

## 1. Identification

### Product identifier

Trade name: 636W60 - Loctite 243

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

General use: Anaerobe sealing agent, Screw Locking Agent, 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](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 telephone number

CHEMTREC, Telephone: +1 (800) 424-9300

## 2. Hazard identification

### Classification of the substance or mixture

Sensitization - skin - Category 1	May cause an allergic skin reaction.
Aquatic toxicity - acute - Category 2	Toxic to aquatic life.
Aquatic toxicity - chronic - Category 3	Harmful to aquatic life with long lasting effects.

### Label elements

Symbols:



Signal word:

**Warning**

Hazard statements:

May cause an allergic skin reaction.  
Toxic to aquatic life.  
Harmful to aquatic life with long lasting effects.

### Precautionary statements:

Avoid breathing mist/vapors/spray.  
 Contaminated work clothing should not be allowed out of the workplace.  
 Avoid release to the environment.  
 Wear protective gloves/protective clothing/eye protection.

IF ON SKIN: Wash with plenty of water/soap.  
 Specific treatment (see ' First aid ' on this label).  
 If skin irritation or rash occurs: Get medical advice/attention.  
 Take off contaminated clothing and wash it before reuse.

Dispose of contents/container to hazardous or special waste collection point.

### Other hazards

Special danger of slipping by leaking/spilling product.

## 3. Composition/information on ingredients

### Mixtures

Chemical characterization: Anaerobe sealing agent

Relevant ingredients:

CAS No.	Designation	Concentration	Classification
CAS 2082-81-7	Tetramethylene dimethacrylate	20 - 40 %	Sensitization - skin - Category 1B. Aquatic toxicity - acute - Category 2.
CAS 101-37-1	2,4,6-Triallyloxy-s-triazine	5 - 10 %	Acute Toxicity - oral - Category 4. Aquatic toxicity - acute - Category 2. Aquatic toxicity - chronic - Category 2.
CAS 109-16-0	2,2'-Ethylenedioxydiethyl dimethacrylate	1 - 5 %	Sensitization - skin - Category 1B. Aquatic toxicity - acute - Category 3.
CAS 51978-15-5	[2-[(2-Methyl-1-oxoallyl)oxy]ethyl] hydrogen maleate	< 1 %	Skin Corrosion - Category 1B. Eye Damage - Category 1. Sensitization - skin - Category 1.
CAS 79-41-4	Methacrylic acid	< 1 %	Flammable Liquid - Category 4. Acute Toxicity - oral - Category 4. Acute Toxicity - dermal - Category 3. Acute Toxicity - inhalative - Category 4. Skin Corrosion - Category 1A. Eye Damage - Category 1. Specific Target Organ Toxicity (Single Exposure) - Category 3. Aquatic toxicity - acute - Category 3.
CAS 108-31-6	Maleic anhydride	0.001 - 0.01 %	Acute Toxicity - oral - Category 4. Skin Corrosion - Category 1B. Eye Damage - Category 1. Respiratory Sensitizer - Category 1. Sensitization - skin - Category 1A. Specific Target Organ Toxicity (Repeated Exposure) - Category 1. Aquatic toxicity - acute - Category 3.

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

Additional information: Contains silicon dioxide, polyethylene.  
The maximum workplace exposure limits are, where necessary, listed in section 8.

### 4. First aid measures

General information: If medical advice is needed, have product container or label at hand.

In case of inhalation: Move victim to fresh air. If you feel unwell, seek medical advice.

Following skin contact: Remove residues with soap and water. Take off contaminated clothing and wash it before reuse. 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. In case of eye irritation consult an ophthalmologist.

After swallowing: Rinse mouth immediately and drink plenty of water. Do not induce vomiting. Never give anything by mouth to an unconscious person. Consult physician.

#### Most important symptoms/effects, acute and delayed

May cause an allergic skin reaction.

#### Information to physician

Treat symptomatically.

### 5. Fire-fighting measures

#### Suitable (and unsuitable) extinguishing media

Suitable extinguishing media:

Water spray jet, dry chemical powder, foam, carbon dioxide

Extinguishing media which must not be used for safety reasons:

Full water jet

#### Specific hazards arising from the chemical

Emits toxic fumes under fire conditions.

In case of fire may be liberated: Nitrogen oxides (NOx), 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:

Do not breathe fumes. Do not allow fire water to penetrate into surface or ground water. Contaminated fire-fighting water must be collected separately.

### 6. Accidental release measures

#### Personal precautions, protective equipment and emergency procedures

Avoid breathing mist/vapors/spray. Avoid contact with skin and eyes. If possible, eliminate leakage.

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

Keep unprotected people away.

### Environmental precautions:

Do not allow to enter into ground-water, surface water or drains. If necessary, notify appropriate authorities.

