



ILPA ADESIVI SRL

Revision nr. 3

Dated 01/03/2021

Printed on 01/03/2021

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Replaced revision:2 (Dated: 28/12/2020)

M2148 - RESINA R25

Safety Data Sheet

According to Annex II to REACH - Regulation 2015/830

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

1.1. Product identifier

Code: M2148, M 2137
Product name: RESINA R25

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

Intended use: Unsaturated polyester resin for repairs. Professional use only.

Uses related to the substances:

Identified Uses	Industrial	Professional	Consumer
Styrene	-	PROC: 1, 10, 11, 3, 4, 5, 8a.	-
Uses Advised Against			
SU21: Consumer use			

1.3. Details of the supplier of the safety data sheet

Name: ILPA ADESIVI SRL
Full address: Via Ferorelli, 4
District and Country: 70132 BARI (BARI)
ITALIA
Tel. + 39 0805383837
Fax + 39 0805377807

e-mail address of the competent person responsible for the Safety Data Sheet: laboratorio@ilpa.it

1.4. Emergency telephone number

For urgent inquiries refer to: + 39 0808974667 (Technical support - 8,00 - 17,00 - LUN-VEN; MON-FRI)(Italian time zone)
Safety Executive (HSE) Chemicals Regulation Directorate 5S.1 Redgrave Court, Merton Road, Bootle, Merseyside. L20 7HS.
Phone: +44 151 9513317

SECTION 2. Hazards identification



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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 (EU) Regulation 2015/830. Any additional information concerning the risks for health and/or the environment are given in sections 11 and 12 of this sheet.

Hazard classification and indication:

Flammable liquid, category 3	H226	Flammable liquid and vapour.
Reproductive toxicity, category 2	H361d	Suspected of damaging the unborn child.
Specific target organ toxicity - repeated exposure, category 1	H372	Causes damage to organs through prolonged or repeated exposure.
Eye irritation, category 2	H319	Causes serious eye irritation.
Skin irritation, category 2	H315	Causes skin irritation.
Specific target organ toxicity - single exposure, category 3	H335	May cause respiratory irritation.
Hazardous to the aquatic environment, chronic toxicity, category 3	H412	Harmful to aquatic life with long lasting effects.

2.2. Label elements

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

Hazard pictograms:



Signal words: Danger

Hazard statements:

H226	Flammable liquid and vapour.
H361d	Suspected of damaging the unborn child.
H372	Causes damage to organs through prolonged or repeated exposure.
H319	Causes serious eye irritation.
H315	Causes skin irritation.
H335	May cause respiratory irritation.
H412	Harmful to aquatic life with long lasting effects.

Precautionary statements:

P201	Obtain special instructions before use.
P210	Keep away from heat, hot surfaces, sparks, open flames and other ignition sources. No smoking.
P260	Do not breathe dust / fume / gas / mist / vapours / spray.
P280	Wear protective gloves / eye protection / face protection.
P308+P313	IF exposed or concerned: Get medical advice / attention.
P370+P378	In case of fire: use carbon dioxide, foam, chemical powder to extinguish.

Contains: STYRENE
MALEIC ANHYDRIDE

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Product not intended for uses provided for by Dir. 2004/42/CE.

2.3. Other hazardsOn the basis of available data, the product does not contain any PBT or vPvB in percentage \geq than 0,1%.**SECTION 3. Composition/information on ingredients****3.2. Mixtures**

Contains:

Identification	x = Conc. %	Classification 1272/2008 (CLP)
STYRENE		
CAS 100-42-5	$35 \leq x < 37,5$	Flam. Liq. 3 H226, Repr. 2 H361d, Acute Tox. 4 H332, STOT RE 1 H372, Asp. Tox. 1 H304, Eye Irrit. 2 H319, Skin Irrit. 2 H315, STOT SE 3 H335, Aquatic Chronic 3 H412, Classification note/notes according to Annex VI to the CLP Regulation: D
EC 202-851-5		
INDEX 601-026-00-0		
Reg. no. 01-2119457861-32		
1,1'-(p-tolylimino) dipropan-2-ol		
CAS 38668-48-3	$0,35 \leq x < 0,4$	Acute Tox. 2 H300, Eye Irrit. 2 H319, Aquatic Chronic 3 H412
EC 254-075-1		
INDEX -		
Reg. no. 01-2119980937-17-XXXX		
Cyclohexyldimethylamine		
CAS 98-94-2	$0,1 \leq x < 0,15$	Flam. Liq. 3 H226, Acute Tox. 3 H301, Acute Tox. 3 H311, Acute Tox. 3 H331, Skin Corr. 1B H314, Eye Dam. 1 H318, Aquatic Chronic 2 H411
EC 202-715-5		
INDEX -		
Reg. no. 01-2119533030-60		
MALEIC ANHYDRIDE		
CAS 108-31-6	$0,05 \leq x < 0,1$	Acute Tox. 4 H302, STOT RE 1 H372, Skin Corr. 1B H314, Eye Dam. 1 H318, Resp. Sens. 1 H334, Skin Sens. 1A H317, EUH071
EC 203-571-6		
INDEX 607-096-00-9		
Reg. no. 01-2119472428-31-XXXX		
DIPROPYLENE GLYCOL MONOMETHYL ETHER		
CAS 34590-94-8	$0 \leq x < 0,05$	Substance with a community workplace exposure limit.
EC 252-104-2		
INDEX -		
Reg. no. 01-2119450011-60-XXXX		

