5.1 Extinguishing Media:

Carbon Dioxide, Dry Chemical, Foam

**FOR SAFETY REASONS NOT TO BE USED:** Alcohol, Alcohol based solutions, any other media not listed above.

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

Heating or fire can release toxic gas.

#### 5.3 Advice for firefighters

In the event of fire, wear self-contained breathing apparatus. ABC powder. High volume water jet. Hazardous decomposition products formed under fire conditions. Collect contaminated fire extinguishing water separately. This must not be discharged into drains. Use water spray, alcohol-resistant foam, dry chemical or carbon dioxide. Water reactive.

### 6. Accidental Release Measures

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

Ensure adequate ventilation. Use personal protective equipment

#### 6.2 Environmental precautions

Do not allow material to contaminate ground water system. Prevent product from entering drains. Keep the container open.

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

Prevent further leakage or spillage if safe to do so. Contain spillage, soak up with non-combustible absorbent material, (e.g. sand, earth, diatomaceous earth, vermiculite) and transfer to a container for disposal according to local /national regulations (see section 13).

### 6.4 Reference to other sections

**FURTHER INSTRUCTIONS:** Please refer to EU disposal requirements or country specific disposal requirements for this material. See Section 13 for further information.

## 7. Handling and Storage

### 7.1 Precautions for safe handling

Use only in area provided with appropriate exhaust ventilation. Provide sufficient air exchange and/or exhaust in work rooms. Wear personal protective equipment. Do not breathe vapours or spray mist. Persons with a history of skin sensitisation problems or asthma, allergies, chronic or recurrent respiratory disease should not be employed in any process in which this preparation is being used.

Wash hands before breaks and at the end of workday. When using, do not eat, drink or smoke.

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

**CONDITIONS TO AVOID:** Avoid dust accumulation in enclosed space. Keep from any possible contact with water.

**STORAGE CONDITIONS:** Store in original container. Keep container tightly closed in a dry and well-ventilated place. Keep locked up or in an area accessible only to qualified or authorised persons.

### 7.3 Specific end use(s)

No specific advice for end use available.

## 8. Exposure Controls/Personal Protection

### 8.1 Control parameters

#### Ingredients with Occupational Exposure Limits (IR)

Name	%	LTEL ppm	STEL ppm	STEL mg/m <sup>3</sup>	LTEL mg/m <sup>3</sup>	OEL Note
4,4'-methylenediphenyl diisocyanate	25-50			0.07	0.02	
(r)-p-mentha-1,8-diene	10-25					

**FURTHER ADVICE:** Refer to the regulatory exposure limits for the workforce enforced in each country. Some components may not have been classified at the EU level under the dangerous substances and preparations regulation.

### 8.2 Exposure controls

#### Personal Protection

**RESPIRATORY PROTECTION:** When workers are facing concentrations above the exposure limit they must use appropriate certified respirators. Respirator with a vapor filter.

**EYE PROTECTION:** Ensure that eyewash stations and safety showers are close to the workstation location. Safety glasses.

**HAND PROTECTION:** Rubber or plastic gloves. Take note of the information given by the producer concerning permeability and break through times, and of special workplace conditions (mechanical strain, duration of contact). Long sleeved clothing. Remove and wash contaminated clothing before re-use.

**OTHER PROTECTIVE EQUIPMENT:** No Information

**ENGINEERING CONTROLS:** Avoid contact with skin, eyes and clothing. Ensure adequate ventilation, especially in confined areas.

**Chemical Name:**

4,4'-methylenediphenyl diisocyanate

**EC No.:**

202-966-0

**CAS-No.:**

101-68-8

**DNELs - Derived no effect level**

Route of Exposure	Workers				Consumers			
	Acute effect local	Acute effects systemic	Chronic effects local	Chronic effects systemic	Acute effect local	Acute effects systemic	Chronic effects local	Chronic effects systemic
Oral	Not required					20 mg/kg bw/d		
Inhalation	0.1 mg/m <sup>3</sup>	0.1 mg/m <sup>3</sup>	0.05 mg/m <sup>3</sup>	0.05 mg/m <sup>3</sup>	0.05 mg/m <sup>3</sup>	0.05 mg/m <sup>3</sup>	0.025 mg/m <sup>3</sup>	0.025 mg/m <sup>3</sup>
Dermal	28.7 mg/cm <sup>2</sup>	50 mg/kg bw/d			17.2 mg/cm <sup>2</sup>	25 mg/kg bw/d		

**PNEC's - Predicted no effect concentration**

Environmental protection target	PNEC
Fresh water	>1 mg/l
Fresh water sediments	
Marine water	>0.1 mg/l
Marine sediments	
Food chain	
Microorganisms in sewage treatment	>1 mg/l
soil (agricultural)	>1 mg/kg
Air	