### Methods and material for containment and cleaning up

#### Methods for clean-up:

Smaller amounts:

Collect spilled material using paper towels and dispose.

Large amounts:

Absorb with liquid-binding material (e.g. sand, diatomaceous earth, acid- or universal binding agents) and place in closed containers for disposal.

Never return spills in original containers for re-use.

#### 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. Avoid breathing mist/vapors/spray. Avoid contact with skin and eyes.

Do not eat, drink or smoke when using this product. Wash hands thoroughly after handling. Wear appropriate protective equipment.

Take off contaminated clothing and wash it before reuse. Have eye wash bottle or eye rinse ready at work place.

#### Precautions against fire and explosion:

Keep away from heat, hot surfaces, sparks, open flames and other ignition sources. No smoking.

### Conditions for safe storage, including any incompatibilities

#### Requirements for storerooms and containers:

Keep container tightly closed and in a well-ventilated place. Keep container dry. Keep only in the original container.

Protect from heat and direct sunlight. Store containers in upright position.

#### Hints on joint storage:

Keep away from food, drink and animal feedingstuffs.

Do not store together with: Acids, reducing agents, strong bases, strong oxidizing agents.

## 8. Exposure controls/personal protection

### Control parameters

Occupational exposure limit values:

CAS No.	Designation	Type	Limit value
79-41-4	Methacrylic acid	USA: ACGIH: TWA USA: NIOSH: TWA	70 mg/m <sup>3</sup> ; 20 ppm 70 mg/m <sup>3</sup> ; 20 ppm (may be absorbed through the skin)
108-31-6	Maleic anhydride	USA: ACGIH: TWA  USA: IDLH: TWA USA: NIOSH: TWA USA: OSHA: TWA	0.01 mg/m <sup>3</sup> ; 0.0025 ppm (inhalable fraction and vapor) 10 mg/m <sup>3</sup> 0.25 mg/m <sup>3</sup> ; 1 ppm 1 mg/m <sup>3</sup> ; 0.25 ppm
7631-86-9	Silicon dioxide	USA: IDLH: TWA USA: NIOSH: TWA USA: OSHA: TWA USA: OSHA: TWA	3,000 mg/m <sup>3</sup> 6 mg/m <sup>3</sup> 20 mppcf 80 mg/m <sup>3</sup> (total dust)

### Appropriate engineering controls

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

### Personal protection equipment (PPE)

**Respiratory protection:** Respiratory protection must be worn whenever the TLV (WEL) levels have been exceeded. In case of inadequate ventilation wear respiratory protection.

Recommendation: Use filter type A (= against vapors of organic substances) according to OSHA Standard - 29 CFR: 1910.134 or ANSI Z88.2.

The filter class must be suitable for the maximum contaminant concentration (gas/vapor/aerosol/particulates) that may arise when handling the product.

**Hand protection:** Protective gloves according to OSHA Standard - 29 CFR: 1910.138.

Glove material: Nitrile rubber - Layer thickness: ≥ 0.4 mm.

Breakthrough time: ≥ 480 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:** Wear suitable protective clothing.

**General hygiene considerations:**

Avoid breathing mist/vapors/spray. Do not get in eyes, on skin, or on clothing. Do not eat, drink or smoke when using this product.

Wash hands thoroughly after handling. Take off contaminated clothing and wash it before reuse. Have eye wash bottle or eye rinse ready at work place.

### 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:	blue
Odor:	Mild (acryl)
Odor threshold:	No data available
Melting point/freezing point:	< -22 °F
Initial boiling point and boiling range:	> 302 °F
Flammability:	This material is combustible, but will not ignite readily.
Explosion limits:	LEL (Lower Explosion Limit): Not determined UEL (Upper Explosive Limit): Not determined
Flash point/flash point range:	> 212 °F
Evaporation rate:	No data available
Auto-ignition temperature:	No data available
Decomposition temperature:	No data available
pH:	No data available
Dynamic viscosity:	1,300 - 3,000 mPa*s (Brookfield)
Viscosity, kinematic:	at 104 °F: > 20.5 mm²/s
Water solubility:	Not miscible in every proportion
Partition coefficient: n-octanol/water:	3.1 log P(o/w) (Tetramethylene dimethacrylate) Based on the n-octanol/water partition coefficient significant accumulation in organisms is not expected. at 68 °F: 2.8 log P(o/w) (2,4,6-Triallyloxy-s-triazine) Based on the n-octanol/water partition coefficient significant accumulation in organisms is not expected.
Vapor pressure:	at 80.6 °F: < 1.33 hPa
Density:	1.08 g/mL
Vapor density:	1 (Air = 1)
Particle characteristics:	Not applicable

### Additional information

Ignition temperature:	Not determined
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## 10. Stability and reactivity

Reactivity:	Refer to subsection "Possibility of hazardous reactions".
Chemical stability:	Product is stable under normal storage conditions.
Possibility of hazardous reactions:	Exothermic polymerization may occur.
Conditions to avoid:	Keep away from heat, hot surfaces, sparks, open flames and other ignition sources. No smoking.
Incompatible materials:	Acids, reducing agent, strong bases, strong 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): Lack of data.

