

SECTION 1. IDENTIFICATION OF THE SUBSTANCE/MIXTURE AND OF THE COMPANY/UNDERTAKING**1.1. Product identifier:**

Product name: WINDSHIELD SEALANT SOLL SP11

Article number: SP11

1.2. Relevant identified uses of the substance or mixture and uses advised against: one-component adhesive for automotive industry.**1.3. Manufacturer/Supplier:**

UAB HELVINA

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1.4. Further information obtainable from:**Emergency telephone number:**

Poison control and information office: Tel.: +370 5 236 2052 or +370 687 53378

SECTION 2. HAZARDS IDENTIFICATION**2.1. Classification of the substance or mixture**

The product is classified as hazardous pursuant to the provisions set forth in EC Regulation 1272/2008 (CLP) (and subsequent amendments and supplements). The product thus requires a safety datasheet that complies with the provisions of EC Regulation 1907/2006 and subsequent amendments.

Any additional information concerning the risks for health and/or the environment are given in sections 11 and 12 of this sheet.

2.1.1. Regulation 1272/2008 (CLP) and following amendments and adjustments

Hazard classification and indication:

Resp. Sens. 1 H334 May cause allergy or asthma symptoms or breathing difficulties if inhaled.

2.1.2. Directive 67/548/EEC and following amendments and adjustments

Danger Symbols: Xn

R phrases: 42

The full wording of the Risk (R) and hazard (H) phrases is given in section 16 of the sheet.

2.2. Label elements

Hazard labelling pursuant to EC Regulation 1272/2008 (CLP) and subsequent amendments and supplements.

Pictograms:



Warning: DANGER

Hazard statements:

H334 May cause allergy or asthma symptoms or breathing difficulties if inhaled.

EUH204 Contains isocyanates. May produce an allergic reaction.

Precautionary statements:

P284 [In case of inadequate ventilation] wear respiratory 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 / doctor/...

Contains: 4,4'-METHYLENEDIPHENYLDIISOCYANATE HOMOPOLYMER, HEXAMETHYLENE-1,6-DIISOCYANATE HOMOPOLYMER, DIPHENYLMETHANE-4,4'-DIISOCYANATE.**2.3. Other hazards.**

Information not available.

















SECTION 3. COMPOSITION/INFORMATION ON INGREDIENTS

3.1. Substances:

Information not relevant.

3.2. Mixtures:

Contains (Classification 67/548/EEC and 1272/2008 (CLP)):

CAS: 25686-28-6 EINECS: 500-040-3 Reg. No. 01- 2119457013-49-0002	4,4'-methylenediphenyldiisocyanate homopolymer Carc. Cat. 3 R40,  Xn R20,  Xi R36/37/38, R42/43, R48/20, Note 2 C Carc. 2 H351,  Acute Tox. 4 H332,  STOT RE 2 H373, Eye Irrit. 2 H319, Skin Irrit. 2 H315,  STOT SE 3 H335, Resp. Sens. 1 H334, Skin Sens. 1, H317, Note 2 CH317	0,9 - 1 %
CAS: 28182-81-2 EINECS: 500-060-2 Reg. No. 01- 2119485796-17	Hexamethylene-1,6- diisocyanate homopolymer  Xn: R20;  Xi: R37, R43  Acute Tox. 4 H332,  STOT SE 3 H335; Skin Sens. 1, H317	0,9 - 1 %
CAS: 872-50-4 EINECS: 212-828-1 INDEX: 606-021-00-7	N-methyl-2-pyrrolidone Repr. Cat. 2, R61;  Xi R36/37/38 Repr. 1B, H360D; Eye Irrit. 2 H319, Skin Irrit. 2 H315,  STOT SE 3 H335	0,9 - 1 %
CAS: 101-68-8 EINECS: 202-966-0 INDEX: 615-005-00-9	Diphenylmethane-4,4'- diisocyanate Carc. Cat. 3 R40,  Xn R20,  Xi R36/37/38, R42/43, R48/20, Note 2 C Carc. 2 H351,  Acute Tox. 4 H332,  STOT RE 2 H373, Eye Irrit. 2 H319, Skin Irrit. 2 H315,  STOT SE 3 H335, Resp. Sens. 1 H334, Skin Sens. 1, H317, Note 2 C	0,9 - 1 %

Note: Upper limit is not included into the range.

