

E. C. Safety Data Sheet Nr. DE143/Rev: 04



MATERIAL SAFETY DATA SHEET 28-09-07 LIMBCRYL SEALING RESIN

1. IDENTIFICATION OF THE SUBSTANCE/PREPARATION AND COMPANY/UNDERTAKING.

PRODUCT NAME: LIMBCRYL LAMINATION SEALING RESIN

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2. Composition/Information on Ingredients

Preparation

Hazardous Ingredients

Component	CAS No.	Hazard symbol(s) /	R-phrased(s)	Content
methyl methacrylate	80-62-6	F, Xi	11-37/38-43	60.0-100.0 %
N,N-bis-(2-hydroxypropyl)-p-toluidine	38668-48-3	T	25-52/53	0.1-1.0 %
ethylene di (S-thioacetate)	123-81-9	Xn, N	22-51/53	0.1-1.0 %
tris(nonylphenyl) phosphite	26523-78-4	Xi, N	38-43-50/53	0.1-1.0 %

3. Hazards Identification

Highly flammable.
Irritating to respiratory system and skin.
May cause sensitisation by skin contact.

4. First Aid Measures

General Information

Medical treatment is necessary if symptoms occur which are obviously caused by skin or eye contact with the product or by inhalation of its vapours. Remove soiled, soaked clothing immediately.

After inhalation

Move subject to fresh air and keep him calm. See a physician.

After contact with eyes

Keeping the eyelids apart flush thoroughly with water immediately. If irritation persists, contact a physician.

After contact with skin

Wash off immediately with soap and water. If skin irritation occurs consult a physician.

After ingestion

Do not induce vomiting. Call a physician immediately.



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5. Fire-fighting Measures

Suitable extinguishing media

foam, dry chemical, carbon dioxide

Unsuitable extinguishing media for safety reasons

water

Special protective equipment for fire fighting

Wear self-contained breathing apparatus.

6. Accidental Release Measures

Precautionary measures related to people

Take care for adequate ventilation. Keep away sources of ignition. Use personal protective clothing. Use breathing apparatus if exposed to vapours/dust/mist/aerosol.

Environmental protective measures

Prevent product from getting into drains/surface water/groundwater.

Methods of cleaning/adsorption

Larger quantities: Remove mechanically (by pumping). Use explosion-proof equipment! Smaller quantities and /or residues: Contain with absorbent material (e.g. sand, diatomaceous earth, acid absorbent, universal absorbent or sawdust). Dispose of in accordance with regulations.

7. Handling and Storage

Handling

Instructions on safe handling

Provide good room ventilation even at ground level (vapours are heavier than air). Keep container tightly closed.

Information on fire and explosion protection

Keep away from sources of ignition --- No smoking. Take precautionary measures against static discharges. In the event of fire, cool the endangered containers with water. Vapours are heavier than air and can form an explosive mixture with air. Use explosion-proof equipment only.

Storage

Requirements for storage areas and containers

Keep only in the original container at a temperature not exceeding 25 °C. Protect from light. Fill the container by approximately 90 % only as oxygen (air) is required for stabilisation. With large storage containers make sure the oxygen (air) supply is sufficient to ensure stability.

8. Exposure Controls/Personal Protection

Components or products of decomposition according to point 10, with limit values related to the place of work which require monitoring

methyl methacrylate 80-62-6

WEL (long-term) 2005	208 mg/m ³	50 ppm
WEL (short-term) 2005	416 mg/m ³	100 ppm

Personal protective equipment

General protective measures

Do not inhale vapours. Avoid contact with eyes and skin.



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Hygiene measures

Store work clothing separately. Remove soiled or soaked clothing immediately. Follow the usual standards of occupational hygiene. After work-time and during work intervals the affected skin areas must be thoroughly cleaned.

Respiratory protection

Breathing apparatus in case of high concentrations, short term: filter appliance, filter A

Hand protection

butyl rubber gloves (0.7 mm), Breakthrough time approx. 60 min (EN 374)

In practice, due to variable exposure conditions, this information can only be an aid to orientation for the selection of a suitable chemical protection glove. In particular, this information does not substitute suitability tests by the end user.

General information

Gloves should be replaced regularly, especially after extended contact with the product. For each work-place a suitable glove type has to be selected.

Eye protection

tightly fitting goggles

Body protection

on handling of larger quantities: face mask, chemical-resistant boots and apron

9. Physical and Chemical Properties

Appearance

Form: liquid
Colour: colourless
Odour: ester-like

Data relevant to safety

Changes in physical state

Freezing temperature not determined
Boiling temperature approx. 100 °C at 1.013 hPa

Flash point 10 °C (methyl methacrylate)

Ignition temperature 430 °C (methyl methacrylate)
Auto ignition not determined

Lower explosion limit 2.1 % (V) at 105 °C (methyl methacrylate)

Upper explosion limit 12.5 % (V) (methyl methacrylate)

Vapour pressure approx. 40 hPa at 20 °C

Density approx. 1 g/cm³ at 20 °C

Relative vapour density (related to air) > 1 at 20 °C

Solubility in water approx. 16g/l at 20 °C



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Fat solubility	not determined
pH-value	not applicable
n-Octanol/water partition coefficient	not determined
Viscosity (dynamic)	approx. 500 mPa.s
Further information	none

10. Stability and Reactivity

Thermal decomposition

No decomposition when used as directed.