**9. Physical and Chemical Properties**

<b>9.1 Information on basic physical and chemical properties</b>	
<b>Appearance:</b>	DARK BROWN
<b>Physical State</b>	LIQUID
<b>Odor</b>	SLIGHTLY MUSTY
<b>Odor threshold</b>	Not determined
<b>pH</b>	NON-AQUEOUS
<b>Melting point /freezing point (°C)</b>	Not determined
<b>Boiling point/range (°C)</b>	176 - N.D.
<b>Flash Point, (°C)</b>	220
<b>Evaporation rate</b>	Not determined
<b>Flammability (solid, gas)</b>	Not determined
<b>Upper/lower flammability or explosive limits</b>	Not determined
<b>Vapour Pressure</b>	4X10 <sup>-6</sup>
<b>Vapour density</b>	8.5
<b>Relative density</b>	Not determined
<b>Solubility in /Miscibility with water</b>	REACTS WITH WATER
<b>Partition coefficient: n-octanol/water</b>	Not determined
<b>Auto-ignition temperature (°C)</b>	Not determined
<b>Decomposition temperature (°C)</b>	Not determined
<b>Viscosity</b>	N/D
<b>Explosive properties</b>	

Not determined  
**Oxidising properties** Not determined

**9.2 Other information**

**VOC Content g/l:** 89  
**Grams of VOC per liter of coating product as applied (mixture of Part A and Part B) per ASTM D2369 Method E.**  
**Specific Gravity (g/cm<sup>3</sup>)** 1.166

## 10. Stability and Reactivity

**10.1 Reactivity**

No reactivity hazards known under normal storage and use conditions.

**10.2 Chemical stability**

Container can be pressurized by carbon dioxide due to reaction with humid air and/or water. Stable under normal conditions.

**10.3 Possibility of hazardous reactions**

Hazardous polymerisation does not occur.

**10.4 Conditions to avoid**

Avoid dust accumulation in enclosed space. Keep from any possible contact with water.

**10.5 Incompatible materials**

Reacts violently in contact with acids, amines, driers, polymerisation accelerators and easily oxidized materials. Contact with water or moist air liberates irritating gas.

**10.6 Hazardous decomposition products**

Carbon dioxide (CO<sub>2</sub>), carbon monoxide (CO), oxides of nitrogen (NO<sub>x</sub>), dense black smoke.

## 11. Toxicological Information

**11.1 Information on toxicological effects****Acute Toxicity:**

**Oral LD50:**

**Inhalation LC50:**

**Irritation:** No information available.

**Corrosivity:** No information available.

**Sensitization:** No information available.

**Repeated dose toxicity:** No information available.

**Carcinogenicity:** No information available.

**Mutagenicity:** No information available.

**Toxicity for reproduction:** No information available.

**STOT-single exposure:** No information available.

**STOT-repeated exposure:** No information available.

**Aspiration hazard:** No information available.

If no information is available above under Acute Toxicity then the acute effects of this product have not been tested. Data on individual components are tabulated below.

<u>CAS-No.</u>	<u>Name According to EEC</u>	<u>Oral LD50</u>	<u>Dermal LD50</u>	<u>Vapor LC50</u>
101-68-8	4,4'-methylenediphenyl diisocyanate	15000 mg/kg oral		43 ppm vapor 4 hrs

**Additional Information:**

Persons allergic to isocyanates, and particularly those suffering from asthma or other respiratory conditions, should not work with isocyanates.

## 12 Ecological Information

**12.1 Toxicity:**

<b>EC50 48hr (Daphnia):</b>	No information
<b>IC50 72hr (Algae):</b>	No information
<b>LC50 96hr (fish):</b>	No information

**12.2 Persistence and degradability:** No information

**12.3 Bioaccumulative potential:** No information

**12.4 Mobility in soil:** No information

**12.5 Results of PBT and vPvB assessment:** The product does not meet the criteria for PBT/vPvB in accordance with Annex XIII.

**12.6 Other adverse effects:** No information

<u>CAS-No.</u>	<u>Name According to EEC</u>	<u>EC50 48hr</u>	<u>IC50 72hr</u>	<u>LC50 96hr</u>
101-68-8	4,4'-methylenediphenyl diisocyanate	>1000 mg/l	No information	>1000 mg/l
5989-27-5	(r)-p-mentha-1,8-diene	No information	No information	

**Further Ecological Information**

Contains the following ingredients which are classified as water dangerous according to EEC directive No. 76/464/EEC in percentages > 1%.

