

1 Identification

Product identifier

Trade name: 617H119 - ORTHOCRYL Lamination Resin PRO

Recommended use and restrictions on use

General use: Lamination resin for orthopedic procedures
Reserved for industrial and professional use.

Initial supplier identifier

Company name: Otto Bock HealthCare Canada Ltd.

Street/POB-No.: 5470 Harvester Road

Postal code, city: Burlington, ON L7L 5N5, CA
Canada

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Email: info.canada@ottobock.com

Telephone: (800) 665-3327

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Department responsible for information:

Mark Agro, Telephone: (800) 665-3327 (9 am - 5 pm)

Additional information:

Corporate headquarters:
Ottobock SE & Co. KGaA
Max-Näder-Straße 15
Duderstadt
Germany

Emergency telephone number

COLLECT, Telephone: (613) 996-6666

Transport:

CONSULTANK Lutz Harder GmbH (Contract QUALI003)

Telephone: +49 (0)178-4337434 (from USA: 01149 178 4337434)

2 Hazard identification

Classification

Flammable Liquid 2

Highly flammable liquid and vapour.

Skin Irritation 2

Causes skin irritation.

Sensitization - skin 1

May cause an allergic skin reaction.

Specific Target Organ Toxicity (Single Exposure) 3 May cause respiratory irritation.

Information elements

Symbols:



Signal word:

Danger

Hazard statements:

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

Precautionary statements:

- Keep away from heat, hot surfaces, sparks, open flames and other ignition sources. No smoking.
- Avoid breathing mist/vapours/spray.
- Wear protective gloves/protective clothing/eye protection.
- Call a POISON CENTER/doctor if you feel unwell.
- Take off contaminated clothing and wash it before reuse.
- Store in a well-ventilated place. Keep cool.

Other hazards known to the supplier with respect to the product

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 discharge.

vapours irritate eyes and respiratory system. Pulmonary edema is possible.

High concentrations of vapour or inhalation for an extended period may lead to paralysis of the central nervous system.

Potentially explosive mixtures may form if adequate ventilation is not provided.

Special danger of slipping by leaking/spilling product.

3 Composition/Information on ingredients

Mixture

Chemical name: Solution of acrylic polymers in methylmethacrylate, containing softener. (MMA)

Hazardous ingredients:

CAS No.	Designation	Content	Classification
CAS 80-62-6	Methyl methacrylate	50 - 100 %	Flammable Liquid 2. Skin Irritation 2. Sensitization - skin 1. Specific Target Organ Toxicity (Single Exposure) 3.
CAS 109-16-0	2,2'-Ethylenedioxydiethyl dimethacrylate	< 5 %	Sensitization - skin 1.
CAS 123-81-9	Ethylene di(S-thioacetate)	< 1 %	Acute Toxicity 4 (oral). Acute Toxicity 4 (dermal). Acute Toxicity 4 (inhalative). Eye Irritation 2A. Sensitization - skin 1. Specific Target Organ Toxicity (Single Exposure) 3.
CAS 141-32-2	n-Butyl acrylate	< 1 %	Flammable Liquid 3. Acute Toxicity 4 (inhalative). Skin Irritation 2. Eye Irritation 2A. Sensitization - skin 1. Specific Target Organ Toxicity (Single Exposure) 3. Aquatic toxicity - chronic 3.

The actual concentration or concentration range is withheld as a trade secret.

4 First-aid measures

Description of necessary first-aid measures

General information:	If medical advice is needed, have product container or label at hand. Take off contaminated clothing and wash it before reuse.
In case of inhalation:	Move victim to fresh air, put at rest and loosen restrictive clothing. If breathing becomes irregular or ceases, apply rescue breathing or artificial respiration immediately, where required supply oxygen. Seek medical attention.
In case of swallowing:	Rinse mouth and drink large quantities of water. Never give anything by mouth to an unconscious person. Do not induce vomiting. Immediately get medical attention.
In case of skin contact:	After contact with skin, wash immediately with soap and plenty of water. In case of skin reactions, consult a physician.
In case of eye contact:	Immediately flush eyes with plenty of flowing water for 10 to 15 minutes holding eyelids apart. Remove contact lenses, if present and easy to do. Continue rinsing. Subsequently consult an ophthalmologist.

Most important symptoms and effects, whether acute or delayed

May cause respiratory irritation. Causes skin irritation.

May cause an allergic skin reaction.

The following symptoms may occur: Mucous membrane irritation, Cough and shortage of breath.