Hazardous reactions

Polymerization with heat evolution may occur in the presence of radical forming substances (e.g. peroxides), reducing substances, and/or heavy metal ions.

Hazardous decomposition products

None when used as directed.

11. Toxicological Information

Acute Oral Toxicity

LD50 rat, OECD 401 > 5.000 mg/kg

Related to substance: methyl methacrylate

LD50 rat 172 mg/kg

Related to substance: N,N-bis-(2-hydroxypropyl)-p-toluidine

Acute Inhalational Toxicity

Low toxicity by inhalation

LC50 rat, 4h 29.8 mg/l

Related to substance: methyl methacrylate

Acute Dermal Toxicity

Practically non-toxic in contact with skin

LD50 rabbit > 5.000 mg/kg

Related to substance: methyl methacrylate

Irritant Effect on the Skin

Contact with skin may cause irritation.

Related to substance: product

Irritant Effect on the Eyes

Contact with the eyes may cause irritation.

Related to substance: product

Sensitisation

In sensitisation tests on guinea pigs with and without adjuvant, both positive and negative results were found in humans various types of allergic reactions have been observed (symptoms: headache, eye irritations, skin affections).

Related to substance: methyl methacrylate



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Toxicity on Repeated Administration

Dose ad which no adverse effects were observed (NOAEL). At higher doses adverse effects were observed

rat, inhalation, 2a, 0, 25, 100, 400 ppm **NOAEL 25 ppm**

Findings: Damage to mucous membranes in the nose at 400 ppm

Related to substance: methyl methacrylate

rat, in drinking water, 2a, 0, 6/7, 60/70, 2000 ppm

Findings: no toxic effects **NOAEL 2000 ppm**

Related to substance: methyl methacrylate

Mutagenicity

Positive as well as negative results in in vitro mutagenicity/ genotoxicity tests.

No experimental indication of genotoxicity in vivo available.

In summary not mutagenic according to internationally accepted criteria.

Related to substance: methyl methacrylate

Carcinogenicity

Non-carcinogenic in inhalation and feeding studies carried out on rats, mice and dogs.

Related to substance: methyl methacrylate

Reprotoxicity / teratogenicity

No indications of toxic effects were observed in reproduction studies in animals.

Related to substance: methyl methacrylate

General information

Avoid contact with the skin and eyes and inhalation of the product vapours.

12. Ecological Information

Information on elimination (persistence and degradability)

Biodegradability

Readily degradable, OECD 301 C, 14 d **94 %**

Related to substance: methyl methacrylate

Ecotoxicological effect

Fish toxicity

LC50 Oncorhynchus mykiss, rainbow trout, OECD 203, **> 79 mg/l**

flow through GLP, 96 h

Related to substance: methyl methacrylate

Daphnia toxicity

EC50 Daphnia magna, OECD 202, flow through, 48h **69 mg/l**

Related to substance: methyl methacrylate

NOEC Daphnia magna, OECD 202 part 2, flow through, 21 d **37 mg/l**

Related to substance: methyl methacrylate

Algae toxicity

EC3 Scenedesmus quadricauda, DIN 38412, section 9, 8d **37 mg/l**

Related to substance: methyl methacrylate

Bacteria toxicity

EC0 Pseudomonas putida **100 mg/l**

Related to substance: methyl methacrylate



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15. Regulatory Information

Labelling in accordance with directive 1999/45/EC

requires labelling

Hazardous component(s) for labelling

contains methyl methacrylate

Hazard symbol(s)

F Highly flammable
Xi Irritant

R-phrases(s)

11 Highly flammable
37/38 Irritating to respiratory system and skin.
43 May cause sensitisation by skin contact.

S-phrases(s)

16 Keep away from sources of ignition - No
 smoking.
24 Avoid contact with skin.
37 Wear suitable gloves.

Status of Registration EINECS (EU) listed or exempted

TSCA (USA) listed or exempted
DSL (CDN) listed or exempted
PICCS (RP) listed or exempted
IECS (VR) listed or exempted

Occupational restrictions

Note for juveniles.
 Note for pregnant woman and
 nursing mothers
 (EC Directive 92/85/EEC).

16. Other Information

Miscellaneous information

The product is normally supplied in a stabilized form. If the permissible storage period and/or storage temperature is exceeded, the product may polymerize with heat evolution.

R-phrases of relevance from Section 2

11 Highly flammable.
22 Harmful if swallowed.
25 Toxic if swallowed.
37/38 Irritating to respiratory system and skin.
38 Irritating to skin.
43 May cause sensitisation by skin contact.
50/53 Very toxic to aquatic organisms, may cause
 long-term adverse effects in th aquatic
 environment.
51/53 Toxic to aquatic organisms, may cause long-
 term adverse effects in the aquatic
 environment.
52/53 Harmful to aquatic organisms, may cause
 long-term adverse effects in the aquatic
 environment.