The full wording of the Risk (R) and hazard (H) phrases is given in section 16 of the sheet.

T+ = Very Toxic(T+), T = Toxic(T), Xn = Harmful(Xn), C = Corrosive(C), Xi = Irritant(Xi), O = Oxidizing(O), E = Explosive(E), F+ = Extremely Flammable(F+), F = Highly Flammable(F), N =

Dangerous for the Environment(N)

SECTION 4. FIRST AID MEASURES

4.1. Description of first aid measures.

EYES: Remove contact lenses, if present. Wash immediately with plenty of water for at least 15 minutes, opening the eyelids fully. If problem persists, seek medical advice.

SKIN: Remove contaminated clothing. Rinse skin with a shower immediately. Get medical advice/attention immediately. Wash contaminated clothing before using it again.

INHALATION: Remove to open air. If the subject stops breathing, administer artificial respiration. Get medical advice/attention immediately.

INGESTION: Get medical advice/attention immediately. Do not induce vomiting. Do not administer anything not explicitly authorised by a doctor.

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

For symptoms and effects caused by the contained substances, see chap. 11.

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

Information not available.

SECTION 5. FIRE-FIGHTING MEASURES

5.1. Extinguishing media.

SUITABLE EXTINGUISHING EQUIPMENT

The extinguishing equipment should be of the conventional kind: carbon dioxide, foam, powder and water spray.

UNSUITABLE EXTINGUISHING EQUIPMENT

None in particular.

5.2. Special hazards arising from the substance or mixture.

HAZARDS CAUSED BY EXPOSURE IN THE EVENT OF FIRE

Do not breathe combustion products.

5.3. Advice for firefighters.

GENERAL INFORMATION

Use jets of water to cool the containers to prevent product decomposition and the development of substances potentially hazardous for health.

Always wear full fire prevention gear. Collect extinguishing water to prevent it from draining into the sewer system. Dispose of contaminated water used for extinction and the remains of the fire according to applicable regulations.

SPECIAL PROTECTIVE EQUIPMENT FOR FIRE-FIGHTERS

Normal fire fighting clothing i.e. fire kit (BS EN 469), gloves (BS EN 659) and boots (HO specification A29 and A30) in combination with self-contained open circuit positive pressure compressed air breathing apparatus (BS EN 137).

SECTION 6. ACCIDENTAL RELEASE MEASURES

6.1. Personal precautions, protective equipment and emergency procedures.

Block the leakage if there is no hazard.

Wear suitable protective equipment (including personal protective equipment referred to under Section 8 of the safety data sheet) to prevent any contamination of skin, eyes and personal clothing. These indications apply for both processing staff and those involved in emergency procedures.

6.2. Environmental precautions.

The product must not penetrate into the sewer system or come into contact with surface water or ground water.

6.3. Methods and material for containment and cleaning up.

Collect the leaked product into a suitable container. Evaluate the compatibility of the container to be used, by checking section 10. Absorb the remainder with inert absorbent material.

Make sure the leakage site is well aired. Check incompatibility for container material in section 7. Contaminated material should be disposed of in compliance with the provisions set forth in point 13.

6.4. Reference to other sections.

Any information on personal protection and disposal is given in sections 8 and 13.

SECTION 7. HANDLING AND STORAGE

7.1. Precautions for safe handling.

Before handling the product, consult all the other sections of this material safety data sheet. Avoid leakage of the product into the environment. Do not eat, drink or smoke during use. Remove any contaminated clothes and personal protective equipment before entering places in which people eat.

7.2. Conditions for safe storage, including any incompatibilities.

Store only in the original container. Store the containers sealed, in a well ventilated place, away from direct sunlight. Keep containers away from any incompatible materials, see section 10 for details.

7.3. Specific end use(s).

Information not available.