High concentrations of vapour or inhalation for an extended period may lead to paralysis of the central nervous system. Pulmonary edema is possible.

In case of prolonged or frequent exposure eye irritation may occur.

Indication of immediate medical attention and special treatment needed, if necessary

Monitor breathing.

Treat symptomatically.

5 Fire-fighting measures

Suitable and unsuitable extinguishing media

Suitable extinguishing media:

Foam, extinguishing powder, carbon dioxide

Unsuitable extinguishing media:

Full water jet

Specific hazards arising from the product

Highly flammable liquid and vapour.

Air combined with vapours may form potentially explosive mixtures that are heavier than air. vapours may proceed on the ground over great distances and cause fire and backflashes.

Methyl methacrylate: Explosive mixtures with air may even form at room temperature.

In case of fire may be liberated: Organic crack products, carbon monoxide and carbon dioxide.

Special protective equipment and precautions for fire-fighters

Wear self-contained positive pressure breathing apparatus and full firefighting protective clothing.

Additional information:

Heating will lead to pressure increase: danger of bursting and explosion. Use fine water spray to cool endangered containers.

Move undamaged containers from immediate hazard area if it can be done safely.

In case of major fire and large quantities: Evacuate area. Fight fire remotely due to the risk of explosion.

Do not allow fire water to penetrate into surface or ground water.

Fire residuals and contaminated extinguishing water must be disposed of in accordance with the regulations of the local authorities.

6 Accidental release measures

Personal precautions, protective equipment and emergency procedures

Eliminate all ignition sources if safe to do so.

Provide adequate ventilation. Avoid contact with skin and eyes. Wear appropriate protective equipment. Take off contaminated clothing and wash it before reuse. Avoid breathing mist/vapours/spray. Keep unprotected people away.

Cordon off downwind area at risk and warn inhabitants.

Environmental precautions:

Do not allow to enter into ground-water, surface water or drains.

Danger of explosion!

In case of release, notify competent authorities.

Methods and material for containment and cleaning up

smaller amounts: Soak up with absorbent materials such as sand, siliceous earth, acid- or universal binder. Store in special closed containers and dispose of according to ordinance.

In case of greater quantities: Collect mechanically (use only explosion-proof equipment when pumping out).

Additional information:

Special danger of slipping by leaking/spilling product.

7 Handling and storage

Precautions for safe handling

Advices on safe handling:

Provide adequate ventilation, and local exhaust as needed.

Provide room air exhaust at ground level. Concentrated vapours are heavier than air.

Avoid contact with skin and eyes. Avoid breathing mist/vapours/spray.

Wear appropriate protective equipment. Take off contaminated clothing and wash it before reuse.

Do not eat, drink or smoke when using this product. Wash hands before breaks and after work.

When handling large quantities, supply emergency spray.

Precautions against fire and explosion:

Keep away from sources of ignition - No smoking.

Take precautionary measures against static discharges.

Concentrated vapours are heavier than air. Flammable mixtures may form in the air when product is heated above the flash point and/or during spraying.

Use only explosion-proof equipment.

In case of fire, cool endangered containers with water.

Conditions for safe storage, including any incompatibilities

Requirements for storerooms and containers:

Keep only in the original container at temperature not exceeding 30 °C. Protect from light. Because oxygen (air) is necessary to stabilize product, fill container only to 90% of capacity. Provide adequate oxygen (air) circulation for large containers to ensure product stability.

Hints on joint storage:

Do not store together with organic peroxides, ammonia or persulphates. Keep away from food, drink and animal feedingstuffs.

Further details:

Due to reducing substances, peroxides and heavy metal ions, polymerization with heat generation may occur.

8 Exposure controls/Personal protection

Control parameters

Occupational exposure limit values:

CAS No.	Designation	Type	Limit value
80-62-6	Methyl methacrylate	Canada: Alberta, OEL 15 min	410 mg/m ³ ; 100 ppm
		Canada: Alberta, OEL 8 hour	205 mg/m ³ ; 50 ppm
		Canada: BC, OEL STEL	100 ppm
		Canada: BC, OEL TWA	50 ppm
		Canada: Québec, VECD	100 ppm
		Canada: Québec, VEMP	50 ppm
141-32-2	n-Butyl acrylate	Canada: Alberta, OEL 8 hour	10 mg/m ³ ; 2 ppm
		Canada: BC, OEL TWA	2 ppm
		Canada: Québec, VEMP	2 ppm

Appropriate engineering controls

Provide for good ventilation or exhaust system or work with completely self-contained equipment. Explosion protection required.