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

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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 30-60 minutes, opening the eyelids fully. Get medical advice/attention.

SKIN: Remove contaminated clothing. Rinse skin with a shower immediately. Get medical advice/attention.

INGESTION: Have the subject drink as much water as possible. Get medical advice/attention. Do not induce vomiting unless explicitly authorised by a doctor.

INHALATION: Get medical advice/attention immediately. Remove victim to fresh air, away from the accident scene. If the subject stops breathing, administer artificial respiration. Take suitable precautions for rescue workers.

PROTECTIVE MEASURES FOR THE FIRST RESCUE WORKERS: for PPE (personal protection equipment) required for first aid refer to section 8.2 of this safety data sheet.

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

Specific information on symptoms and effects caused by the product are unknown.

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

Information not available

SECTION 5. Firefighting measures

5.1. Extinguishing media

SUITABLE EXTINGUISHING EQUIPMENT

Extinguishing substances are: carbon dioxide, foam, chemical powder. For product loss or leakage that has not caught fire, water spray can be used to disperse flammable vapours and protect those trying to stem the leak.

UNSUITABLE EXTINGUISHING EQUIPMENT

Do not use jets of water. Water is not effective for putting out fires but can be used to cool containers exposed to flames to prevent explosions.

5.2. Special hazards arising from the substance or mixture

HAZARDS CAUSED BY EXPOSURE IN THE EVENT OF FIRE

Excess pressure may form in containers exposed to fire at a risk of explosion. 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



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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.

Send away individuals who are not suitably equipped. Use explosion-proof equipment. Eliminate all sources of ignition (cigarettes, flames, sparks, etc.) from the leakage site.

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. 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

Keep away from heat, sparks and naked flames; do not smoke or use matches or lighters. Without adequate ventilation, vapours may accumulate at ground level and, if ignited, catch fire even at a distance, with the danger of backfire. Avoid bunching of electrostatic charges. Do not eat, drink or smoke during use. Remove any contaminated clothes and personal protective equipment before entering places in which people eat. Avoid leakage of the product into the environment.

7.2. Conditions for safe storage, including any incompatibilities

Store only in the original container. Store in a cool and well ventilated place, keep far away from sources of heat, naked flames and sparks and other sources of ignition. Keep containers away from any incompatible materials, see section 10 for details.

7.3. Specific end use(s)

No use other than specified in Section 1.2 of this safety data sheet.

SECTION 8. Exposure controls/personal protection

8.1. Control parameters

Regulatory References:

DEU	Deutschland	TRGS 900 - Seite 1 von 69 (Fassung 29.03.2019)- Liste der Arbeitsplatzgrenzwerte und Kurzzeitwerte
ESP	España	LÍMITES DE EXPOSICIÓN PROFESIONAL PARA AGENTES QUÍMICOS EN ESPAÑA 2019 (IN SST)
FRA	France	Valeurs limites d'exposition professionnelle aux agents chimiques en France. ED 984 - INRS
GRC	Ελλάδα	ΕΦΗΜΕΡΙΔΑ ΤΗΣ ΚΥΒΕΡΝΗΣΕΩΣ - ΤΕΥΧΟΣ ΠΡΩΤΟ Αρ. Φύλλου 152 - 21 Αυγούστου 2018
HRV	Hrvatska	Pravilnik o zaštiti radnika od izloženosti opasnim kemikalijama na radu, graničnim vrijednostima izloženosti i biološkim graničnim vrijednostima (NN 91/18)
ITA	Italia	Decreto Legislativo 9 Aprile 2008, n.81

