

## 1. Identification

### Product identifier

Trade name: 617H119 - ORTHOCRYL Lamination Resin PRO

### Relevant identified uses of the substance or mixture and uses advised against

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

### Details of the supplier of the safety data sheet

Company name: Otto Bock Health Care  
Street/POB-No.: 3820 W. Great Lakes Drive  
Zip code, city: Salt Lake City, UT 84120  
USA  
WWW: www.ottobockus.com  
Telephone: +1 (801) 956-2400  
Telefax: +1 (801) 956-2401  
Department responsible for information: Quality Department,  
Telephone: +1 (801) 954-2304 (7 AM – 3 PM, Mountain Time),  
Email: USRegulatory@ottobock.com  
Additional information: Corporate headquarters:  
Ottobock SE & Co. KGaA  
Max-Näder-Straße 15  
Duderstadt  
Germany

### Emergency telephone number

**CHEMTREC, Telephone: +1 (800) 424-9300**  
**Transport:**  
**CONSULTANK Lutz Harder GmbH (Contract QUALI003)**  
**Telephone: +49 (0)178-4337434 (from USA: 01149 178 4337434)**

## 2. Hazard identification

### Classification of the substance or mixture

Flammable Liquid - Category 2	Highly flammable liquid and vapor.
Skin Irritation - Category 2	Causes skin irritation.
Sensitization - skin - Category 1	May cause an allergic skin reaction.
Specific Target Organ Toxicity (Single Exposure) - Category 3	May cause respiratory irritation.

### Label elements

Symbols:



Signal word:

**Danger**

Hazard statements: Highly flammable liquid and vapor.  
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/vapors/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

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.  
Vapors irritate eyes and respiratory system. Pulmonary edema is possible.  
High concentrations of vapor 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

### Mixtures

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

### Relevant ingredients:

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

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

## 4. 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.
Following skin contact:	After contact with skin, wash immediately with soap and plenty of water. In case of skin reactions, consult a physician.
After 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.
After 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.

### Most important symptoms/effects, acute and 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 vapor 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.

### Information to physician

Monitor breathing.  
Treat symptomatically.

## 5. Fire-fighting measures

### Suitable (and unsuitable) extinguishing media

Suitable extinguishing media:

Foam, dry chemical powder, carbon dioxide

Extinguishing media which must not be used for safety reasons:

Full water jet

### Specific hazards arising from the chemical

Highly flammable liquid and vapor.

Air combined with vapors may form potentially explosive mixtures that are heavier than air.

Vapors 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.

### Protective equipment and precautions for firefighters

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/vapors/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

Methods for clean-up: smaller amounts: Soak up with absorbent materials such as sand, siliceus 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 vapors are heavier than air.  
Avoid contact with skin and eyes. Avoid breathing mist/vapors/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 vapors 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 86 °F. 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	USA: ACGIH: STEL	410 mg/m <sup>3</sup> ; 100 ppm
		USA: ACGIH: TWA	205 mg/m <sup>3</sup> ; 50 ppm
		USA: IDLH: TWA	1,000 ppm
		USA: NIOSH: TWA	410 mg/m <sup>3</sup> ; 100 ppm
		USA: OSHA: TWA	410 mg/m <sup>3</sup> ; 100 ppm
141-32-2	n-Butyl acrylate	USA: ACGIH: TWA	11 mg/m <sup>3</sup> ; 2 ppm
		USA: IDLH: TWA	113 ppm
		USA: NIOSH: TWA	55 mg/m <sup>3</sup> ; 10 ppm

### Appropriate engineering controls

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

### Personal protection equipment (PPE)

- Respiratory protection:** Respiratory protection must be worn whenever the TLV (WEL) levels have been exceeded. Use filter type A (= against vapors 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/vapors/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 68 °F and 101.3 kPa	liquid
Color:	colorless
Odor:	ester-like
Odor threshold:	No data available

Melting point/freezing point:	No data available
Initial boiling point and boiling range:	212.9 °F (Methyl methacrylate)
Flammability:	Highly flammable liquid and vapor.
Explosion limits:	LEL (Lower Explosion Limit): 2.10 Vol-% (Methyl methacrylate) UEL (Upper Explosive Limit): 12.50 Vol-% (Methyl methacrylate)
Flash point/flash point range:	50 °F (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 68 °F: <= 500 mPa*s
Water solubility:	at 68 °F: approx. 16 g/L (Methyl methacrylate)
Partition coefficient: n-octanol/water:	No data available
Vapor pressure:	at 68 °F: 38.7 hPa (Methyl methacrylate)
Density:	at 68 °F: approx. 1 g/mL
Vapor density:	No data available
Particle characteristics:	Not applicable