Individual protection measures, such as personal protective equipment

Respiratory protection:

Respiratory protection must be worn whenever the TLV (WEL) levels have been exceeded. Use filter type A (= against vapours of organic substances) according to OSHA Standard - 29 CFR: 1910.134 or ANSI Z88.2.

Hand protection:

Protective gloves according to OSHA Standard - 29 CFR: 1910.138. Glove material: butyl caoutchouc (butyl rubber)-Layer thickness 0.7 mm. Breakthrough time: 60 min. Observe glove manufacturer's instructions concerning penetrability and breakthrough time.

Eye protection:

Tightly sealed goggles according to OSHA Standard - 29 CFR: 1910.133 or ANSI Z87.1-2010.

Body protection:

When handling larger quantities: face protection, rubber boots and rubber apron.

General hygiene considerations:

Avoid breathing mist/vapours/spray. Avoid contact with skin and eyes. Take off contaminated clothing and wash it before reuse. Wash hands before breaks and after work. Separate storage of work clothes. Do not eat, drink or smoke when using this product. When handling large quantities, supply emergency spray.

Environmental exposure controls

Refer to 6.: Section "Environmental precautions".

9 Physical and chemical properties

Information on basic physical and chemical properties

Physical state at 20 °C and 101.3 kPa	liquid
Colour:	colourless
Odour:	ester-like
Odour threshold:	No data available
Melting point and freezing point:	No data available
Boiling point or initial boiling point and boiling range:	100.5 °C (Methyl methacrylate)
Flammability:	Highly flammable liquid and vapour.
Lower and upper explosion limit or lower and upper flammability limit:	LEL (Lower Explosion Limit): 2.10 Vol-% (Methyl methacrylate) UEL (Upper Explosive Limit): 12.50 Vol-% (Methyl methacrylate)
Flash point/flash point range:	10 °C (Methyl methacrylate)
Evaporation rate:	No data available
Auto-ignition temperature:	No data available
Decomposition temperature:	No data available
pH:	approx. 7 (aqueous solution)
Dynamic viscosity:	at 20 °C: <= 500 mPa*s
Water solubility:	at 20 °C: approx. 16 g/L (Methyl methacrylate)
Partition coefficient — n-octanol/water:	No data available
Vapour pressure:	at 20 °C: 38.7 hPa (Methyl methacrylate)
Density and/or relative density	at 20 °C: approx. 1 g/mL
Vapour density:	No data available
Particle characteristics:	Not applicable

Additional information

Explosive properties:	vapours may form explosive mixtures with air.
Ignition temperature:	430 °C (Methyl methacrylate)

10 Stability and reactivity

Reactivity:	Highly flammable liquid and vapour. vapours may form explosive mixtures with air. Methyl methacrylate: Explosive mixtures with air may even form at room temperature.
Chemical stability:	Stable under recommended storage conditions.
Possibility of hazardous reactions:	Heating will lead to pressure increase: danger of bursting and explosion. Polymerization with heat evolution may occur in the presence of radical forming substances (e.g. peroxides), reducing substances, and/or heavy metal ions.

Conditions to avoid: Keep away from heat sources, sparks and open flames.
Protect from: UV-radiation/sunlight

Incompatible materials: Peroxides, amines, heavy metals, alkali compounds, reducing agent, oxidizing agents

Hazardous decomposition products:
No hazardous decomposition products when regulations for storage and handling are observed.

11 Toxicological information

Information on the likely routes of exposure

No data available

Health hazard information

Acute toxicity (oral): Based on available data, the classification criteria are not met.
ATEmix (calculated): > 5,000 mg/kg

Acute toxicity (dermal): Based on available data, the classification criteria are not met.
ATEmix (calculated): > 5,000 mg/kg

Acute toxicity (inhalative): Based on available data, the classification criteria are not met.

Skin corrosion/irritation: Skin Irritation 2 = Causes skin irritation.

Serious eye damage/irritation: Lack of data.

Sensitisation to the respiratory tract: Lack of data.

Skin sensitisation: Sensitization - skin 1 = May cause an allergic skin reaction.

Germ cell mutagenicity/Genotoxicity: Lack of data.

Carcinogenicity: Lack of data.

Reproductive toxicity: Lack of data.

Effects on or via lactation: Lack of data.

Specific target organ toxicity (single exposure): Specific Target Organ Toxicity (Single Exposure) 3 = May cause respiratory irritation.

Specific target organ toxicity (repeated exposure): Lack of data.

Aspiration hazard: Based on available data, the classification criteria are not met.