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NLD	Nederland	Regeling van de Staatssecretaris van Sociale Zaken en Werkgelegenheid van 13 juli 2018, 2018-0000118517 tot wijziging van de Arbeidsomstandighedenregeling in verband met de implementatie van Richtlijn 2017/164 in Bijlage XIII
PRT	Portugal	Ministério da Economia e do Emprego Consolida as prescrições mínimas em matéria de protecção dos trabalhadores contra os riscos para a segurança e a saúde devido à exposição a agentes químicos no trabalho - Diário da República, 1.ª série - N.º 111 - 11 de junho de 2018
GBR	United Kingdom	EH40/2005 Workplace exposure limits (Third edition, published 2018)
EU	OEL EU	Directive (EU) 2019/1831; Directive (EU) 2019/130; Directive (EU) 2019/983; Directive (EU) 2017/2398; Directive (EU) 2017/164; Directive 2009/161/EU; Directive 2006/15/EC; Directive 2004/37/EC; Directive 2000/39/EC; Directive 98/24/EC; Directive 91/322/EEC.
	TLV-ACGIH	ACGIH 2020

STYRENE**Threshold Limit Value**

Type	Country	TWA/8h		STEL/15min		Remarks / Observations
		mg/m3	ppm	mg/m3	ppm	
VLA	ESP	86	20	172	40	
VLEP	FRA	100	23,3	200	46,6	
TLV	GRC	425	100	1050	250	
GVI/KGVI	HRV	430	100	1080	250	SKIN
TGG	NLD	107				
WEL	GBR	430	100	1080	250	
TLV-ACGIH		10		20		

Predicted no-effect concentration - PNEC

Normal value in fresh water	0,028	mg/l
Normal value in marine water	0,014	mg/l
Normal value for fresh water sediment	0,614	mg/kg/d
Normal value for marine water sediment	0,0614	mg/kg/d
Normal value for water, intermittent release	0,04	mg/l
Normal value of STP microorganisms	5	mg/l
Normal value for the terrestrial compartment	0,2	mg/kg/d

Health - Derived no-effect level - DNEL / DMEL

Route of exposure	Effects on consumers				Effects on workers			
	Acute local	Acute systemic	Chronic local	Chronic systemic	Acute local	Acute systemic	Chronic local	Chronic systemic
Oral			VND	2,1 mg/kg bw/d				
Inhalation	182,75 mg/m3	174,25 mg/m3	VND	10,2 mg/m3	306 mg/m3	289 mg/m3	VND	85 mg/m3
Skin			VND	343 mg/kg bw/d			VND	406 mg/kg bw/d

1,1'-(p-tolyimino) dipropan-2-ol**Predicted no-effect concentration - PNEC**

Normal value in fresh water	0,017	mg/l
Normal value in marine water	0,002	mg/l
Normal value for fresh water sediment	0,078	mg/kg
Normal value for marine water sediment	0,008	mg/kg
Normal value for water, intermittent release	0,17	mg/l
Normal value of STP microorganisms	199,5	mg/l
Normal value for the terrestrial compartment	0,005	mg/kg



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Health - Derived no-effect level - DNEL / DMEL

Route of exposure	Effects on consumers			Effects on workers				
	Acute local	Acute systemic	Chronic local	Chronic systemic	Acute local	Acute systemic	Chronic local	Chronic systemic
Oral				0,3 mg/kg bw/d				0,3
Inhalation				0,4 mg/m3				2 mg/m3
Skin				0,3 mg/kg bw/d				0,6 mg/kg bw/d

Cyclohexyldimethylamine

Predicted no-effect concentration - PNEC

Normal value in fresh water	0,002	mg/l
Normal value in marine water	0	mg/l
Normal value for fresh water sediment	0,021	mg/kg/d
Normal value for marine water sediment	0,002	mg/kg/d
Normal value of STP microorganisms	20,6	mg/l
Normal value for the terrestrial compartment	0,003	mg/kg/d

Health - Derived no-effect level - DNEL / DMEL

Route of exposure	Effects on consumers			Effects on workers				
	Acute local	Acute systemic	Chronic local	Chronic systemic	Acute local	Acute systemic	Chronic local	Chronic systemic
Oral		NPI		NPI	VND	VND	VND	0,6
Inhalation	NPI	NPI	NPI	NPI	8,3 mg/m3	VND	8,3 mg/m3	0,53 mg/m3
Skin	NPI	NPI	NPI	NPI	VND	VND	VND	0,6 mg/kg bw/d

