

1. Product and company identification

Product identifier

Trade name: 636W46 - Loctite 242

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
Postal 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 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: blue
Odor: Mild, like acryl
Classification: Skin Irritation - Category 2. Eye Irritation - Category 2A.
Specific Target Organ Toxicity (Repeated Exposure) - Category 2.
Aquatic toxicity - acute - Category 2.

Hazard symbols:



Signal word:

Warning

Hazard statements: Causes skin irritation.
Causes serious eye irritation.
May cause damage to organs through prolonged or repeated exposure.
Toxic to aquatic life.

Precautionary statements: Do not breathe mist/vapors/spray.
Wash hands and face thoroughly after handling.
Avoid release to the environment.
Wear protective gloves/protective clothing/eye protection.
IF ON SKIN: Wash with plenty of water/soap.
IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing.
Get medical advice/attention if you feel unwell.
Specific treatment (see 'First aid' on this label).
If skin irritation occurs: Get medical advice/attention.
If eye irritation persists: Get medical advice/attention.
Take off contaminated clothing and wash it before reuse.
Dispose of contents/container to hazardous or special waste collection point.

Regulatory status

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

Hazards not otherwise classified

Special danger of slipping by leaking/spilling product.
see section 11: Toxicological information

3. Composition / Information on ingredients

Chemical characterization: Anaerobe sealing agent on the basis of polyethylene glycol dimethacrylate.

Relevant ingredients:

CAS No.	Designation	Concentration	Classification
CAS 9004-96-0	Oleic acid, ethoxylated	25 - 30 %	Aquatic toxicity - acute - Category 2.
CAS 7631-86-9	Silicon dioxide nanoparticle	5 - < 10 %	Specific Target Organ Toxicity (Repeated Exposure) - Category 2.
CAS 25736-86-1	2-Hydroxyethyl methacrylate, ethoxylated	1 - 5 %	Aquatic toxicity - acute - Category 3.
CAS 80-15-9	Cumene hydroperoxide	1 - < 2.5 %	Flammable Liquid - Category 4. Organic Peroxide - Category E. Acute Toxicity - oral - Category 4. Acute Toxicity - dermal - Category 4. Acute Toxicity - inhalative - Category 3. Skin Corrosion - Category 1B. Specific Target Organ Toxicity (Repeated Exposure) - Category 2. Aquatic toxicity - acute - Category 2. Aquatic toxicity - chronic - Category 2.
CAS 613-48-9	N,N-diethyl-p-toluidine	0.1 - < 1 %	Flammable Liquid - Category 4. Acute Toxicity - oral - Category 3. Acute Toxicity - dermal - Category 3. Acute Toxicity - inhalative - Category 3. Skin Irritation - Category 2. Specific Target Organ Toxicity (Repeated Exposure) - Category 2. Aquatic toxicity - acute - Category 3. Aquatic toxicity - chronic - Category 3.
CAS 79-41-4	Methacrylic acid	0.1 - < 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 130-15-4	1,4-Naphthoquinone	< 0.1 %	Acute Toxicity - oral - Category 3. Acute Toxicity - inhalative - Category 2. Skin Corrosion - Category 1C. Eye Damage - Category 1. Sensitization - skin - Category 1. Specific Target Organ Toxicity (Single Exposure) - Category 3. Aquatic toxicity - acute - Category 1 (M-factor = 10). Aquatic toxicity - chronic - Category 1 (M-factor = 1).

4. First aid measures

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

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:	After contact with skin, wash immediately with soap and plenty of water. Take off contaminated clothing and wash it before reuse. Seek medical treatment in case of troubles.
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. Do not induce vomiting. Never give anything by mouth to an unconscious person. Seek medical attention.

Most important symptoms/effects, acute and delayed

- Causes skin irritation.
- Causes serious eye irritation.
- May cause damage to organs through prolonged or repeated exposure.

Information to physician

- Treat symptomatically.

