



Safety data sheet

1. Substance/preparation and company identification

Trade name:

BKF Laminierharz 80:20

Application of the substance/ the preparation:

Laminating resin for orthopaedic technology

BEIL

Kunststoff-Produktions- und Handelsgesellschaft mbH

Lehmkuhlenweg 9

D- 31224 Peine

Telefon: +49 (0)5171/70 99-0

Telefax: +49 (0)5171/7099-29

E-Mail: service@beil-peine.de

Information in case of emergency:

Giftzentrale Göttingen

Tel.: +49 (0)551/19240

Telefax: +49 (0)551/3831881

2. Hazards Identification

Highly flammable.

Irritating to respiratory system and skin.

May cause sensitisation by skin contact.

3. Composition/Information on Ingredients

Solution of an acrylic polymer in plasticizer-containing methacrylic acid esters

Hazardous Ingredients

Component	CAS Number	Hazard symbol(s) / R-phrases(s)	Content
methyl methacrylate	80-62-6	F, Xi 11-37/38-43	40.0 - 70.0 %
ethylene di(S-thioacetate)	123-81-9	Xn, N 22-51/53	0.1 - 1.0 %
N,N-bis-(2-hydroxypropyl)- p-toluidine	38668-48-3	T 25-41-52/53	0.1 - 1.0 %

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 skin contact: Immediately remove contaminated clothing. Immediately wash with water soap and rinse thoroughly. If skin irritation occurs consult a physician.

After eye contact: Flush eyes thoroughly with a large amount of water and consult a physician.

After ingestion: Do not induce vomiting. Call a physician immediately.

5. Fire-fighting measures

Suitable extinguishing agents: Foam, dry chemical, carbon dioxide

For safety reasons unsuitable extinguishing agents: Water.



Special protective equipment for fire fighting: Wear self-contained breathing apparatus.

6. Accidental release measures

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

Environmental precautions: Prevent product from getting into drains / surface water / groundwater.

Methods for cleaning up: 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:

Instruction 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. When heated above the flash point and /or during spraying (atomizing), ignitable mixtures may form in air. Use explosion-proof equipment only.

Storage:

Requirements for storage areas and containers: Keep only in the original container at a temperature not exceeding 35°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) 2007

208 mg/m³

50 ppm

WEL (short-term) 2007

416 mg/m³

100 ppm

Occupational exposure controls

For monitoring procedures refer to for instance "Empfohlene Analysenverfahren für Arbeitsplatzmessungen", Schriftenreihe der Bundesanstalt für Arbeitsschutz and "NIOSH Manual of Analytical Methods", National Institute for Occupational Safety and Health

Personal protective equipment

General protective measures

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

Hygiene measures

Store work clothing separately. Remove soiled or soaked clothing immediately. Follow the usual good standards of occupational hygiene. Clean skin thoroughly after work; apply skin cream.

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 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

<u>Form:</u>	liquid	
<u>Colour:</u>	colourless	
<u>Odour:</u>	ester-like	
<u>Boiling point:</u>	100.5°C	(methyl methacrylate)
<u>Flash point:</u>	10°C	(methyl methacrylate)
<u>Ignition temperature:</u>	430°C	(methyl methacrylate)
<u>Spontaneous ignition:</u>	not determined	
<u>Lower explosion limit:</u>	2.1 %(V)	(methyl methacrylate)
<u>Upper explosion limit:</u>	12.5 %(V)	(methyl methacrylate)
<u>Vapour pressure:</u>	38.7 hPa at 20°C	(methyl methacrylate)
<u>Density:</u>	approx. 1.0 g/cm ³ at 20°C	
<u>Relative vapour density:</u>	<1 at 20°C	
<u>Solubility in water:</u>	approx. 16g/l	(methyl methacrylate)
<u>Viscosity dynamic at 20°C:</u>	approx. 500 mPas	

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 > 5000 mg/kg

Related to substance: methyl methacrylate

LD50 rat, OECD 172 mg/kg

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

Acute inhalational toxicity

Low toxicity by inhalation

LC50/4h rat 29,8 mg/l

Related to substance: methyl methacrylate

Acute dermal toxicity:

Practically non-toxic in contact with skin

LD50 rabbit >5000 mg/kg

Related to substance: methyl methacrylate

Irritant Effect on the skin: Contact with skin may cause irritations.