MALEIC ANHYDRIDE**Threshold Limit Value**

Type	Country	TWA/8h		STEL/15min		Remarks / Observations
		mg/m3	ppm	mg/m3	ppm	
AGW	DEU	0,081	0,02	0,081 (C)	0,02 (C)	
MAK	DEU	0,081	0,02	0,081 (C)	0,02 (C)	C = 0,20 mg/m3
VLA	ESP	0,4	0,1			
VLEP	FRA			1		
TLV	GRC	1				
GVI/KGVI	HRV	0,41	0,1	0,8	0,2	INHAL
GVI/KGVI	HRV	0,41	0,1	0,8	0,2	SKIN
WEL	GBR	1		3		
TLV-ACGIH		0,01	0,0025			

Predicted no-effect concentration - PNEC

Normal value in fresh water	0,075	mg/l
Normal value in marine water	0,0075	mg/l
Normal value for fresh water sediment	0,06	mg/kg
Normal value for marine water sediment	0,006	mg/kg
Normal value for water, intermittent release	48,1	mg/l
Normal value of STP microorganisms	4,46	mg/l

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Normal value for the food chain (secondary poisoning)	6,67	mg/kg
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Normal value for the terrestrial compartment	0,01	mg/kg
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Health - Derived no-effect level - DNEL / DMEL								
Route of exposure	Effects on consumers				Effects on workers			
	Acute local	Acute systemic	Chronic local	Chronic systemic	Acute local	Acute systemic	Chronic local	Chronic systemic
Oral		0,1 mg/kg bw/d		0,06 mg/kg bw/d				
Inhalation			0,08 mg/m3	0,05 mg/m3	0,8 mg/m3	0,8 mg/m3	0,32 mg/m3	0,19 mg/m3
Skin		0,1 mg/kg bw/d		0,1 mg/kg bw/d		0,2 mg/kg bw/d		0,2 mg/kg bw/d

DIPROPYLENE GLYCOL MONOMETHYL ETHER
Threshold Limit Value

Type	Country	TWA/8h		STEL/15min		Remarks / Observations
		mg/m3	ppm	mg/m3	ppm	
AGW	DEU	310	50	310	50	
MAK	DEU	310	50	310	50	
VLA	ESP	308	50			SKIN
VLEP	FRA	308	50			SKIN
TLV	GRC	600	100	900	150	
GVI/KGVI	HRV	308	50			SKIN
VLEP	ITA	308	50			SKIN
TGG	NLD	300				
VLE	PRT	308	50			SKIN
WEL	GBR	308	50			SKIN
OEL	EU	308	50			SKIN
TLV-ACGIH		606	100	909	150	SKIN

Predicted no-effect concentration - PNEC

Normal value in fresh water	19	mg/l
Normal value in marine water	1,9	mg/l
Normal value for fresh water sediment	70,2	mg/kg
Normal value for marine water sediment	7,02	mg/kg
Normal value for water, intermittent release	190	mg/l
Normal value of STP microorganisms	4168	mg/l
Normal value for the terrestrial compartment	2,74	mg/kg

Health - Derived no-effect level - DNEL / DMEL								
Route of exposure	Effects on consumers				Effects on workers			
	Acute local	Acute systemic	Chronic local	Chronic systemic	Acute local	Acute systemic	Chronic local	Chronic systemic
Oral				1,67 mg/kg bw/d				
Inhalation				37,2 mg/m3				310 mg/m3
Skin				15 mg/kg bw/d				65 mg/kg bw/d

Legend:

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

VND = hazard identified but no DNEL/PNEC available ; NEA = no exposure expected ; NPI = no hazard identified.

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.

When choosing personal protective equipment, ask your chemical substance supplier for advice.

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

Provide an emergency shower with face and eye wash station.

Exposure levels must be kept as low as possible to avoid significant build-up in the organism. Manage personal protective equipment so as to guarantee maximum protection (e.g. reduction in replacement times).

HAND PROTECTION

Protect hands with category III work gloves (see standard EN 374).

The following should be considered when choosing work glove material: compatibility, degradation, failure time and permeability.

The work gloves' resistance to chemical agents should be checked before use, as it can be unpredictable. The gloves' wear time depends on the duration and type of use.

SKIN PROTECTION

Wear category III professional long-sleeved overalls and safety footwear (see Regulation 2016/425 and standard EN ISO 20344). Wash body with soap and water after removing protective clothing.

Consider the appropriateness of providing antistatic clothing in the case of working environments in which there is a risk of explosion.

EYE PROTECTION

Wear airtight protective goggles (see standard EN 166).

In the presence of risks of exposure to splashes or squirts during work, adequate mouth, nose and eye protection should be used to prevent accidental absorption.

