



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

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2. Hazards Identification

Classification of the substance or mixture

Classification according to Regulation (EC) No. 1272/2008 [CLP]

Flammable liquids	Category 2	H225
Skin irritation	Category 2	H315
Skin sensitisation	Category 1 B	H317
Specific target organ toxicity - single exposure (Respiratory system)	Category 3	H335

2.2. Label elements

Constituent decisive for

hazardous-substance labeling:

methyl methacrylate; CAS-No.: 80-62-6
triethyleneglycol dimethacrylate; CAS-No.:109-16-0
ethylene di(S-thioacetate); CAS-No.: 123-81-9
n-butyl acrylate; CAS-No.: 141-32-2

Signal word

Danger

GHS pictogram



hazard statement

H225 - Highly flammable liquid and vapour.
H315 - Causes skin irritation.
H317 - May cause an allergic skin reaction.
H335 - May cause respiratory irritation.

Precautionary Statement (Prevention)

P210 - Keep away from heat, hot surfaces , sparks , open flames and other ignition sources . No smoking.
P233 - Keep container tightly closed.



P261 - Avoid breathing dust/ fume/ gas / mist/ vapours /spray.

P262 - Do not get in eyes, on skin, or on clothing.

P280 - Wear protective gloves / eye protection/ face protection.

Precautionary Statement (Response) P333 + P313 - If skin irritation or rash occurs: Get medical advice/ attention.

2.3. Other hazards

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

3. Composition/Information on Ingredients

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

3.1. Substances

3.2. Mixtures

Information on ingredients / Hazardous components as per EU - CLP Regulation (EC) No. 1272/2008

Chemical Name	CAS-No. EC-No. REACH-No.	Concentration	Classification
methyl methacrylate	80-62-6 201-297-1 01-2119452498-28	50-70%	Flam. Liq. 2; H225 Skin Irrit. 2; H315 Skin Sens. 1; H317 STOT SE 3 (inhalation); H335
triethyleneglycol dimethacrylate	109-16-0 203-652-6 01-2119969287-21	1.0 % - < 10.0 %	Skin.sens , 1B, H317
ethylene di (S- thioacetate)	123-81 -9 204-653-4 ---	0.1 % - < 0.25 %	Acute Tox., 4, H302, Oral Eye Irrit., 2, H319 Skin.sens , 1A, H317 Aquatic Chronic, 2, H411
n-butyl acrylate	141-32 -2 205-480-7 01-2119453155-43	0.1 % - < 0.25 %	Flam Liq., 3, H226 Acute Tox., 4, H332, Inhalation Skin Irrit., 2, H315 Eye Irrit., 2, H319 Skin.sens , 1B, H317 STOT SE, 3, H335 Aquatic Chronic, 3, H412
N,N-bis-(2-hydroxypropyl)-p-toluidine	38668-48-3 254-075-1 01-2119980937-17	0.1 - < 0.25 %	Acute Tox. 2 (oral); H300 Eye Irrit. 2; H319 Aquatic Chronic 3; H412

Texts of H phrases, see in Chapter 16

4. First-aid measures

4.1. Description of first aid measures

General advice

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. Take off all contaminated clothing immediately.

Inhalation

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

Skin contact

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

Eye contact

Flush eyes thoroughly with a large amount of water and consult a physician.

Ingestion

Do not induce vomiting. Consult a physician immediately.

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

Skin sensitisation, Skin irritation, Excessive or prolonged exposure can cause the following:

Headache, confusion

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



no

5. Fire-fighting measures
5.1. Extinguishing media

Suitable extinguishing media foam, dry chemical, carbon dioxide

Unsuitable extinguishing media high volume water jet

5.2. Special hazards arising from the substance or mixture

May be released in case of fire: carbon monoxide, carbon dioxide, organic products of decomposition.

5.3. Advice for firefighters

Wear self-contained breathing apparatus.

6. Accidental release measures
6.1. Personal precautions, protective equipment and emergency procedures

Assure sufficient ventilation. Keep away sources of ignition. Use personal protective clothing. Use breathing apparatus if exposed to vapours/dust/mist/aerosol.

6.2. Environmental precautions

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

6.3. Methods and material for containment and 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.

6.4. Reference to other sections

For personal protection see section 8.

For disposal considerations see section 13.

7. Handling and storage
7.1. Precautions for safe handling

Safe handling advice

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

Keep container tightly closed.

Advice on protection against fire and explosion

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 only explosion-proof equipment.

7.2. Conditions for safe storage, including any incompatibilities

Requirements for storage areas and containers

Keep only in the original container at a temperature not exceeding 35 °C. Protect from the action of 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.

