



Safety data sheet

1. Substance/preparation and company identification

Trade name:

BKF Siegelharz

Application of the substance/ the preparation:

Laminating resin for orthopaedic technology

BEIL

Kunststoffproduktions- und Handelsgesellschaft mbH

Lehmkuhlenweg 25

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

2.1. Classification of the substance or mixture

This mixture is classified as hazardous according to CLP/GHS

Regulation (EC) No 1272/2008

Flammable liquids	Category 2	H225
Caustic burning / irritation of skin	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
tris(nonylphenyl) phosphite; CAS-No.: 26523-78-4
n-butyl acrylate; CAS-No.: 141-32-2

Signal word (s)

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

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.
 P333 + P313 - If skin irritation or rash occurs: Get medical advice/ attention.

Precautionary Statement (Response)

2.3. Other hazards

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

3. Composition/Information on Ingredients

3.1. Substances

3.2. Mixtures

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., 1B, H317 STOT SE, 3, H335
triethyleneglycol dimethacrylate	109-16-0 203-652-6 01-2119969287-21	1 - 10 %	Skin.sens., 1B, H317
N,N-bis-(2-hydroxypropyl)-p-toluidine	38668-48-3 254-075-1 01-2119980937-17	0.1 - 1 %	Acute Tox. 2 (oral); H300 Eye Irrit. 2; H319 Aquatic Chronic 3; H412
ethylene di (S- thioacetate)	123-81 -9 204-653-4 ---	0,1 - 0,25 %	Acute To x., 4, H302, Oral Eye Irrit., 2, H319 Skin.sens., 1A, H317 Aquatic Chronic, 2, H411
tris(nonylphenyl) phosphite	26523-78-4 247-759-6 ---	0.1 - 0,25 %	Skin Sens. 1; H317 Aquatic Acute 1; H400 Aquatic Chronic 1; H410
n-butyl acrylate	141-32 -2 205-480-7 01-2119453155-43	0.1 - 0,25 %	Flam. Liq., 3, H226 Acute To x., 4, H332, Inhalation Skin Irrit., 2, H315 Eye Irrit., 2, H319 Skin.sens., 1B, H317 STOT SE, 3, H335 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 Keeping the eyelids apart flush thoroughly with water immediately. If irritation persists, contact a physician.

Ingestion Do not induce vomiting. Consult a physician immediately.

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



Skin Sensitisation, Causes skin and eye 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.

Vapours are heavier than air and can form an explosive mixture with air. Flammable liquid. Vapours can travel to a source of ignition and flash back. Explosive mixtures may occur at temperatures at or above the flashpoint. Remove all sources of ignition. Also keep emptied containers away from sources of heat and ignition. Keep out unprotected persons. In case of fire, remove the endangered barrels and bring to a safe place, if this can be done safely. Containers exposed to heat (fire) may build up pressure. Cool by splashing with water. Prevent fire extinguishing water from contaminating surface water or the ground water system. Fire residues and contaminated fire extinguishing water must be disposed of in accordance with local regulations. Use extinguishing measures that are appropriate to local circumstances and the surrounding environment.

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

Remove all sources of ignition. Assure sufficient ventilation. 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

When using do not eat, drink or smoke. Remove contaminated clothing and wash it before reuse. Avoid inhalation, ingestion and contact with skin and eyes. Provide sufficient ventilation and exhaust at the workplace. Provide good room ventilation even at ground level (vapours are heavier than air). Keep container tightly closed. Open drum carefully as content may be under pressure. Keep away from heat/sparks /open flames /hot surfaces. No smoking. Provide adequate precautions, such as electrical grounding and bonding, or inert atmospheres. Wash thoroughly after handling.

Advice on protection against fire and explosion

Keep away from sources of ignition --- No smoking. Vapors are heavier than air. Flammable liquid. Vapors can travel to a source of ignition and flash back. Explosive mixtures may occur at temperatures at or above the flashpoint. Take precautionary measures against static discharges. Use



explosion-proof equipment. In the event of fire, cool the endangered containers with water. Firefighting must be carried out from a safe distance.

7.2. Conditions for safe storage, including any incompatibilities

Requirements for storage areas and Containers

Keep away from open flames, hot surfaces and sources of ignition. Keep away from heat. Protect from the action of light. Keep containers tightly closed in a cool, well - ventilated place. 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. Keep only in the original container at a temperature not exceeding 25 °C.

Further information

Keep away from direct sunlight.