RESPIRATORY PROTECTION

If the threshold value (e.g. TLV-TWA) is exceeded for the substance or one of the substances present in the product, use a mask with a type A filter whose class (1, 2 or 3) must be chosen according to the limit of use concentration. (see standard EN 14387). In the presence of gases or vapours of various kinds and/or gases or vapours containing particulate (aerosol sprays, fumes, mists, etc.) combined filters are required.

Respiratory protection devices must be used if the technical measures adopted are not suitable for restricting the worker's exposure to the threshold values considered. The protection provided by masks is in any case limited.

If the substance considered is odourless or its olfactory threshold is higher than the corresponding TLV-TWA and in the case of an emergency, wear open-circuit compressed air breathing apparatus (in compliance with standard EN 137) or external air-intake breathing apparatus (in compliance with standard EN 138). For a correct choice of respiratory protection device, see standard EN 529.

ENVIRONMENTAL EXPOSURE CONTROLS

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

Product residues must not be indiscriminately disposed of with waste water or by dumping in waterways.

SECTION 9. Physical and chemical properties**9.1. Information on basic physical and chemical properties**

Appearance

liquid



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Colour	yellow	
Odour	aromatic	
Odour threshold	Not available	Remark:(STYRENE: Journal of Applied Toxicology, 3(6):272-290. 1983.) Concentration:0,32 ppm Substance:STYRENE Temperature:
pH	Not applicable	Reason for missing data:solvent based product, insoluble in water. Substance:STYRENE Temperature:-30,7°C
Melting point / freezing point	Not available	Substance:STYRENE Temperature:-30,7°C
Initial boiling point	Not available	Substance:STYRENE Temperature:145°C
Boiling range	Not available	
Flash point	23 ≤ T ≤ 60 °C	
Evaporation rate	Not available	Concentration:0,49 (butyl acetate=1) Substance:STYRENE
Flammability (solid, gas)	not applicable	
Lower inflammability limit	Not available	Concentration:1,2 Vol% Substance:STYRENE
Upper inflammability limit	Not available	Concentration:8,9 Vol% Substance:STYRENE
Lower explosive limit	Not applicable	
Upper explosive limit	Not applicable	
Vapour pressure	Not available	Concentration:6,67 hPa (T=20°C) Substance:STYRENE
Vapour density	Not available	Concentration:3,6 (air=1) Substance:STYRENE
Relative density	1,1 Kg/l	
Solubility	water: 0,24 g/l; soluble in organic solvents. (STYRENE)	
Partition coefficient: n-octanol/water	Not available	Concentration:Log Pow 2,96 Substance:STYRENE
Auto-ignition temperature	Not available	Substance:STYRENE Temperature:490°C (1,013hPa)
Decomposition temperature	Not applicable	
Viscosity	700 ± 500 mPas (T=25°C)	
Explosive properties	Product is not explosive. (STYRENE)	
Oxidising properties	not applicable	

9.2. Other information

VOC (Directive 2010/75/EC) :	35,44 % - 389,82 g/litre
VOC (volatile carbon) :	32,65 % - 359,17 g/litre

SECTION 10. Stability and reactivity**10.1. Reactivity**



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

STYRENE

Polymerises at temperatures above 65°C/149°F. Fire hazard. Possibility of explosion.

Added with an inhibitor that requires a small amount of dissolved oxygen at temperatures < 25°C/77°F.

DIPROPYLENE GLYCOL MONOMETHYL ETHER

Forms peroxides with: air.

10.2. Chemical stability

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

10.3. Possibility of hazardous reactions

The vapours may also form explosive mixtures with the air.

STYRENE

May react dangerously with: peroxides, strong acids. May polymerise on contact with: aluminium trichloride, azobisisobutyronitrile, dibenzoyl peroxide, sodium. Risk of explosion on contact with: butyllithium, chlorosulphuric acid, di-tert-butyl peroxide, oxidising substances, oxygen.

DIPROPYLENE GLYCOL MONOMETHYL ETHER

May react violently with: strong oxidising agents.

10.4. Conditions to avoid

Avoid overheating. Avoid bunching of electrostatic charges. Avoid all sources of ignition.

STYRENE

Avoid contact with: oxidising substances, copper, strong acids.

DIPROPYLENE GLYCOL MONOMETHYL ETHER

Avoid exposure to: sources of heat. Possibility of explosion.

10.5. Incompatible materials

STYRENE

Incompatible materials: plastic materials.

10.6. Hazardous decomposition products

In the event of thermal decomposition or fire, gases and vapours that are potentially dangerous to health may be released.