Other information:

Information about Methyl methacrylate:

LD50 Rat, oral: > 5,000 mg/kg

NOAEL Rat, oral: 2,000 ppm

LD50 Rabbit, dermal: > 5,000 mg/kg

LC50 Rat, inhalative (vapours): 29.8 mg/L/4h

NOAEL Rat, inhalative (vapours): 25 ppm

For carcinogenic effects:

Information about Methyl methacrylate:

IARC Rating: Group 3

OSHA Carcinogen: not listed

NTP Rating: not listed

Information about 2,2'-Ethylenedioxydiethyl dimethacrylate:

LD50 Rat, oral: > 5,000 mg/kg

NOAEL Rat, oral: 1,000 ppm

LD50 Mouse (male), dermal: > 2,000 mg/kg

Information about Ethylene di(S-thioacetate):

LD50 Rat (male), oral: 303 mg/kg

LC50 Rat, dermal: > 2,000 mg/kg

ATE Rat, inhalative (dust, mist, smoke): 1.5 mg/L

ATE Rat, inhalative (vapour): 11 mg/L

Information about n-Butyl acrylate:

LD50 Rat, oral: 3,150 mg/kg

LD50 Rabbit, dermal: > 2,000 mg/kg

LC50 Rat, inhalative (dust, mist, smoke): 10.3 mg/L/4h

Symptoms

Headache, drowsiness

In case of inhalation: Mucous membrane irritation, Cough and shortage of breath.

In case of ingestion:

Irritations of mucous membranes in the mouth, pharynx, oesophagus and gastrointestinal tract.

After eye contact: May cause irritations.

12 Ecological information

Ecotoxicity

Aquatic toxicity:

Information about Methyl methacrylate:

Fish toxicity:

LC50 Oncorhynchus mykiss: > 79 mg/L/96h (OECD 203)

NOEC Danio rerio (zebrafish): 9.4 mg/L/32d (OECD 210)

Daphnia toxicity:

EC50 Daphnia magna (Big water flea): 69 mg/L/48h (OECD 202)

NOEC Daphnia magna (Big water flea): 37 mg/L/21d (OECD 202)

Algae toxicity:

EC50 Selenastrum capricornutum: > 100 mg/L/72h (OECD 201)

NOEC Selenastrum capricornutum: > 100 mg/L/72h (OECD 201)

Information about 2,2'-Ethylenedioxydiethyl dimethacrylate:

Fish toxicity:

LC50 Danio rerio (zebrafish): 16.4 mg/L/96h

Information about Ethylene di(S-thioacetate):

Fish toxicity:

LC50 Leuciscus idus: 4.85 mg/L/48h

Information about n-Butyl acrylate:

Fish toxicity:

LC50 Oncorhynchus mykiss: > 5.2 mg/L/96h (OECD 203)

Daphnia toxicity:

EC50 Daphnia magna (Big water flea): 8.2 mg/L/48h (OECD 202)

NOEC Daphnia magna (Big water flea): 0.136 mg/L/21d (OECD 211)

Algae toxicity:

EC50 Selenastrum capricornutum: 2.65 mg/L/72h (OECD 201)

Bacterial toxicity:

EC0 activated sludge: > 150 mg/L/3d

Persistence and degradability

Further details:

Information about Methyl methacrylate:

Biodegradability: 94 %/14 d (OECD 301C), readily degradable.

Bioaccumulative potential

Partition coefficient — n-octanol/water:

No data available

Mobility in soil

No data available

Other adverse effects

General information:

Do not allow to enter into ground-water, surface water or drains.

13 Disposal considerations

Waste treatment methods

Product

Recommendation: Special waste.
Incinerate as hazardous waste according to applicable local, state, and federal regulations.

Package

Recommendation: Dispose of waste according to applicable legislation.
Handle contaminated packages in the same way as the substance itself.
Non-contaminated packages may be recycled.
Handle empty containers with care. Incineration may cause explosion.