7.3. Specific end use(s)

no

8. Exposure Controls/Personal Protection
8.1. Control parameters**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) 2011

208 mg/m³

50 ppm

WEL (short-term) 2011

416 mg/m³

100 ppm

Indicative occupational exposure limit value
2009/161/EC 2017

50 ppm



Indicative occupational exposure limit value 2009/161/EC (15 minutes) 2017		100 ppm
n-butylacrylate 141-32-2		
WEL (long-term) 2011	5 mg/ m ³	1 ppm
WEL (short-term) 2011	26 mg/ m ³	5 ppm
Indicative occupational exposure limit value 2006/15/EC 2006	11 mg/ m ³	2 ppm
Indicative occupational exposure limit value 2006/15/EC (15 minutes) 2009	53 mg/ m ³	10 ppm

8.2. Exposure controls

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

Protective measures	Do not breathe vapours. Avoid contact with eyes and skin.
Hygiene measures	Store work clothing separately. Take off all contaminated 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), Break through 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.
Splash protection	nitrile rubber gloves (minimal thickness 0.11 mm)
General information	Gloves should be replaced regularly, especially after extended contact with the product. For each workplace a suitable glove type has to be selected.
Eye protection	tightly fitting goggles
Skin and body protection	On handling of larger quantities: face mask, chemical-resistant boots and apron

9. Physical and chemical properties

9.1. Information on basic physical and chemical properties

Physical state	liquid
Form	liquid
Colour	colourless
Odour	ester-like
pH	not applicable
Solidification point	Remarks: not available
Boiling Temperature	100.5°C (1,013 hPa) (methyl methacrylate)
Flash point	10°C (methyl methacrylate)
Ignition temperature	430°C (methyl methacrylate)
Lower explosion limit	2.1 %(V) at 10,5°C (methyl methacrylate)
Upper explosion limit	12.5 %(V) (methyl methacrylate)
Vapour pressure	38.7 hPa (20 °C) (methyl methacrylate)
Relative vapour density	> 1 (20 °C)
Water solubility	approx. 16 g/l (methyl methacrylate)
Thermal decomposition	No decomposition if used as directed.
Viscosity, dynamic	approx. 500 m Pa.s
Density	ca. 1 g/cm ³ (20 °C)



9.2. Other information

Ignition temperature	430°C (methyl methacrylate)
Other information	none

10. Stability and reactivity

10.1. Reactivity

see section 10.2.

10.2. Chemical stability

No decomposition if used as directed.

10.3. Possibility of 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.

10.4. Conditions to avoid

Avoid high temperatures and sources of ignition.

Keep away from direct sunlight.

Ultraviolet light.

10.5. Incompatible materials

Peroxides, amines, sulfur compounds, heavy metal ions, alkalis, reducing agents and oxidizing agents.

10.6. Hazardous decomposition products

None when used as directed.

11. Toxicological information

11.1. Information on toxicological effects

Acute toxicity (oral)	Acute toxicity estimate Dose: > 2,000 mg/kg Method: Calculation method
Irritation/corrosion of the skin	Remarks: Contact with skin may cause irritations. Related to substance: product
Serious eye damage/ eye irritation	Remarks: Contact with the eyes may cause irritation. Related to substance: product
Respiratory/skin sensitization	In sensitization tests on guinea pigs with and without adjuvant, both positive and negative results were found. In human's various types of allergic reactions have been observed (symptoms: headache, eye irritations, skin affections). Related to substance: methyl methacrylate
Repeated dose toxicity	rat, inhalation, 2 Years Findings: Damage to mucous membranes in the nose at 400 ppm Related to substance: methyl methacrylate rat, in drinking water, 2 Years Findings: no toxic effects Related to substance: methyl methacrylate
CMR assessment	
Carcinogenicity	Contains no ingredient listed as a carcinogen
Mutagenicity	Contains no ingredient listed as a mutagen
Teratogenicity	Does not contain any component that has been classified as teratogenic.
Toxicity to reproduction	Contains no ingredient listed as toxic to reproduction
Aspiration hazard	not applicable
Other information	Avoid contact with the skin and eyes and inhalation of the product vapours.