**M2148 - RESINA R25****SECTION 11. Toxicological information****11.1. Information on toxicological effects**Metabolism, toxicokinetics, mechanism of action and other information

Information not available

Information on likely routes of exposure

STYRENE

WORKERS: inhalation; contact with the skin.

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

STYRENE

The acute toxicity by inhalation at 1000 ppm affects the central nervous system with headache and dizziness, lack of coordination; irritation of the eye and respiratory tract mucous membranes occurs at 500 ppm. Chronic exposure causes depression of the central and peripheral nervous system with loss of memory, headache and drowsiness starting at 20 ppm; digestive disorders with nausea and loss of appetite; irritation of the respiratory tract with chronic bronchitis; dermatosis. Repeated exposure, at low doses of inhaled substance, causes irreversible changes to hearing and may cause changes in colour vision. No certain data is available on the reversibility of the visual impairment. Repeated skin exposure causes irritation. The substance degrades the skin, which can cause dryness and cracking.

Interactive effects

STYRENE

The metabolism of the substance is inhibited by ethanol. When styrene is photo-oxidised with ozone and nitrogen dioxide, as in the formation of smog, products highly irritating for the human eye may ensue.

ACUTE TOXICITY

ATE (Inhalation) of the mixture:

> 20 mg/l

ATE (Oral) of the mixture:

>2000 mg/kg

ATE (Dermal) of the mixture:

>2000 mg/kg

DIPROPYLENE GLYCOL MONOMETHYL ETHER

LD50 (Oral) > 5000 mg/kg RAT

LD50 (Dermal) > 9500 mg/kg RAT

STYRENE

LD50 (Oral) 5000 mg/kg Rat (MSDS Supplier)



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LD50 (Dermal) > 2000 mg/kg Rat (OECD Guideline 402)

LC50 (Inhalation) 11,8 mg/l/4h Rat (Archives of Environmental Health 18: 878-882 - sito ECHA)

MALEIC ANHYDRIDE

LD50 (Oral) 400 mg/kg Rat

LD50 (Dermal) 610 mg/kg Rat

1,1'- (p-tolylimino) dipropan-2-ol

LD50 (Oral) > 25 mg/kg rat, (25<mg<200) according to (OECD Guideline 423)

LD50 (Dermal) > 2000 mg/kg rabbit, according to (EU Method B.3)

Cyclohexyldimethylamine

LD50 (Oral) > 298 mg/kg rat,

LD50 (Dermal) 380 mg/kg rat, according to (OECD Guideline 402)

SKIN CORROSION / IRRITATION

Causes skin irritation

SERIOUS EYE DAMAGE / IRRITATION

Causes serious eye irritation

RESPIRATORY OR SKIN SENSITISATION

Does not meet the classification criteria for this hazard class

GERM CELL MUTAGENICITY

Does not meet the classification criteria for this hazard class

CARCINOGENICITY

Does not meet the classification criteria for this hazard class

STYRENE

Classified in Group 2B (possible human carcinogen) by the International Agency for Research on Cancer (IARC) - (IARC, 2002).
Classified as "probable carcinogen" by the US National Toxicology Program (NTP) - (US DHHS, 2014).



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REPRODUCTIVE TOXICITY

Suspected of damaging the unborn child

STOT - SINGLE EXPOSURE

May cause respiratory irritation

STOT - REPEATED EXPOSURE

Causes damage to organs

ASPIRATION HAZARD

Does not meet the classification criteria for this hazard class Viscosity: 700 ± 500 mPas (T=25°C)

SECTION 12. Ecological information

This product is dangerous for the environment and the aquatic organisms. In the long term, it have negative effects on aquatic environment.

12.1. Toxicity

STYRENE

LC50 - for Fish	10 mg/l/96h Pimephales promelas (OECD Guideline 203, GLP)
EC50 - for Crustacea	4,7 mg/l/48h Daphnia magna (OECD Guideline 202, GLP)
EC50 - for Algae / Aquatic Plants	4,9 mg/l/72h Selenastrum capricornutum (EPA OTS 797.1050, GLP)
Chronic NOEC for Crustacea	1,01 mg/l/21d Daphnia magna (OECD Guideline 211, GLP)

1,1'- (p-tolylimino) dipropan-2-ol

LC50 - for Fish	17 mg/l/96h Brachydanio rerio, according to (Guideline F.1.1. of UBA)
EC50 - for Crustacea	28,8 mg/l/48h Daphnia magna, according to (OECD Guideline 202)
EC50 - for Algae / Aquatic Plants	245 mg/l/72h Desmodesmus subspicatus, according to (OECD Guideline 201)

