

1. Identification

Product identifier

Trade name: 634A28 - Thinner

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

General use: casting 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.
Wash hands and face thoroughly after handling.
Wear protective gloves/protective clothing/eye protection.

Call a POISON CENTER/doctor if you feel unwell.

Store in a well-ventilated place. Keep cool.

Other hazards

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

Substances

Chemical characterization: Methyl methacrylate
C5 H8 O2
CAS-Number: 80-62-6

4. First aid measures

General information: If medical advice is needed, have product container or label at hand. First aider: Pay attention to self-protection!
Take off immediately all contaminated clothing and wash it before reuse.

In case of inhalation: If breathing is difficult, remove victim to fresh air and keep at rest in a position comfortable for breathing. Seek medical attention if problems persist.

Following skin contact: Immediately clean with water and soap followed by thorough rinsing. 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 immediately and drink plenty of water. Never give anything by mouth to an unconscious person. Do not induce vomiting. Seek medical attention.

Most important symptoms/effects, acute and delayed

Causes skin irritation. May cause an allergic skin reaction. May cause respiratory irritation.
Higher doses may lead to a narcotic effect.

Information to physician

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.

In case of fire may be liberated: 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. Keep containers cool with water spray.

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

Avoid breathing mist/vapors/spray. Avoid contact with the substance. Eliminate all ignition sources if safe to do so. If possible, eliminate leakage. Provide adequate ventilation.

Wear appropriate protective equipment. Keep unprotected people away.

Cordon off downwind area at risk and warn inhabitants.

Take off immediately all contaminated clothing and wash it before reuse.

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:

Isolate leaked material using non-flammable absorption agent (e.g. sand, earth, vermiculit, diatomaceous earth) and collect it for disposal in appropriate containers in accordance with the local regulations (see section 13).

Beware of reignition. Thoroughly clean surrounding area.

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

Additional information:

Use explosion-proof equipment and non-sparking tools/utensils.

7. Handling and storage

Precautions for safe handling

Advices on safe handling: Provide adequate ventilation, and local exhaust as needed. Avoid breathing mist/vapors/spray. Do not get in eyes, on skin, or on clothing. Wear appropriate protective equipment.
Do not eat, drink or smoke when using this product. Wash hands thoroughly after handling. Take off immediately all contaminated clothing and wash it before reuse.
Guarantee sufficient ventilation during and after use, in order to prevent vapor accumulation.
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 discharge.
Use only explosion-protected equipment/instruments. Do not weld.
In partially filled containers explosive mixtures may form.

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.
Do not store together with: Oxidizing agents, reducing agents, mineral acids and heavy metals.
Keep away from food, drink and animal feedingstuffs.

8. Exposure controls/personal protection

Control parameters

Occupational exposure limit values:

Type	Limit value
USA: ACGIH: STEL	410 mg/m ³ ; 100 ppm
USA: ACGIH: TWA	205 mg/m ³ ; 50 ppm
USA: IDLH: TWA	1,000 ppm
USA: NIOSH: TWA	410 mg/m ³ ; 100 ppm
USA: OSHA: TWA	410 mg/m ³ ; 100 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.
Respiratory protection in case of aerosol or vapor formation: filter A
The filter class must be suitable for the maximum contaminant concentration (gas/vapor/aerosol/particulates) that may arise when handling the product. If the concentration is exceeded, self-contained breathing apparatus must be used.

Hand protection:	Protective gloves according to OSHA Standard - 29 CFR: 1910.138. Glove material: butyl caoutchouc (butyl rubber)-Layer thickness: 0.3 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:	Flame retardant, antistatic and chemical resistant protective clothing.
General hygiene considerations:	Keep away from heat, hot surfaces, sparks, open flames and other ignition sources. No smoking. Avoid breathing mist/vapors/spray. Do not get in eyes, on skin, or on clothing. Take off immediately all contaminated clothing and wash it before reuse. Contaminated work clothing should not be allowed out of the workplace. When using do not eat or drink. Wash hands thoroughly after handling. 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:	0.05 - 0.34 ppm
Melting point/freezing point:	-54.4 °F
Initial boiling point and boiling range:	212.54 °F (1013 hPa)
Flammability:	Highly flammable liquid and vapor.
Explosion limits:	LEL (Lower Explosion Limit) at 50 °F: 2.10 Vol-% UEL (Upper Explosive Limit): 12.50 Vol-%
Flash point/flash point range:	50 °F (DIN 51755)
Evaporation rate:	No data available
Auto-ignition temperature:	No data available
Decomposition temperature:	No data available
pH:	Not applicable
Dynamic viscosity:	at 68 °F: 0.6 mPa*s (Brookfield)
Solubility:	Miscible with organic solvents
Water solubility:	at 68 °F: 15.3 g/L
Partition coefficient: n-octanol/water:	1.38 log P(o/w) Based on the n-octanol/water partition coefficient significant accumulation in organisms is not expected.
Vapor pressure:	at 68 °F: 37 hPa
Density:	at 68 °F: 0.94 g/mL
Vapor density:	at 68 °F: approx. 3.5
Particle characteristics:	Not applicable

Additional information

Ignition temperature: 806 °F (DIN 51794)