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/m ³	50 ppm
WEL (short-term) 2011	416 mg/m ³	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
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n-butyl acrylate 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
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Indicative occupational exposure limit value 2006/15/EC (15 minutes) 2009	53 mg/m ³	10 ppm
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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. Wash hands before breaks and immediately after handling the product. Safety shower and eye wash fountain should be available.

Hygiene measures

Store work clothing separately. Take off all contaminated clothing immediately. Follow the usual good 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), 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	ca.100 °C (1,013 hPa)
Flash point	10 °C (methyl methacrylate)
Flammability	Static-accumulating flammable liquid.
Upper explosion limit	12.5 %(V) (methyl methacrylate)
Lower explosion limit	2.1 %(V) at 10,5°C (methyl methacrylate)
Relative vapour density	> 1 (20 °C)
Relative density	no data available
Water solubility	approx. 16 g/l (20 °C)
Fat solubility	not available
Partition coefficient: n- octanol/water	not available
Autoignition temperature	not pyrophoric
Thermal decomposition	No decomposition if used as directed.
Viscosity, kinematic	no data available
Viscosity, dynamic	approx. 320 m Pa.s
Density	approx. 1 g/cm ³ (20 °C)

9.2. Other information

Ignition temperature	430 °C (methyl methacrylate)
Impact Sensitivity	Not impact sensitive.
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



Acute toxicity (inhalation)	Dose: > 2,000 m g/kg Method: Calculation method LC50 rat2
Irritation/corrosion of the skin	Related to substance: methyl methacrylate Low toxicity by inhalation 29.8 mg/l Remarks: Contact with skin may cause irritations.
Serious eye damage/eye irritation	Related to substance: product Remarks: Contact with the eyes may cause irritation.
Respiratory/skin sensitization	Related to substance: product
Repeated dose toxicity	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 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	no specific test data available
Toxicity to reproduction	no evidence for hazardous properties
Aspiration hazard	not applicable
Other information	Avoid contact with the s kin and eyes and inhalation of the product vapours.

12. Ecological information

12.1. Toxicity

Aquaticity, fish	Species: Oncorhynchus mykiss, rainbow trout Exposure duration: 96 h LC50: > 79 m g/l Method: OECD 203, flow through GLP: GLP Related to substance: methyl methacrylate
Aquaticity, invertebrates	Species: Daphnia magna Exposure duration: 48 h EC50: 69 m g/l Method: OECD 202, flow through Related to substance: methyl methacrylate
Aquaticity, algae / aquatic plants	Species: Daphnia magna Exposure duration: 21 d NOEC: 37 m g/l Method: OECD 202 part 2, flow through Related to substance: methyl methacrylate
Aquaticity, algae / aquatic plants	Spezies: Scenedesmus quadricauda Exposure duration: 8 d EC3: 37 mg/l Method: DIN 38412 T.9



Related to substance: methyl methacrylate
Toxicity in microorganisms

Species: Pseudomonas putida

EC0: 100 mg/l

Related to substance: methyl methacrylate

12.2. Persistence and degradability

Biodegradability readily biodegradable, OECD 301 C, 14 d

Related to substance: methyl methacrylate

12.3. Bioaccumulative potential

Bioaccumulation degradability

Biological degradability: 94 %

Exposure duration: 14 d

Result: readily biodegradable

Method: OECD 301 C

Related to substance: methyl methacrylate

12.4. Mobility in soil

Mobility no specific test data available

12.5. Results of PBT and vPvB assessment

PBT and vPvB assessment PBT: no

vPvB: no

12.6. Other adverse effects

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

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 UN1866
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)
Special provision 640D
observe §35 GGVSEB
RID: Special provision 640D

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

14.1. UN number UN1866
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 UN1866
 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 UN1866
 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

EmS: F-E,S-E

14.7. Transport in bulk according to Annex II of MARPOL 73/78 and the IBC Code for transport approval 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 own examinations
 own toxicological and ecotoxicological studies
 toxicological and ecotoxicological studies of other manufacturers

SIAR

OECD-SIDS

RTK public files

Other 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.

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.
H317 May cause an allergic skin reaction.
H319 Causes serious eye irritation.
H332 Harmful if inhaled
H335 May cause respiratory irritation.
H400 Very toxic to aquatic life.
H410 Very toxic for aquatic life with long lasting effects.
H411 Toxic to aquatic life with long lasting effects.
H412 Harmful to aquatic life with long lasting effects.

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