Cyclohexyldimethylamine

LC50 - for Fish	31,58 mg/l/96h Leuciscus idus, equivalent or similar to (OECD 203)
EC50 - for Algae / Aquatic Plants	> 2 mg/l/72h Desmodesmus subspicatus, according to (OECD Guideline 201)

12.2. Persistence and degradability

DIPROPYLENE GLYCOL MONOMETHYL ETHER

Solubility in water	1000 - 10000 mg/l
Rapidly degradable	

STYRENE

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Solubility in water 320 mg/l

Rapidly degradable
10 d, 68% according to (ISO DIS 9408)

MALEIC ANHYDRIDE

Solubility in water > 10000 mg/l

Entirely degradable

1,1'- (p-tolylimino) dipropan-2-ol

Rapidly degradable

12.3. Bioaccumulative potential**DIPROPYLENE GLYCOL MONOMETHYL
ETHER**

Partition coefficient: n-octanol/water 0,0043

STYRENE

Partition coefficient: n-octanol/water 2,96

BCF 74

MALEIC ANHYDRIDE

Partition coefficient: n-octanol/water -2,78

1,1'- (p-tolylimino) dipropan-2-ol

Partition coefficient: n-octanol/water 2,1 Log Kow according to (OECD Guideline 107)

12.4. Mobility in soil**STYRENE**

Partition coefficient: soil/water 352 (Section 4.3 of Chapter on QSAR in the TGD)

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 \geq 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.



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Waste transportation may be subject to ADR restrictions.

CONTAMINATED PACKAGING

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

SECTION 14. Transport information

14.1. UN number

ADR / RID, IMDG, IATA: 3269

14.2. UN proper shipping name

ADR / RID: POLYESTER RESIN KIT (Contens: styrene) MIXTURE

IMDG: POLYESTER RESIN KIT (Contens: styrene) MIXTURE

IATA: POLYESTER RESIN KIT (Contens: styrene) MIXTURE

14.3. Transport hazard class(es)

ADR / RID: Class: 3 Label: 3

IMDG: Class: 3 Label: 3

IATA: Class: 3 Label: 3



14.4. Packing group

ADR / RID, IMDG, IATA: III

14.5. Environmental hazards

ADR / RID: NO

IMDG: NO

IATA: NO

14.6. Special precautions for user

ADR / RID: HIN - Kemler: -- Limited Quantities: 5 L Tunnel restriction code: (E)
Special Provision: -

IMDG: EMS: F-E, S-D Limited Quantities: 5 L

IATA: Cargo: Maximum quantity: 10 Kg Packaging instructions: 370

Pass.: Maximum quantity: 10 Kg Packaging instructions: 370

Special Instructions: A66, A163

14.7. Transport in bulk according to Annex II of Marpol and the IBC Code



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Information not relevant

SECTION 15. Regulatory information

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

Seveso Category - Directive 2012/18/EC: P5c

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

Product

Point

3. Liquid substances or mixtures fulfilling the criteria for any of the following hazard classes or categories set out in Annex I to Regulation (EC) No 1272/ 2008:
(a) hazard classes 2.1 to 2.4, 2.6 and 2.7, 2.8 types A and B, 2.9, 2.10, 2.12, 2.13 categories 1 and 2, 2.14 categories 1 and 2, 2.15 types A to F;
(b) hazard classes 3.1 to 3.6, 3.7 adverse effects on sexual function and fertility or on development, 3.8 effects other than narcotic effects, 3.9 and 3.10;
(c) hazard class 4.1;
(d) hazard class 5.1.

40. Substances classified as flammable gases category 1 or 2, flammable liquids categories 1, 2 or 3, flammable solids category 1 or 2, substances and mixtures which, in contact with water, emit flammable gases, category 1, 2 or 3, pyrophoric liquids category 1 or pyrophoric solids category 1, regardless of whether they appear in Part 3 of Annex VI to that Regulation or not.

Substances in Candidate List (Art. 59 REACH)

On the basis of available data, the product does not contain any SVHC in percentage \geq than 0,1%.