<u>CAS-No.</u>	<u>Name According to EEC</u>
5989-27-5	(r)-p-mentha-1,8-diene

## 13. Disposal Considerations

**13.1 WASTE TREATMENT METHODS:** If recycling is not practicable, dispose of in compliance with local regulations. Empty containers should be taken to an approved waste handling site for recycling or disposal.

<b>European Waste Code:</b>	080501
<b>Packaging Waste Code:</b>	150110

## 14. Transport Information

14.1	UN number	N/A
14.2	UN proper shipping name	NOT REGULATED
	Technical name	N/A
14.3	Transport hazard class(es)	NONE
	Subsidiary shipping hazard	
14.4	Packing group	
14.5	Environmental hazards	
14.6	Special precautions for user	Not applicable
	EmS-No.:	
14.7	Transport in bulk according to Annex II of MARPOL 73/78 and the IBC code	Not applicable

## 15. Regulatory Information

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

#### National Regulations:

Denmark Product Registration Number:	1914892
Danish MAL Code:	00-3 (1993)
Sweden Product Registration Number:	
Norway Product Registration Number:	
WGK Class:	

#### Chemical Safety Assessment

15.2 No Chemical Safety Assessment has been carried out for this substance/mixture by the supplier.

## 16. Other Information

### Text for CLP Hazard Statements shown in Section 3 describing each ingredient

H226	Flammable liquid and vapour.
H315	Causes skin irritation.
H317	May cause an allergic skin reaction.
H319	Causes serious eye irritation.
H332	Harmful if inhaled.
H334	May cause allergy or asthma symptoms or breathing difficulties if inhaled.
H335	May cause respiratory irritation.
H351	Suspected of causing cancer.
H373	May cause damage to organs through prolonged or repeated exposure.
H400	Very toxic to aquatic life.
H410	Very toxic to aquatic life with long lasting effects.

#### Reasons for revision

This Safety Data Sheet (SDS) has been revised to meet updated national hazard communication standards which have adopted the provisions of the UN GHS system. There have been both formatting and content changes based on the GHS classification (if applicable), Please review each section of the SDS for specific changes. This Safety Data Sheet (SDS) has been revised to meet the new EU CLP



requirements. There have been both formatting and content changes based on the CLP classification (if applicable), please review each section of the SDS for specific changes.

#### List of References:

This Safety Data Sheet was compiled with data and information from the following sources:

The Ariel Regulatory Database provided by the 3E Corporation in Copenhagen, Denmark  
 ESIS (The European Chemical Substances Information System), provided by the European Commission  
 Joint Research Centre in Ispra, Italy  
 Annex VI of the EU Council Directive 67/548/EEC  
 Council Directive 67/548/EEC - Annex I or EU Council Directive 1999/45/EC  
 European Union (EU) Regulation No. 1272/2008 on the classification, labelling and packaging of substances and mixtures (CLP Regulation)  
 EU Council Decision 2000/532/EC and its Annex entitled "List of Wastes"

#### Acronym & Abbreviation Key:

CLP	Classification, Labeling & Packaging Regulation
EC	European Commission
EU	European Union
US	United States
CAS	Chemical Abstract Service
EINECS	European Inventory of Existing Chemical Substances
REACH	Registration, Evaluation, Authorization of Chemicals Regulation
GHS	Globally Harmonized System of Classification and Labeling of Chemicals
LTEL	Long term exposure limit
STEL	Short term exposure limit
OEL	Occupational exposure limit
ppm	Parts per million
mg/m <sup>3</sup>	Milligrams per cubic meter
TLV	Threshold Limit Value
ACGIH	American Conference of Governmental Industrial Hygienists
OSHA	Occupational Safety & Health Administration
PEL	Permissible Exposure Limits
VOC	Volatile organic compounds
g/l	Grams per liter
mg/kg	Milligrams per kilogram
N/A	Not applicable
LD50	Lethal dose at 50%
LC50	Lethal concentration at 50%
EC50	Half maximal effective concentration
IC50	Half maximal inhibitory concentration
PBT	Persistent bioaccumulative toxic chemical
vPvB	Very persistent and very bioaccumulative
EEC	European Economic Community
ADR	International Transport of Dangerous Goods by Road
RID	International Transport of Dangerous Goods by Rail
UN	United Nations
IMDG	International Maritime Dangerous Goods Code
IATA	International Air Transport Association
MARPOL	International Convention for the Prevention of Pollution From Ships, 1973 as modified by the Protocol of 1978
IBC	International Bulk Container

For further information, please contact: Technical Services Department

The information on this sheet corresponds to our present knowledge. It is not a specification and it does not guarantee specific properties. The information is intended to provide general guidance as to health and safety based upon our knowledge of the handling, storage, and use of the

product. It is not applicable to unusual or non-standard uses of the product or where instructions and recommendations are not followed.