



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

Highly flammable.

Irritating to respiratory system and skin.

May cause sensitisation by skin contact.

3. Composition/information on ingredients

Preparation

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 %
N,N-bis-(2-hydroxypropyl)-p-toluidine	38668-48-3	T 25-41-52/53	0.1 - 1.0 %
ethylene di(S-thioacetate)	123-81-9	Xn, N 22-51/53	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 contact with eyes

Flush eyes thoroughly with a large amount of water and consult 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. Contact a doctor immediately.



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

Ensure the area is well ventilated. 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 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 and 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 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 100.5 °C (methyl methacrylate)
 Flash point 10 °C (methyl methacrylate)
 Ignition temperature 430 °C (methyl methacrylate)
 Lower explosion limit 2.1 %(V) (methyl methacrylate)
 Upper explosion limit 12.5 %(V) (methyl methacrylate)
 Vapour pressure 38.7 hPa at 20 °C (methyl methacrylate)
 Density approx. 1 g/cm³ at 20 °C
 Relative vapour density (related to air) > 1 at 20 °C
 Solubility in water approx. 16 g/l (methyl methacrylate)
 pH-value not applicable
 Viscosity (dynamic) approx. 400 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 > 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.

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

Toxicity on Repeated Administration

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

rat, inhalation, 2 a, 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, 2 a, 0, 6/7, 60/70, 2000 ppm

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 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, flow through, GLP, 96 h

> 79 mg/l

Related to substance: methyl methacrylate

Daphnia toxicity

EC50 Daphnia magna, OECD 202, flow through, 48 h 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, 8 d 37 mg/l

Related to substance: methyl methacrylate



Bacteria toxicity

EC0 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 the disposal company in a suitable and licensed facility.

Uncleaned 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.

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

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

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-phrase(s) 11 Highly flammable.

37/38 Irritating to respiratory system and skin.

43 May cause sensitisation by skin contact.



S-phrase(s)

16 Keep away from sources of ignition --- No smoking.

24 Avoid contact with skin.

37 Wear suitable gloves.

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.

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.