



# Safety data sheet

## 1. Substance/preparation and company identification

Trade name:

BKF Carbonharz

Application of the substance/ the preparation:

Laminating resin for orthopaedic technology

BEIL

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## 2. Hazard identification

### 2.1. Classification of the substance or mixture

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

#### Regulation (EC) No 1272/2008

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

GHS pictogram



Signal word

Danger

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

preparation

### 3.1. Substances

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### 3.2. Mixtures

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

Chemical Name	CAS-No. EINECS-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	0.1 - 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		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	254-075-1 - 38668-48-3	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 Ensure there is good room ventilation. 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 25 °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/m <sup>3</sup>	50 ppm
WEL (short-term) 2011	416 mg/m <sup>3</sup>	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-butyl acrylate** 141-32-2

WEL (long-term) 2011	5 mg/ m <sup>3</sup>	1 ppm
WEL (short-term) 2011	26 mg/ m <sup>3</sup>	5 ppm
Indicative occupational exposure limit value 2006/15/EC 2006	11 mg/ m <sup>3</sup>	2 ppm
Indicative occupational exposure limit value 2006/15/EC (15 minutes) 2009	53 mg/ m <sup>3</sup>	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 ca. 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 work-place 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
Freezing Temperature	not available
Boiling Temperature	100.5°C (1,013 hPa) (methyl methacrylate)
Flash point	10°C (methyl methacrylate)
Upper explosion limit	12.5 %(V) (methyl methacrylate)
Lower explosion limit	2.1 %(V) (methyl methacrylate)
Vapour pressure	38.7 hPa (20 °C) (methyl methacrylate)
Density	ca. 1 g/cm <sup>3</sup> (20 °C)
Relative vapour density	> 1 (20 °C)
Solubility in water	ca. 16 g/l (methyl methacrylate)



Thermal decomposition	No decomposition if used as directed.
Viscosity (dynamic)	ca. 400 mPas
<b>9.2. Other information</b>	
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

Heat and ignition sources, aging, contamination, oxygen free atmosphere.

### 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 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

Aquatic toxicity, fish Species: *Oncorhynchus mykiss* (rainbow trout)



	Exposure duration: 96 h LC50: > 79 mg/l Method: OECD 203, flow through GLP: GLP
Aquaticity, invertebrates	Related to substance: methyl methacrylate Species Daphnia magna Exposure duration: 48 h EC50: 69 mg/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: 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
<b>12.2. Persistence and degradability</b>	
Biodegradability	Biological degradability: 94 % Exposure duration: 14 d Result: readily biodegradable Method: OECD 301 C Related to substance: methyl methacrylate
<b>12.3. Bioaccumulative potential</b>	
Bioaccumulation	no specific test data available, no evidence for hazardous properties, (structure-activity-relationships), (analogy)
<b>12.4. Mobility in soil</b>	
Environmental distribution	no specific test data available
<b>12.5. Results of PBT and vPvB assessment</b>	
PBT and vPvB assessment	PBT: no vPvB: no
<b>12.6. Other adverse effects</b>	
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. Uncleaned 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/GGVSEB)

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 hazard class (es)	--
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/GGVSEB (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 hazard class(es)	--
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 hazard class(es)	--
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 hazard class(es)	--
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
ECL (KOR)	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.  
 H411 Toxic to aquatic life with long lasting effects.  
 H412 Harmful to aquatic life with long lasting effects

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