SECTION 8. EXPOSURE CONTROLS/PERSONAL PROTECTION

8.1. Control parameters

Name	Type	Country	TWA/8h	STEL/15min
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SAFETY DATA SHEET

according to EC Regulation No. 453/2010, Annex II from 20.05.2010

Printing date: 27-01-2015

Revision: 03-02-2015

			mg/m ³	ppm	mg/m ³	ppm	
DIPHENYLMETHANE-4,4'-DIISOCYANATE	MAK	AUS	0,05	0,005	0,1	0,01	
	VLEP	BEL	0,052	0,005			
	AGW	DEU	0,05		0,05		
	MAK	DEU	0,05		0,05		Inhal.
	MAK	DEU	0,05		0,05		Skin
	VLA	ESP	0,052	0,005			
	VLEP	FRA	0,1	0,01	0,2	0,02	
	TLV	GRC	0,2		0,2		
	MDK	HRV	0,005	55			
	OEL	IRL	0,02		0,07		
	MAK	SWE	0,03	0,002	0,05(C)	0,005(C)	
	TLV-ACGIH		0,051	0,005			
DIISONONYL PHTHALATE	WEL	UK	5				
	OEL	IRL	5				
N-METHYL-2-PYRROLIDONE	MAK	AUS	40	10	80	20	Skin
	AGW	DEU	82	20	164	40	Skin
	MAK	DEU	82	20	164	40	Skin
	VLA	ESP	40	10	80	20	Skin
	HTP	FIN	40	10	80	20	Skin
	WEL	GRB	40	10	80	20	Skin
	TLV	GRC	40	10	80	20	
	GVI	HRV	103	25	309	75	Skin
	MDK	HRV	400	100			
	OEL	IRL	40	10	80	20	Skin
	TLV	ITA	40	10	80	20	Skin
	OEL	NLD	40	10	80	20	Skin
MAK	SWE	200	50	300	75		
OEL	EU	40	10	80	20	Skin	

4,4'-METHYLENEDIPHENYLDIISOCYANATE HOMOPOLYMER**Predicted no-effect concentration - PNEC.**

Normal value in fresh water	1 mg/l
Normal value in marine water	0,1 mg/l
Normal value for water, intermittent release	10 mg/l
Normal value of STP microorganisms	1 mg/l
Normal value for the terrestrial compartment	1 mg/kg

Health - Derived no-effect level - DNEL / DMEL								
Route of exposure	Effect on consumers				Effect on workers			
	Acute local	Acute systemic	Chronic local	Chronic systemic	Acute local	Acute systemic	Chronic local	Chronic systemic
Oral	VND	20 mg/kg/d						
Inhalation	0,05 mg/m ³	0,05 mg/m ³	0,025 mg/m ³	0,025 mg/m ³	0,1 mg/m ³	0,1 mg/m ³	0,05 mg/m ³	0,05 mg/m ³
Skin	VND	25 mg/kg/d			VND	VND		

Legend:

(C) = CEILING; INHAL = Inhalable Fraction; RESP = Respirable Fraction; THORA = Thoracic Fraction.

8.2 Exposure controls

As the use of adequate technical equipment must always take priority over personal protective equipment, make sure that the workplace is well aired through effective local aspiration.

Personal protective equipment must be CE marked, showing that it complies with applicable standards.

HAND PROTECTION

Protect your hands with work gloves, category III (ref. standard EN 374). For the final choice of material you need to assess the type of use. In case of contact for the short term or as protection against splashes, use gloves made of butyl rubber or nitrile (0.4mm thickness, permeation time <30 min.). In the event of continued exposure use Viton gloves (0.4mm thickness, permeation time > 30 min.). Contaminated gloves should be removed.

SKIN PROTECTION

Wear category I professional long-sleeved overalls and safety footwear (see Directive 89/686/EEC and standard EN ISO 20344). Wash body with soap and water after removing protective clothing.

EYE PROTECTION

Wear airtight protective goggles (see standard EN 166).

RESPIRATORY PROTECTION

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In case of exceeding the threshold value (eg, TLV-TWA) of the substance or one or more of the substances present in the product, it is advisable to wear a mask with filter type A for organic vapors, the class (1, 2 or 3) must be chosen according to the limit concentration of use (1000, 5000 or 10000 ppm) (ref. standard EN 14387).

ENVIRONMENTAL EXPOSURE CONTROLS

The emissions generated by manufacturing processes, including those generated by ventilation equipment, should be checked to ensure compliance with environmental standards.