### Additional information

Explosive properties:	Vapors may form explosive mixtures with air.
Ignition temperature:	806 °F (Methyl methacrylate)

## 10. Stability and reactivity

Reactivity:	Highly flammable liquid and vapor. Vapors 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 toxicological effects

**Toxicological effects:** The statements are derived from the properties of the single components. No toxicological data is available for the product as such.

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 - Category 2 = Causes skin irritation.

Serious eye damage/irritation: Lack of data.

Sensitisation to the respiratory tract: Lack of data.

Skin sensitisation: Sensitization - skin - Category 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) - Category 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 (vapors): 29.8 mg/L/4h

NOAEL Rat, inhalative (vapors): 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 (vapor): 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**DOT: UN1866  
IMDG, IATA-DGR: UN 1866**UN proper shipping name**

DOT, IMDG, IATA-DGR: UN 1866, RESIN SOLUTION

**Transport hazard class(es)**DOT: 3  
IMDG: Class 3, Subrisk -  
IATA-DGR: Class 3**Packing group**

DOT, IMDG, IATA-DGR: II

**Environmental hazards**

Marine pollutant: no

**Transport in bulk according to IMO instruments**

No data available

### Special precautions for user

#### USA: Department of Transportation (DOT)

Labels:	3
Special Provisions:	149, B52, IB2, T4, TP1, TP8
Packaging – Exceptions:	150
Packaging – Non-bulk:	173
Packaging – Bulk:	242
Quantity limitations – Passenger aircraft / rail:	5 L
Quantity limitations – Cargo only:	60 L
Vessel stowage – Location:	B

#### 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 - U.S. Federal Regulations

Product:	TSCA: All ingredients are listed or exempt from listing.
Methyl methacrylate:	Carcinogen Status: IARC Rating: Group 3 OSHA Carcinogen: not listed NTP Rating: not listed Clean Air Act: CAA Hazardous Air Pollutants: yes CAA SOCMI Chemical: yes Clean Water Act: CWA Hazardous Substances: Category C; RQ 1000.0 lbs Other Environmental Laws: CERCLA: RQ 1000 lbs. RCRA Hazardous Wastes: Waste Code U162 RCRA Groundwater Monitoring: listed SARA Title III, Section 313, Toxic Release: NPFAS; De Minimis <=1.0 %; Thresholds 25000/10000 lbs NIOSH Recommendations: Occupational Health Guideline: 0426
n-Butyl acrylate:	Clean Air Act: CAA SOCMI Chemical: yes Other Environmental Laws: SARA Title III, Section 313, Toxic Release: NPFAS; De Minimis <=1.0 %; Thresholds 25000/10000 lbs

#### National regulations - U.S. State Regulations

Methyl methacrylate:	New York Right-To-Know: listed
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#### Further regulations, limitations and legal requirements

No data available

### 16. Other information

Text for labeling:	Contains 50 - 100 % Methyl methacrylate, < 5 % 2,2'-Ethylenedioxydiethyl dimethacrylate, < 1 % Ethylene di(S-thioacetate), < 1 % n-Butyl acrylate.
Revision date:	11/28/2025
Date of first version:	5/25/2012
Reason of change:	General revision: Safety Data Sheet according to HCS 2024 (29 CFR 1910.1200)

### Hazard rating systems:



#### NFPA Hazard Rating:

Health: 2 (Moderate)

Fire: 4 (Severe)

Reactivity: 1 (Slight)

#### HMIS Version III Rating:

Health: 2 (Moderate)

Flammability: 4 (Severe)

Physical Hazard: 1 (Slight)

Personal Protection: X = Consult your supervisor

JT Baker Storage Color Code: Red (Flammable Hazard)

HEALTH	2
FLAMMABILITY	4
PHYSICAL HAZARD	1
	X

### 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  
DOT: Department of Transportation's Safety Regulations (USA)  
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  
Sensitization - skin: Skin sensitisation  
Skin Irritation: Skin irritation  
STOT SE: Specific target organ toxicity - single exposure  
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.