

## 1. Product and company 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  
Postal Code, city: Salt Lake City, UT 84120  
USA

WWW: [www.ottobockus.com](http://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](mailto:USRegulatory@ottobock.com)

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

### Emergency phone 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. Hazards identification

### Emergency overview

Appearance: Physical state at 68 °F and 101.3 kPa: liquid

Color: colorless

Odor: Ester-like

Classification: Flammable Liquid - Category 2. Skin Irritation - Category 2. Sensitization - skin - Category 1. Specific Target Organ Toxicity (Single Exposure) - Category 3.

Hazard 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.

### Regulatory status

This material is considered hazardous by the U.S. OSHA Hazard Communication Standard (29 CFR 1910.1200).

### Hazards not otherwise classified

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.  
see section 11: Toxicological information

## 3. Composition / Information on ingredients

**Chemical characterization:** Methyl methacrylate  
C5 H8 O2  
**CAS-Number:** 80-62-6  
**RTECS-Number:** OZ5075000

## 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

Flash point/flash point range:

50 °F (DIN 51755)

Auto-ignition temperature: No data available

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:

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 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

### 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.

### Storage

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

### Exposure guidelines

Occupational exposure limit values:

Type	Limit value
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

### Engineering controls

Provide for good ventilation or exhaust system or work with completely self-contained equipment. Explosion protection required.  
See also information in chapter 7, section storage.

### Personal protection equipment (PPE)

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

Skin protection: Flame retardant, antistatic and chemical resistant protective clothing.

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.

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.

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

Appearance: Physical state at 68 °F and 101.3 kPa: liquid

Color: colorless

Odor: Ester-like

Odor threshold: 0.05 - 0.34 ppm

pH: Not applicable

Melting point/freezing point: -54.4 °F

Initial boiling point and boiling range: 212.54 °F (1013 hPa)

Flash point/flash point range: 50 °F (DIN 51755)

Evaporation rate: No data available

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-%

Vapor pressure: at 68 °F: 37 hPa

Vapor density: at 68 °F: approx. 3.5

Density: at 68 °F: 0.94 g/mL

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.

Auto-ignition temperature: No data available

Thermal decomposition: No data available

Viscosity, dynamic: at 68 °F: 0.6 mPa\*s (Brookfield)

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.
Thermal decomposition:	No data available

## 11. Toxicological information

### Toxicological tests

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).

### Mobility in soil

No data available

### Persistence and degradability

Analytical method: OECD 301 C, 14 d

Degree of elimination: 94%

Further details: Product is readily biodegradable.

### Additional ecological information

**Volatile organic compounds (VOC):**

100 % by weight / 940 g/L

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

## 13. Disposal considerations

### 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

ADR/RID, IMDG, IATA-DGR:  
UN 1247

### UN proper shipping name

ADR/RID, IMDG, IATA-DGR:  
UN 1247, METHYL METHACRYLATE MONOMER, STABILIZED

### Transport hazard class(es)

ADR/RID: Class 3, Code: F1  
IMDG: Class 3, Subrisk -  
IATA-DGR: Class 3



### Packing group

ADR/RID, IMDG, IATA-DGR:  
II

### Environmental hazards

Marine pollutant: no

### Transport in bulk according to Annex II of MARPOL 73/78 and the IBC Code

No data available

### USA: Department of Transportation (DOT)

Identification number: UN1247  
Proper shipping name: UN 1247,  
METHYL METHACRYLATE MONOMER, STABILIZED  
Hazard class or Division: 3  
Packing Group: II  
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)

UN number:	UN 1247
Proper shipping name::	UN 1247, METHYL METHACRYLATE MONOMER, STABILIZED
Class or division, Subsidiary risk:	Class 3, Subrisk -
Packing Group:	II
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. Explosive 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)

UN/ID number:	UN 1247
Proper shipping name::	UN 1247, METHYL METHACRYLATE MONOMER, STABILIZED
Class or division, Subsidiary risk:	Class 3
Packing Group:	II
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: RQ 1000 lbs.  
Other Environmental Laws:  
CERCLA: RQ 1000 lbs.  
RCRA Hazardous Wastes: Code U162  
RCRA Groundwater Monitoring: Methods 8015, 8240 / PQL 2, 5  
SARA Title III - Section 313, Toxic Release: Conc. 1.0% / Threshold Standard  
NIOSH Recommendations:  
Occupational Health Guideline: 0426

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

No data available

## 16. Other information

Text for labeling:

Hazard rating systems:



Contains 100 % Methyl methacrylate.

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:

ADN: European Agreement concerning the International Carriage of Dangerous Goods by Inland Waterways  
ADR: European Agreement concerning the International Carriage of Dangerous Goods by Road  
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  
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  
RID: Regulations Concerning the International Carriage of Dangerous Goods by Rail  
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

Reason of change: General revision

Date of first version: 10/27/1994

### 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.