5. Fire fighting measures

Flash point/flash point range:

> 212 °F

Auto-ignition temperature: No data available

Suitable extinguishing media:

Water spray jet, Extinguishing 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 (NO_x), 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:

- Avoid breathing mist/vapors/spray. Avoid contact with the substance.
- 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.

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

Handling

Advices on safe handling: Provide adequate ventilation, and local exhaust as needed. Do not breathe 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 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.

Storage

Requirements for storerooms and containers: Keep container tightly closed and in a well-ventilated place. Keep container dry. Keep only in 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: Strong oxidizing agents, reducing agents, acids, bases.

8. Exposure controls / personal protection

Exposure guidelines

Occupational exposure limit values:

CAS No.	Designation	Type	Limit value
7631-86-9	Silicon dioxide nanoparticle	USA: IDLH: TWA	3,000 mg/m ³
		USA: NIOSH: TWA	6 mg/m ³
		USA: OSHA: TWA	20 mppcf
		USA: OSHA: TWA	80 mg/m ³ (total dust)
79-41-4	Methacrylic acid	USA: ACGIH: TWA	70 mg/m ³ ; 20 ppm
		USA: NIOSH: TWA	70 mg/m ³ ; 20 ppm (may be absorbed through the skin)

Engineering controls

Provide for good ventilation or exhaust system or work with completely self-contained equipment.
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:	Wear suitable protective clothing. 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.
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.
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

Appearance:	Physical state at 68 °F and 101.3 kPa: liquid Color: blue
Odor:	Mild, like acryl
Odor threshold:	No data available
pH:	No data available
Melting point/freezing point:	< -22 °F
Initial boiling point and boiling range:	> 300.2 °F
Flash point/flash point range:	> 212 °F
Evaporation rate:	No data available
Flammability:	This material is combustible, but will not ignite readily.
Explosion limits:	LEL (Lower Explosion Limit): Not determined UEL (Upper Explosive Limit): Not determined
Vapor pressure:	at 68 °F: < 0.13 hPa at 122 °F: < 300 hPa
Vapor density:	at 68 °F: > 1
Density:	at 68 °F: 1.08 g/mL
Solubility:	Soluble in acetone
Water solubility:	Not miscible in any proportion

Partition coefficient: n-octanol/water:	1.71 log P(o/w) (1,4-Naphthoquinone) Based on the n-octanol/water partition coefficient significant accumulation in organisms is not expected. at 77 °F: 1.6 log P(o/w) (Cumene hydroperoxide) 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, kinematic:	at 104 °F: > 20.5 mm²/s
Ignition temperature:	Not determined

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:	Strong oxidizing agents, reducing agent, acids, bases
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

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): 2,828 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.

ATEmix (vapor, calculated): 25.07 mg/L/4h

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

Serious eye damage/irritation: Eye Irritation - Category 2A = Causes serious eye irritation.

Sensitisation to the respiratory tract: Lack of data.

Skin sensitisation: Lack of data.

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): Specific Target Organ Toxicity (Repeated Exposure) -

Category 2 = May cause damage to organs through prolonged or repeated exposure.

Aspiration hazard: Lack of data.

Other information: Information about Oleic acid, ethoxylated (CAS 9004-96-0):
LD50 Rat, oral: > 2,000 mg/kg, no mortality occurred

Information about Cumene hydroperoxide (CAS 80-15-9):

LD50 oral: 382 mg/kg

ATE dermal: 1,100 mg/kg

ATE inhalative (dust/mist): 0.5 mg/L/4h

Information about N,N-diethyl-p-toluidine (CAS 613-48-9):

ATE oral: 100 mg/kg

ATE dermal: 300 mg/kg

ATE inhalative (vapor): 3 mg/L/4h

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)

Information about 1,4-Naphthoquinone (CAS 130-15-4):

LD50 Rat, oral: 124 mg/kg (OECD 401)

LC50 Rat, inhalative (dust/mist): 0.046 mg/L/4h (OECD 403)

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

IARC Rating: Group 3

OSHA Carcinogen: not listed

NTP Rating: not listed

Symptoms

In case of inhalation: Irritation, Cough, shortness of breath, shortage of breath

After contact with skin: Repeated exposure may cause skin dryness or cracking.