Acute toxicity (dermal): Lack of data.

Acute toxicity (inhalative): Lack of data.

Skin corrosion/irritation: Based on available data, the classification criteria are not met.

Serious eye damage/irritation: Based on available data, the classification criteria are not met.

Sensitisation to the respiratory tract: Based on available data, the classification criteria are not met.

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): Lack of data.

Specific target organ toxicity (repeated exposure): Based on available data, the classification criteria are not met.

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

Other information: Information about Tetramethylene dimethacrylate (CAS 2082-81-7):

LD50 Rat, oral: 10,660 mg/kg (OECD 401)

LD50 Rat, dermal: > 2,000 mg/kg (OECD 402)

Information about 2,4,6-Triallyloxy-s-triazine (CAS 101-37-1):

LD50 Rat, oral: 753mg/kg (OECD 401)

LD50 Rabbit, dermal: > 2,000 mg/kg (OECD 402), no mortality occurred

Information about Methacrylic acid (CAS 79-41-4):

LD50 Rat, oral: 1,320 mg/kg (OECD 401)

LD50 Rabbit, dermal: ≥ 500 mg/kg

LC50 Rat, inhalative (dust/mist): 3.19 mg/L/4h (OECD 403)

Carcinogenic effect, Silicon dioxide (CAS 7631-86-9):

IARC Rating: Group 3

OSHA Carcinogen: not listed

NTP Rating: not listed

Carcinogenic effect, Polyethylene (CAS 9002-88-4):

IARC Rating: Group 3

OSHA Carcinogen: not listed

NTP Rating: not listed

### Symptoms

After contact with skin: Skin rash, urticaria

## 12. Ecological information

### Ecotoxicity

Aquatic toxicity: Toxic to aquatic life with long lasting effects.

Information about Tetramethylene dimethacrylate (CAS 2082-81-7):

Fish toxicity:

LC50 Danio rerio (zebrafish): 3.34 mg/L/96h (OECD 203)

Daphnia toxicity:

EC50 Daphnia magna (Big water flea): 28.4 mg/L/48h (data obtained by analogy conclusion, e.g. (Q)SAR)

NOEC Daphnia magna (Big water flea): 5.09 mg/L/21d (OECD 211)

Algae toxicity:

ErC50 Desmodesmus subspicatus (green algae): 9.79 mg/L/72h (OECD 201)

NOEC Desmodesmus subspicatus (green algae): 2.11 mg/L/72h (OECD 201)

Information about 2,4,6-Triallyloxy-s-triazine (CAS 101-37-1):

Fish toxicity:

LC50 Danio rerio (zebrafish): 7.05 mg/L/96h (OECD 203)

Daphnia toxicity:

EC50 Daphnia magna (Big water flea): 40 mg/L/48h (OECD 202)

Algae toxicity:

ErC50 Desmodesmus subspicatus (green algae): 10.52 mg/L/72h (OECD 201)

NOEC Desmodesmus subspicatus (green algae): 2.5 mg/L/72h (OECD 201)

Effects in sewage plants: Information about 2,4,6-Triallyloxy-s-triazine (CAS 101-37-1):

EC50 activated sludge: > 1,000 mg/L/3h

### Persistence and degradability

Further details: Biodegradability:

Information about Tetramethylene dimethacrylate (CAS 2082-81-7):

Formation of carbon dioxide: 84%/28d (OECD 310), easily bio-degradable

Information about 2,4,6-Triallyloxy-s-triazine (CAS 101-37-1):

Formation of carbon dioxide: 9%/28d (OECD 301 B), not easily bio-degradable

### Bioaccumulative potential

Information about 2,4,6-Triallyloxy-s-triazine (CAS 101-37-1):

Bioconcentration factor (BCF): 29.24

Partition coefficient: n-octanol/water:

3.1 log P(o/w) (Tetramethylene dimethacrylate)

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

at 68 °F: 2.8 log P(o/w) (2,4,6-Triallyloxy-s-triazine)

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

### Mobility in soil

Information about 2,4,6-Triallyloxy-s-triazine (CAS 101-37-1):

log KOC: 2.6

### 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: Dispose of waste according to applicable legislation. Do not allow to enter drains.