10. Stability and reactivity

Reactivity:	Highly flammable liquid and vapor. Vapors may form explosive mixtures with air.
Chemical stability:	Product is normally delivered in a stable state. However, if shelf life and/or recommended storage temperature are exceeded to a large degree, product may polymerize and generate heat.
Possibility of hazardous reactions:	Due to reducing substances, peroxides and heavy metal ions, polymerization with heat generation may occur. Heating will lead to pressure increase: danger of bursting and explosion.
Conditions to avoid:	Keep at temperature not exceeding 86 °F. Keep away from heat sources, sparks and open flames. Protect from direct sunlight.
Incompatible materials:	Watch for exothermic reactions with peroxides. Sulphur compounds, peroxides, amines, heavy metal compounds, alkali compounds, reducing agent, oxidizing agents, mineral acids
Hazardous decomposition products:	No hazardous decomposition products when regulations for storage and handling are observed.

11. Toxicological information

Information on toxicological effects

Acute toxicity:	LD50 Rat, oral: > 5,000 mg/kg (OECD 401)
	LC50 Rat, inhalative: 29.8 mg/L/4h
	LD50 Rabbit, dermal: > 5,000 mg/kg

Toxicological effects:

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

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

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

Specific symptoms in animal studies (Rabbit): Not an irritant

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

Specific symptoms in animal studies, Rabbit, Rat, Mouse, Dog: not carcinogenic.

Reproductive toxicity: Based on available data, the classification criteria are not met.

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.

12. Ecological information

Ecotoxicity

Aquatic toxicity:

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 TG 202)

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

Algae toxicity:

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

Bacterial toxicity:

EC3, Pseudomonas putida: 100 mg/L/16h

Further details: Appreciable bio-accumulation is not to be expected (log P(o/w 1-3).

Persistence and degradability

Analytical method: OECD 301 C, 14 d

Degree of elimination: 94%

Further details: Product is readily biodegradable.

Bioaccumulative potential

Partition coefficient: n-octanol/water:

1.38 log P(o/w)

Based on the n-octanol/water partition coefficient significant accumulation in organisms is not expected.

Mobility in soil

No data available

Other adverse effects

General information: Do not allow to penetrate into soil, waterbodies or drains.

13. Disposal considerations

Waste treatment methods

Product

Recommendation: Special waste.
Incinerate 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.

14. Transport information

UN number

DOT: UN1247
IMDG, IATA-DGR: UN 1247

UN proper shipping name

DOT, IMDG, IATA-DGR: UN 1247, METHYL METHACRYLATE MONOMER, STABILIZED

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:	387, IB2, T4, TP1
Packaging – Exceptions:	150
Packaging – Non-bulk:	202
Packaging – Bulk:	242
Quantity limitations – Passenger aircraft / rail:	5 L
Quantity limitations – Cargo only:	60 L
Vessel stowage – Location:	C
Vessel stowage – Other:	25, 40

Sea transport (IMDG)

EmS:	F-E, S-D
Special Provisions:	386
Limited quantities:	1 L
Excepted quantities:	E2
Package - Instructions:	P001
Package - Provisions:	-
IBC - Instructions:	IBC02
IBC - Provisions:	-
Tank instructions - IMO:	-
Tank instructions - UN:	T4
Tank instructions - Provisions:	TP1
Stowage and handling:	Category C. SW1 SW2
Properties and observations:	Colourless, volatile liquid. Flashpoint: 8°C c.c. Eplosive limits: 1.5% to 11.6%. Immiscible with water, Irritating to skin, eyes and mucous membranes.
Marine pollutant:	no
Segregation group:	none

Air transport (IATA)

Proper shipping name:	UN 1247, METHYL METHACRYLATE MONOMER, STABILIZED
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:	A209
Emergency Response Guide-Code (ERG):	3L

15. Regulatory information

National regulations - U.S. Federal Regulations

TSCA Inventory: listed

Carcinogen Status: IARC Rating: Group 3

OSHA Carcinogen: not listed

NTP Rating: not listed

Clean Air Act:

CAA Hazardous Air Pollutants: yes

CAA SOCM 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

National regulations - U.S. State Regulations

New York Right-To-Know: listed

Further regulations, limitations and legal requirements

No data available

16. Other information

Text for labeling: Contains 100 % Methyl methacrylate.

Revision date: 11/28/2025

Date of first version: 10/27/1994

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: 3 (Serious)

Reactivity: 2 (Moderate)

HMIS Version III Rating:

Health: 2 (Moderate)

Flammability: 3 (Serious)

Physical Hazard: 2 (Moderate)

Personal Protection: X = Consult your supervisor

HEALTH	2
FLAMMABILITY	3
PHYSICAL HAZARD	2
	X

Abbreviations and acronyms:

AS/NZS: Australian Standards/New Zealand Standards

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: European Community

EC50: Effective Concentration 50%
 EmS: Emergency Response Procedures for Ships Carrying Dangerous Goods
 EN: European Standard
 EQ: Excepted quantities
 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
 log P(o/w): Partition coefficient: octanol/water
 MARPOL: Maritime Pollution: The International Convention for the Prevention of Pollution from Ships
 MFSU: Manufacture, formulation, supply and use
 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
 REACH: Registration, Evaluation, Authorisation and Restriction of Chemicals
 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
 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.