SECTION 9. PHYSICAL AND CHEMICAL PROPERTIES

9.1. Information on basic physical and chemical properties

Appearance:	Paste
Colour:	Black
Odour:	Characteristic
Odour threshold:	Not available
pH:	Not available
Melting point/freezing point:	Not available
Initial boiling point and boiling range:	Not available
Flash point:	Not available
Evaporation rate:	Not available
Flammability (solid, gas):	Not available
Explosive limits:	Not available
Vapour tension:	Not available
Vapour density (air=1):	Not available
Relative density:	1,28 Kg/l
Solubility in water:	Not available
Solubility in organic solvents:	Not available
Partition coefficient: n-octanol/water:	Not available
Auto-ignition temperature:	Not available
Decomposition temperature:	Not available
Viscosity:	200000-280000 cps
Explosive properties:	Not available
Oxidising properties:	Not available
9.2. Other information:	
VOC (Directive 1999/13/EC) :	0,99 % - 12,67 g/l.
VOC (volatile carbon):	0,60 % - 7,67 g/l.

SECTION 10. STABILITY AND REACTIVITY

10.1. Reactivity.

There are no particular risks of reaction with other substances in normal conditions of use.

10.2. Chemical stability.

The product is stable in normal conditions of use and storage.

10.3. Possibility of hazardous reactions.

No hazardous reactions are foreseeable in normal conditions of use and storage.

10.4. Conditions to avoid.

None in particular. However the usual precautions used for chemical products should be respected.

10.5. Incompatible materials.

Information not available.

10.6. Hazardous decomposition products.

Information not available.

SECTION 11. TOXICOLOGICAL INFORMATION

11.1. Information on toxicological effects.

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In the absence of experimental data for the product itself, health hazards are evaluated according to the properties of the substances it contains, using the criteria specified in the applicable regulation for classification. It is therefore necessary to take into account the concentration of the individual hazardous substances indicated in section 3, to evaluate the toxicological effects of exposure to the product.

Inhalation of this product causes sensitization, which may then give rise to a series of inflammatory episodes, most of all characterized by obstruction and affecting the respiratory system. Sometimes, sensitization phenomena arise together with evident rhinitis and asthma.

Damages to the respiratory system depend on the inhaled quantity, on the product concentration in the working environment and on the exposure time.

4,4'-METHYLENEDIPHENYLDIISOCYANATE HOMOPOLYMER

LD50 (Oral) > 5000 mg/kg Rattus sp.
LD50 (Dermal) > 9400 mg/kg Oryctolagus sp.
LC50 (Inhalation) 0,31 mg/l/4h Rattus sp.

HEXAMETHYLENE-1,6-DIISOCYANATE HOMOPOLYMER

LD50 (Oral) > 2500 mg/kg Rattus sp.
LD50 (Dermal) > 2000 mg/kg Oryctolagus sp.

N-METHYL-2-PYRROLIDONE

LD50 (Oral) 3914 mg/kg Rattus sp.
LD50 (Dermal) 7000 mg/kg Rattus sp.
LC50 (Inhalation) > 5,1 mg/l/4h Rattus sp.

DIPHENYLMETHANE-4,4'-DIISOCYANATE

LD50 (Oral) > 2000 mg/kg Rattus sp.
LD50 (Dermal) > 9400 mg/kg Oryctolagus sp.
LC50 (Inhalation) 2,24 mg/l Rattus sp.

SECTION 12. ECOLOGICAL INFORMATION

12.1. Toxicity.

4,4'-METHYLENEDIPHENYLDIISOCYANATE HOMOPOLYMER

LC50 - for Fish > 1000 mg/l/96h Danio Rerio
Chronic NOEC for Algae / Aquatic Plants 1640 mg/l Desmodesmus subspicatus

HEXAMETHYLENE-1,6-DIISOCYANATE HOMOPOLYMER

EC50 - for Algae / Aquatic Plants > 1000 mg/l/72h Scenedesmus sp.
Chronic NOEC for Fish > 100 mg/l Danio rerio
Chronic NOEC for Crustacea > 100 mg/l Daphnia magna

N-METHYL-2-PYRROLIDONE

LC50 - for Fish 1072 mg/l/96h Pimephales promelas
EC50 - for Algae / Aquatic Plants > 500 mg/l/72h Desmodesmus subspicatus
Chronic NOEC for Crustacea 12,5 mg/l Daphnia magna

DIPHENYLMETHANE-4,4'-DIISOCYANATE

LC50 - for Fish > 1000 mg/l/96h Danio rerio
Chronic NOEC for Algae / Aquatic Plants 1640 mg/l Desmodesmus subspicatus

12.2. Persistence and degradability.

N-METHYL-2-PYRROLIDONE

Solubility in water 1000 – 10000 mg/l
Rapidly biodegradable.