12. Ecological information

12.1. Toxicity

Aquaticity, fish	Species: Oncorhynchus mykiss (rainbow trout)
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	Exposure duration: 96 h LC50: > 79 m g/l Method: OECD 203, flow through GLP: GLP
Aquaticity, invertebrates	Related to substance: methyl methacrylate Species: Daphnia magna Exposure duration: 48 h EC50: 69 m g/l Method: OECD 202, flow through Related to substance: methyl methacrylate Species: Daphnia magna Exposure duration: 21 d NOEC: 37 mg/l Method: OECD 202 part 2, flow through Related to substance: methyl methacrylate
Aquaticity, algae / aquatic plants	Species: Scenedesmus quadricauda Exposure duration EC3: 37mg/l Method: DIN 38412, T.9 Related to substance: methyl methacrylate
Toxicity in microorganisms	Pseudomonas putida EC0: 100 mg/l Related to substance: methyl methacrylate

12.2. Persistence and degradability

Biodegradability	Biological degradability: 94 % Exposure duration: 14 d Result: readily biodegradable Method: OECD 301 C Related to substance: methyl methacrylate
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12.3. Bioaccumulative potential

Bioaccumulation	no evidence for hazardous properties
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12.4. Mobility in soil

Mobility	no specific test data available
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12.5. Results of PBT and vPvB assessment

PBT and vPvB assessment	PBT: no vPvB: no
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12.6. Other adverse effects

no specific test data available

General Information	Prevent substance from entering soil, natural bodies of water and sewer systems.
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13. Disposal considerations

13.1. Waste treatment methods

Product	Waste is hazardous. It must be disposed of in accordance with the regulations after consultation of the competent local authorities and the disposal company in a suitable and licensed facility.
Uncleaned packaging	Contaminated packaging should ideally be emptied; it can then be recycled after having been decontaminated. Packaging that cannot be cleaned should be disposed of professionally. Uncontaminated packaging may be taken for recycling.
Code of waste EWC	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.



14. Transport Information

Transport on land (ADR/RID/GGVS EB)

14.1. UN number	UN 1866
14.2. UN proper shipping name	RESIN SOLUTION
14.3. Transport hazard class(es)	3
14.4. Packing group	II
14.5. Environmental hazards	--
14.6. Special precautions for user	Yes
ADR:	Tunnel Restriction Code: (D/E)
ADR:	Special provision 640D
	Observe § 35 GGVSEB
RID:	Special provision 640D

Inland waterway transport (ADN/GGVS EB (Germany))

14.1. UN number	UN 1866
14.2. UN proper shipping name	RESIN SOLUTION
14.3. Transport hazard class(es)	3
14.4. Packing group	II
14.5. Environmental hazards	--
14.6. Special precautions for user	Yes
	Special provision 640D

Air transport ICAO-TI/IATA- DGR

14.1. UN number	UN 1866
14.2. UN proper shipping name	RESIN SOLUTION
14.3. Transport hazard class(es)	3
14.4. Packing group	II
14.5. Environmental hazards	--
14.6. Special precautions for user	no

Sea transport IMDG- Code/GGVSee (Germany)

14.1. UN number	UN 1866
14.2. UN proper shipping name	RESIN SOLUTION
14.3. Transport hazard class(es)	3
14.4. Packing group	II
14.5. Environmental hazards	--
14.6. Special precautions for user	no
Em S:	F-E, S-E
14.7. Transport in bulk according to Annex II of MARPOL 73/78 and the IBC Code for transportapproval see regulatory information	

15. Regulatory information

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

National legislation

Occupational restrictions	Note for juveniles. Note for pregnant woman and nursing mothers (EC Directive 92/85/EEC).
Chemical safety assessment	No chemical safety assessment was carried out for this product.
Status of Registration	REACH (EU) preregistered, registered or exempted
	TSCA (USA) listed or exempted
	DSL (CDN) listed or exempted
	PICCS (RP) listed or exempted
	IECSC (CN) listed or exempted

16. Other Information

List of references

References	relevant manuals and publications
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Other information

own examinations
 own toxicological and ecotoxicological studies
 toxicological and ecotoxicological studies of other manufacturers
 SIAR
 OECD-SIDS
 RTK public files

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.

Classification and applied procedure to derive the classification of mixtures according to EU Regulation (EC) No. 1272/2008 (CLP)

Classification	Classification procedure
Flam. Liq., 2, H225	On basis of test data.
Skin Irrit., 2, H315	Calculation method
Skin.sens ., 1, H317	Calculation method
STOT SE , 3, H335	Calculation method

Relevant H phrases from chapter 3

H225 Highly flammable liquid and vapour.
 H226 Flammable liquid and vapour.
 H300 Fatal if swallowed.
 H302 Harmful if swallowed.
 H315 Causes skin irritation. May cause an allergic skin reaction.
 H319 Causes serious eye irritation.
 H332 Harmful if inhaled.
 H335 May cause respiratory irritation.
 H441 Toxic to aquatic life with long lasting effects.
 H412 Harmful to aquatic life with long lasting effects.

Changes since the last version are highlighted in the margin. This version replaces all previous versions.

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