Substances subject to authorisation (Annex XIV REACH)

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

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A chemical safety assessment has been performed for the following contained substances

STYRENE

SECTION 16. Other information

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

Flam. Liq. 3	Flammable liquid, category 3
Repr. 2	Reproductive toxicity, category 2
Acute Tox. 2	Acute toxicity, category 2
Acute Tox. 3	Acute toxicity, category 3
Acute Tox. 4	Acute toxicity, category 4
STOT RE 1	Specific target organ toxicity - repeated exposure, category 1
Asp. Tox. 1	Aspiration hazard, category 1
Skin Corr. 1B	Skin corrosion, category 1B
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. 1A	Skin sensitization, category 1A
Aquatic Chronic 2	Hazardous to the aquatic environment, chronic toxicity, category 2
Aquatic Chronic 3	Hazardous to the aquatic environment, chronic toxicity, category 3
H226	Flammable liquid and vapour.
H361d	Suspected of damaging the unborn child.
H300	Fatal if swallowed.
H301	Toxic if swallowed.
H311	Toxic in contact with skin.
H331	Toxic if inhaled.
H302	Harmful if swallowed.
H332	Harmful if inhaled.
H372	Causes damage to organs through prolonged or repeated exposure.
H304	May be fatal if swallowed and enters airways.
H314	Causes severe skin burns and eye damage.
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.
H411	Toxic to aquatic life with long lasting effects.
H412	Harmful to aquatic life with long lasting effects.
EUH071	Corrosive to the respiratory tract.



Use descriptor system:

PROC	1	Chemical production or refinery in closed process without likelihood of exposure or processes with equivalent containment conditions.
PROC	10	Roller application or brushing
PROC	11	Non industrial spraying
PROC	3	Manufacture or formulation in the chemical industry in closed batch processes with occasional controlled exposure or processes with equivalent containment condition
PROC	4	Chemical production where opportunity for exposure arises
PROC	5	Mixing or blending in batch processes
PROC	8a	Transfer of substance or mixture (charging and discharging) at non- dedicated facilities

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
- 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. Regulation (EC) 1907/2006 (REACH) of the European Parliament
 2. Regulation (EC) 1272/2008 (CLP) of the European Parliament
 3. Regulation (EU) 790/2009 (I Atp. CLP) of the European Parliament
 4. Regulation (EU) 2015/830 of the European Parliament
 5. Regulation (EU) 286/2011 (II Atp. CLP) of the European Parliament
 6. Regulation (EU) 618/2012 (III Atp. CLP) of the European Parliament
 7. Regulation (EU) 487/2013 (IV Atp. CLP) of the European Parliament
 8. Regulation (EU) 944/2013 (V Atp. CLP) of the European Parliament
 9. Regulation (EU) 605/2014 (VI Atp. CLP) of the European Parliament
 10. Regulation (EU) 2015/1221 (VII Atp. CLP) of the European Parliament
 11. Regulation (EU) 2016/918 (VIII Atp. CLP) of the European Parliament
 12. Regulation (EU) 2016/1179 (IX Atp. CLP)
 13. Regulation (EU) 2017/776 (X Atp. CLP)
 14. Regulation (EU) 2018/669 (XI Atp. CLP)
 15. Regulation (EU) 2018/1480 (XIII Atp. CLP)
 16. Regulation (EU) 2019/521 (XII Atp. CLP)
- The Merck Index. - 10th Edition



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- Handling Chemical Safety
- INRS - Fiche Toxicologique (toxicological sheet)
- Patty - Industrial Hygiene and Toxicology
- N.I. Sax - Dangerous properties of Industrial Materials-7, 1989 Edition
- IFA GESTIS website
- ECHA website
- Database of SDS models for chemicals - Ministry of Health and ISS (Istituto Superiore di Sanità) – Italy

Istituto Superiore di Sanità (ISS) – Archivio Preparati Pericolosi

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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.

CALCULATION METHODS FOR CLASSIFICATION

Chemical and physical hazards: Product classification derives from criteria established by the CLP Regulation, Annex I, Part 2. The data for evaluation of chemical-physical properties are reported in section 9.

Health hazards: Product classification is based on calculation methods as per Annex I of CLP, Part 3, unless determined otherwise in Section 11.

Environmental hazards: Product classification is based on calculation methods as per Annex I of CLP, Part 4, unless determined otherwise in Section 12.

Training for workers:

Worker training should include content, updates and duration depending on the risk profiles assigned to the business sectors they belong

Classification according to Regulation (EC) Nr. 1272/2008

Flam. Liq. 3, H226

Eye Irrit. 2, H319

Repr. 2, H361d

STOT RE 1, H372

Skin Irrit. 2, H315

STOT SE 3, H335

Aquatic Chronic 2, H412

Classification procedure

Calculation method

Calculation method

Calculation method

Calculation method

Calculation method

Calculation method

Calculation method

Changes to previous review:

The following sections were modified:

01 / 02 / 03 / 08 / 09 / 10 / 11 / 12 / 16.