##### Package

Recommendation: Dispose of waste according to applicable legislation. Non-contaminated packages may be recycled. Handle contaminated packages in the same way as the substance itself.

### 14. Transport information

#### UN number

DOT, IMDG, IATA-DGR: not applicable

#### UN proper shipping name

DOT, IMDG, IATA-DGR: Not restricted

#### Transport hazard class(es)

DOT, IMDG, IATA-DGR: not applicable

#### Packing group

DOT, IMDG, IATA-DGR: not applicable

#### Environmental hazards

Marine pollutant: no

#### Transport in bulk according to IMO instruments

No data available

#### Special precautions for user

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

Proper shipping name: Not restricted

##### Sea transport (IMDG)

Proper shipping name: Not restricted

Marine pollutant: no

##### Air transport (IATA)

Proper shipping name: Not restricted

#### Further information

No dangerous good in sense of these transport regulations.

## 15. Regulatory information

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

Tetramethylene dimethacrylate:	TSCA Inventory: listed
2,4,6-Triallyloxy-s-triazine:	TSCA Inventory: listed
2,2'-Ethylenedioxydiethyl dimethacrylate:	TSCA Inventory: listed
[2-[(2-Methyl-1-oxoallyl)oxy]ethyl] hydrogen maleate:	TSCA Inventory: listed; EPA flags PMN, 5E
Methacrylic acid:	TSCA Inventory: listed
	Clean Air Act:
	CAA SOCM Chemical: yes
	NIOSH Recommendations:
	Occupational Health Guideline: 0386*
Maleic anhydride:	TSCA Inventory: listed
	Clean Air Act:
	CAA Hazardous Air Pollutants: yes
	CAA SOCM Chemical: yes
	Clean Water Act:
	CWA Hazardous Substances: Category D; RQ
	5000.0 lbs
	Other Environmental Laws:
	CERCLA: RQ 5000 lbs.
	RCRA Hazardous Wastes: Waste Code U147
	SARA Title III, Section 313, Toxic Release: NPFAS;
	De Minimis <=1.0 %; Thresholds 25000/10000 lbs
	NIOSH Recommendations:
	Occupational Health Guideline: 0376
Polyethylene:	TSCA Inventory: listed
	Carcinogen Status: IARC Rating: Group 3
	OSHA Carcinogen: not listed
	NTP Rating: not listed
Silicon dioxide:	TSCA Inventory: listed
	Carcinogen Status: IARC Rating: Group 3
	OSHA Carcinogen: not listed
	NTP Rating: not listed
	NIOSH Recommendations:
	Occupational Health Guideline: 0552

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

Maleic anhydride: New York Right-To-Know: listed

### Further regulations, limitations and legal requirements

No data available

## 16. Other information

Text for labeling: Contains 20 - 40 % Tetramethylene dimethacrylate, 5 - 10 % 2,4,6-Triallyloxy-s-triazine, 1 - 5 % 2,2'-Ethylenedioxydiethyl dimethacrylate, < 1 % [2-[(2-Methyl-1-oxoallyl)oxy]ethyl] hydrogen maleate, < 1 % Methacrylic acid, 0.001 - 0.01 % Maleic anhydride.

Revision date: 11/28/2025  
 Date of first version: 2/24/2005  
 Reason of change: General revision: Safety Data Sheet according to HCS 2024 (29 CFR 1910.1200)  
 Classification procedure: Physical hazards: on basis of test data  
 Health hazards, environmental hazards: calculation method

Hazard rating systems:



NFPA Hazard Rating:

Health: 1 (Slight)

Fire: 1 (Slight)

Reactivity: 0 (Minimal)

HMIS Version III Rating:

Health: 1 (Slight)

Flammability: 1 (Slight)

Physical Hazard: 0 (Minimal)

Personal Protection: X = Consult your supervisor

HEALTH	1
FLAMMABILITY	1
PHYSICAL HAZARD	0
	X

Abbreviations and acronyms:

Acute Toxicity: Acute toxicity  
 Aquatic toxicity - acute: Hazardous to the aquatic environment - acute  
 Aquatic toxicity - chronic: Hazardous to the aquatic environment - chronic  
 AS/NZS: Australian Standards/New Zealand Standards  
 BCF: Bioconcentration Factor  
 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  
 Eye Damage: Eye damage  
 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  
 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  
 QSAR: Quantitative Structure-Activity Relationship  
 Respiratory Sensitizer: Sensitisation to the respiratory tract  
 Sensitization - skin: Skin sensitisation  
 Skin Corrosion: Skin corrosion  
 STOT RE: Specific target organ toxicity - repeated exposure  
 STOT SE: Specific target organ toxicity - single exposure  
 TLV: Threshold Limit Value  
 TRGS: Technical Rules for Hazardous Substances  
 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.