DIPHENYLMETHANE-4,4'-DIISOCYANATE

Solubility in water 0,1 – 100 mg/l
NOT rapidly biodegradable.

12.3. Bioaccumulative potential.

N-METHYL-2-PYRROLIDONE

Partition coefficient: n-octanol/water -0,46

DIPHENYLMETHANE-4,4'-DIISOCYANATE

Partition coefficient: n-octanol/water 4,51

12.4. Mobility in soil.

N-METHYL-2-PYRROLIDONE

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Partition coefficient: soil/water 1,32

12.5. Results of PBT and vPvB assessment.

On the basis of available data, the product does not contain any PBT or vPvB in percentage greater than 0,1%.

12.6. Other adverse effects.

Information not available.

SECTION 13. DISPOSAL CONSIDERATIONS**13.1. Waste treatment methods.**

Reuse, when possible. Product residues should be considered special hazardous waste. The hazard level of waste containing this product should be evaluated according to applicable regulations.

Disposal must be performed through an authorised waste management firm, in compliance with national and local regulations.

Avoid littering. Do not contaminate soil, sewers and waterways.

CONTAMINATED PACKAGING

Contaminated packaging must be recovered or disposed of in compliance with national waste management regulations.

SECTION 14. TRANSPORT INFORMATION

The product is not dangerous under current provisions of the Code of International Carriage of Dangerous Goods by Road (ADR) and by Rail (RID), of the International Maritime Dangerous Goods Code (IMDG), and of the International Air Transport Association (IATA) regulations.

14.1. UN number

Not applicable.

14.2. UN proper shipping name

Not applicable.

14.3. Transport hazard class(es)

Not applicable.

14.4. Packing group

Not applicable.

14.5. Environmental hazards

Not applicable.

14.6. Special precautions for user

Not dangerous for transport.

Irritating to skin or eyes.

Protect from moisture.

Keep away from foodstuffs, acids and alkalis.

14.7. Transport in bulk according to Annex II of MARPOL73/78 and the IBC Code

Not applicable.

SECTION 15. REGULATORY INFORMATION**15.1. Safety, health and environmental regulations/legislation specific for the substance or mixture**

Seveso category. None

Restrictions relating to the product or contained substances pursuant to Annex XVII to EC Regulation 1907/2006.

Product.

Point. 3

Contained substance

Point. 30 N-METHYL-2-PYRROLIDONE

Point. 52 DIISONONYL PHTHALATE

Point. 56 DIPHENYLMETHANE-4,4'-DIISOCYANATE

Substances in Candidate List (Art. 59 REACH).

N-METHYL-2-PYRROLIDONE

Substances subject to authorisation (Annex XIV REACH).

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None.

Substances subject to exportation reporting pursuant to (EC) Reg. 649/2012:

None.

Substances subject to the Rotterdam Convention:

None.

Substances subject to the Stockholm Convention:

None.

Healthcare controls.

Workers exposed to this chemical agent must not undergo health checks, provided that available risk-assessment data prove that the risks related to the workers' health and safety are modest and that the 98/24/EC directive is respected.

15.2. Chemical safety assessment:

No chemical safety assessment has been processed for the mixture and the substances it contains.

SECTION 16. OTHER INFORMATION

Text of hazard (H) indications mentioned in section 2-3 of the sheet:

Carc. 2	Carcinogenicity, category 2
Repr. 1B	Reproductive toxicity, category 1B
Acute Tox. 4	Acute toxicity, category 4
STOT RE 2	Specific target organ toxicity - repeated exposure, category 2
Eye Irrit. 2	Eye irritation, category 2
Skin Irrit. 2	Skin irritation, category 2
STOT SE 3	Specific target organ toxicity - single exposure, category 3
Resp. Sens. 1	Respiratory sensitization, category 1
Skin Sens. 1	Skin sensitization, category 1
H351	Suspected of causing cancer.
H360D	May damage the unborn child.
H332	Harmful if inhaled.
H373	May cause damage to organs through prolonged or repeated exposure.
H319	Causes serious eye irritation.
H315	Causes skin irritation.
H335	May cause respiratory irritation.
H334	May cause allergy or asthma symptoms or breathing difficulties if inhaled.
H317	May cause an allergic skin reaction.
EUH204	Contains isocyanates. May produce an allergic reaction.