14 Transport information

UN number

TDG: UN1866
IMDG, IATA-DGR: UN 1866

UN proper shipping name

TDG: UN 1866, resin solution
IMDG, IATA-DGR: UN 1866, RESIN SOLUTION

Transport hazard class

TDG: 3
IMDG: Class 3, Subrisk -
IATA-DGR: Class 3



Packing group

TDG, IMDG, IATA-DGR: II

Environmental hazards

Marine pollutant: no

Special precautions in connection with transport or conveyance either within or outside the premises

Canada: Transportation of Dangerous Goods (TDG)

Explosive limit and limited quantity index: 5 L
Passenger carrying road or rail index: 5 L

Sea transport (IMDG)

EmS: F-E, S-E
Special Provisions: -
Limited quantities: 5 L
Excepted quantities: E2
Package - Instructions: P001
Package - Provisions: PP1
IBC - Instructions: IBC02
IBC - Provisions: -
Tank instructions - IMO: -
Tank instructions - UN: T4
Tank instructions - Provisions: TP1, TP8
Stowage and handling: Category B.
Properties and observations: Miscibility with water depends upon the composition.
Marine pollutant: no
Segregation group: none
Remarks: For packages < = 30 litres: PG III (IMDG 2.3.2.2)

Air transport (IATA)

Proper shipping name: UN 1866, RESIN SOLUTION
Hazard label: Flamm. liquid
Excepted Quantity Code: E2
Passenger and Cargo Aircraft: Ltd.Qty.: Pack.Instr. Y341 - Max. Net Qty/Pkg. 1 L
Passenger and Cargo Aircraft: Pack.Instr. 353 - Max. Net Qty/Pkg. 5 L
Cargo Aircraft only: Pack.Instr. 364 - Max. Net Qty/Pkg. 60 L
Special Provisions: A3
Emergency Response Guide-Code (ERG): 3L
Remarks: For packages < = 30 litres: PG III (IATA 3.3.3.1)

15 Regulatory information

National regulations - Canada

Product: DSL: All ingredients are listed or exempt from listing.
Methyl methacrylate: DSL: listed
Priority Substances List: listed (PSL 1)
2,2'-Ethylenedioxydiethyl dimethacrylate: DSL: listed
Ethylene di(S-thioacetate): DSL: listed
n-Butyl acrylate: DSL: listed

Further regulations, limitations and legal requirements

No data available

16 Other information

Text for labelling: Contains:
Methyl methacrylate
2,2'-Ethylenedioxydiethyl dimethacrylate
Ethylene di(S-thioacetate)
n-Butyl acrylate

Revision date: 17/12/2025

Date of first version: 25/5/2012

Reason of change: General revision: Safety Data Sheet according to Hazardous Products Regulations (HPR) 2022

Abbreviations and acronyms:

Acute Toxicity: Acute toxicity
Aquatic toxicity - chronic: Hazardous to the aquatic environment - chronic
AS/NZS: Australian Standards/New Zealand Standards
ATE: Acute toxicity estimate
ATEmix: Acute Toxicity Estimate of mixture
CAS: Chemical Abstracts Service
CFR: Code of Federal Regulations
CLP: Classification, Labelling and Packaging
DMEL: Derived minimal effect level
DNEL: Derived no-effect level
DSL: Domestic Substances List
EC: Effective Concentration
EC: European Community
EC50: Effective Concentration 50%
EmS: Emergency Response Procedures for Ships Carrying Dangerous Goods
EN: European Standard
EQ: Excepted quantities
Eye Irritation: Eye irritation
Flammable Liquid: Flammable liquid
IATA: International Air Transport Association
IATA-DGR: International Air Transport Association – Dangerous Goods Regulations
IBC Code: International Code for the Construction and Equipment of Ships carrying Dangerous Chemicals in Bulk
IMDG Code: International Maritime Dangerous Goods Code
IMO: International Maritime Organization
LC50: Median lethal concentration
LD50: Lethal dose 50%
LEL: Lower Explosion Limit
MARPOL: Maritime Pollution: The International Convention for the Prevention of Pollution from Ships
MFSU: Manufacture, formulation, supply and use
NOAEL: No Observed Adverse Effect Level
NOEC: No Observed Effect Concentration
OECD: Organisation for Economic Co-operation and Development
OEL: Occupational Exposure Limit Value
OSHA: Occupational Safety and Health Administration
PBT: Persistent, bioaccumulative and toxic
PNEC: Predicted no-effect concentration
PSL: Priority Substances List
Sensitization - skin: Skin sensitisation
Skin Irritation: Skin irritation
STOT SE: Specific target organ toxicity - single exposure
TDG: Transportation of Dangerous Goods Regulation in Canada
TLV: Threshold Limit Value
TRGS: Technical Rules for Hazardous Substances
UN: United Nations
UV: Ultraviolet
vPvB: Very persistent and very bioaccumulative
WEL: Workplace Exposure Limit

Department issuing data sheet

Contact person: see section 1: Department responsible for information

The information in this data sheet has been established to our best knowledge and was up-to-date at time of revision. It does not represent a guarantee for the properties of the product described in terms of the legal warranty regulations.