Irritant Effects on the eyes: Contact with eyes may cause irritation.

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 and skin affections).

Related to substance: methyl methacrylate

Toxicity on repeated administration

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



observed.

Rat, inhalation, 2a, 0, 25, 100, 400ppm

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, 2000ppm

NOAEL 2000 ppm

Findings: no toxic effects

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 eliminations (persistence and degradability)

Biodegradability:

Readily degradable, OECD301C, 14d

94%

Related to substance: methyl methacrylate

Ecotoxicological effect

Fish toxicity

LC50 Oncorhynchus mykiss, rainbow trout, OECD 203

Flow through GLP, 96h

79 mg/l

Related to substance: methyl methacrylate

Daphnia toxicity

EC50 Daphnia magna, OECD 202, flow trough, 48 h

69 mg/l

Related to substance: methyl methacrylate

NOEC Daphnia magna, OECD 202 part 2, flow trough, 21d

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

ECO Pseudomonas putida

100 mg/l

Related to substance: methyl methacrylate

General information

Do not allow to enter soil, waterways or waste water

13. Disposal considerations

Product

Waste is hazardous. It must be disposed of in accordance with the regulations after consultation of the competent local authorities and disposal company in a suitable and licensed facility.

European waste catalogue

07 02 08



Waste from the manufacture, formulation, supply and use (MFSU) of plastics, synthetic rubber and man-made fibres – other still bottoms and reaction residues

Always check the given waste codes according to the actual conditions of manufacturing, formulation or use in your facilities.

Uncleanness packaging:

Contaminated packaging should be emptied optimally and after appropriate professional cleansing may be taken for reuse. Packaging that cannot be cleaned should be disposed of professionally. Uncontaminated packaging may be taken for recycling.

14. Transport Information

Overland transport ADR/RID/GGVSE

UN 1866 RESIN SOLUTION, 3, III
Hazard no. 30

Inland waterway transport ADNR

UN 1866 RESIN SOLUTION, 3, III

Shipment by sea IMDG/GGVSee

UN number 1866
Class 3
EmS F-E, S-E
Marine pollutant -
Packaging group II
Proper Shipping Name RESIN SOLUTION

Air transport ICAO/IATA

UN number 1866
Class 3
Packaging group II
Proper Shipping Name RESIN SOLUTION

Remarks

ADR Special provision 640H
RID Special provision 640H
ADNR Special provision 640H

15. Regulatory information

Regulations of the European union (Labelling) / National legislation/Regulations:

Directive 1999/45/EEC ('Preparation Directive'): requires labelling

Hazardous component(s) for labelling

Contains methyl methacrylate

Hazard symbol(s):

F Highly flammable
Xi Irritant

R-phrases(s)

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

S-phrases(s)

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

Water hazard class 1 (German Regulation) (Self-assessment): slightly hazardous for water.

Status of Registration

REACH (EU) preregistered, registered 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 3

11 Highly flammable.

22 Harmful if swallowed.

25 Toxic if swallowed.

37/38 Irritating to respiratory system and skin.

41 Risk of serious damage to eyes.

43 May cause sensitisation by skin contact.

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.

References

relevant manuals and publications

own examinations

own toxicological and ecotoxicological studies

toxicological and ecotoxicological studies of other manufacturers

SIAR

OECD-SIDS

RTK public files

The information contained here in is based on the present state of our knowledge and does not therefore guarantee certain properties. Recipients of our product must take responsibility for observing existing laws and regulations.