Text of risk (R) phrases mentioned in section 2-3 of the sheet:

R20	Harmful by inhalation.
R36/37/38	Irritating to eyes, respiratory system and skin.
R37	Irritating to respiratory system.
Carc. Cat. 3	Carcinogenicity, category 3.
R40	Limited evidence of a carcinogenic effect.
R42	May cause sensitization by inhalation.
R42/43	May cause sensitization by inhalation and skin contact.
R43	May cause sensitization by skin contact.
R48/20	Harmful: danger of serious damage to health by prolonged exposure through inhalation.
Repr. Cat. 2	Reproductive toxicity, development, category 2.
R61	May cause harm to the unborn child.

LEGEND:

- ADR: European Agreement concerning the carriage of Dangerous goods by Road
- CAS NUMBER: Chemical Abstract Service Number
- CE50: Effective concentration (required to induce a 50% effect)
- CE NUMBER: Identifier in ESIS (European archive of existing substances)
- CLP: EC Regulation 1272/2008
- DNEL: Derived No Effect Level

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- EmS: Emergency Schedule
- GHS: Globally Harmonized System of classification and labeling of chemicals
- IATA DGR: International Air Transport Association Dangerous Goods Regulation
- IC50: Immobilization Concentration 50%
- IMDG: International Maritime Code for dangerous goods
- IMO: International Maritime Organization
- INDEX NUMBER: Identifier in Annex VI of CLP
- LC50: Lethal Concentration 50%
- LD50: Lethal dose 50%
- OEL: Occupational Exposure Level
- PBT: Persistent bioaccumulative and toxic as REACH Regulation
- PEC: Predicted environmental Concentration
- PEL: Predicted exposure level
- PNEC: Predicted no effect concentration
- REACH: EC Regulation 1907/2006
- RID: Regulation concerning the international transport of dangerous goods by train
- TLV: Threshold Limit Value
- TLV CEILING: Concentration that should not be exceeded during any time of occupational exposure.
- TWA STEL: Short-term exposure limit
- TWA: Time-weighted average exposure limit
- VOC: Volatile organic Compounds
- vPvB: Very Persistent and very Bioaccumulative as for REACH Regulation
- WGK: Water hazard classes (German).

GENERAL BIBLIOGRAPHY

1. Directive 1999/45/EC and following amendments
 2. Directive 67/548/EEC and following amendments and adjustments
 3. Regulation (EU) 1907/2006 (REACH) of the European Parliament
 4. Regulation (EU) 1272/2008 (CLP) of the European Parliament
 5. Regulation (EU) 790/2009 (I Atp. CLP) of the European Parliament
 6. Regulation (EU) 453/2010 of the European Parliament
 7. Regulation (EU) 286/2011 (II Atp. CLP) of the European Parliament
 8. Regulation (EU) 618/2012 (III Atp. CLP) of the European Parliament
 9. Regulation (EU) 487/2013 (IV Atp. CLP) of the European Parliament
 10. Regulation (EU) 944/2013 (V Atp. CLP) of the European Parliament
 11. Regulation (EU) 605/2014 (VI Atp. CLP) of the European Parliament
- The Merck Index. - 10th Edition
 - Handling Chemical Safety
 - Niosh - Registry of Toxic Effects of Chemical Substances
 - INRS - Fiche Toxicologique (toxicological sheet)
 - Patty - Industrial Hygiene and Toxicology
 - N.I. Sax - Dangerous properties of Industrial Materials-7, 1989 Edition
 - ECHA website

Note for users:

The information contained in the present sheet are based on our own knowledge on the date of the last version. Users must verify the suitability and thoroughness of provided information according to each specific use of the product.

This document must not be regarded as a guarantee on any specific product property.

The use of this product is not subject to our direct control; therefore, users must, under their own responsibility, comply with the current health and safety laws and regulations. The producer is relieved from any liability arising from improper uses.

Provide appointed staff with adequate training on how to use chemical products.