After eye contact: Upon direct contact with eyes may cause burning, tearing, redness.

12. Ecological information

Ecotoxicity

Aquatic toxicity:

Toxic to aquatic life.

Information about Oleic acid, ethoxylated (CAS 9004-96-0):

Fish toxicity:

LC50 fish: 1 - 10 mg/L/96h (OECD 203)

Daphnia toxicity:

EC50 Daphnia magna (Big water flea): 1 - 10 mg/L/48h (OECD 202)

Information about 2-Hydroxyethyl methacrylate, ethoxylated (CAS 25736-86-1):

Fish toxicity:

LC50 fish: 10 - 100 mg/L/96h (OECD 203)

Information about Cumene hydroperoxide (CAS 80-15-9):

Fish toxicity:

LC50 Oncorhynchus mykiss: 3.9 mg/L/96h (OECD 203)

Daphnia toxicity:

EC50 Daphnia magna (Big water flea): 18.84 mg/L/48h (OECD 202)

Algae toxicity:

ErC50 Desmodesmus subspicatus (green algae): 3.1 mg/L/72h (OECD 201)

NOEC Desmodesmus subspicatus (green algae): 1 mg/L/72h (OECD 201)

Information about 1,4-Naphthoquinone (CAS 130-15-4):

Fish toxicity:

LC50 Oryzias latipes (Ricefish): 0.045 mg/L/96h (OECD 203)

Daphnia toxicity:

EC50 Daphnia magna (Big water flea): 0.026 mg/L/48h (OECD 202)

Algae toxicity:

ErC50 Pseudokirchneriella subcapitata (green algae): 0.42 mg/L/72h (OECD 201)

NOEC Pseudokirchneriella subcapitata (green algae): 0.07 mg/L/72h (OECD 201)

Mobility in soil

Information about Cumene hydroperoxide (CAS 80-15-9):

Adsorption coefficient: log KOC: 1.6

Persistence and degradability

Further details: Product is not readily biodegradable.

Biodegradability:

Information about Oleic acid, ethoxylated (CAS 9004-96-0): easily bio-degradable

Information about 2-Hydroxyethyl methacrylate, ethoxylated (CAS 25736-86-1): easily bio-degradable

Information about Cumene hydroperoxide (CAS 80-15-9):

Formation of carbon dioxide: 3%/28 d (OECD 301 B)

Information about 1,4-Naphthoquinone (CAS 130-15-4):

Oxygen consumption: 0%/28d (OECD 301 F)

Additional ecological information

Volatile organic compounds (VOC): 3 % by weight

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

13. Disposal considerations

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

ADR/RID, IMDG, IATA-DGR: not applicable

UN proper shipping name

ADR/RID, IMDG, IATA-DGR: Not restricted

Transport hazard class(es)

ADR/RID, IMDG, IATA-DGR: not applicable

Packing group

ADR/RID, IMDG, IATA-DGR: not applicable

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)

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

Oleic acid, ethoxylated:	TSCA Inventory: listed
Silicon dioxide nanoparticle:	TSCA Inventory: listed
	Carcinogen Status:
	IARC Rating: Group 3
	OSHA Carcinogen: not listed
	NTP Rating: not listed
	NIOSH Recommendations:
	Occupational Health Guideline: 0552
2-Hydroxyethyl methacrylate, ethoxylated:	TSCA Inventory: listed
Cumene hydroperoxide:	TSCA Inventory: listed
	Clean Air Act:
	CAA SOCM Chemical: yes
	Other Environmental Laws:
	CERCLA: RQ 10 lbs.
	RCRA Hazardous Wastes: Code U096
	SARA Title III - Section 313, Toxic Release: Conc. 1.0% / Threshold Standard
	OSHA Process Safety Management: Threshold 5000 lbs.
N,N-diethyl-p-toluidine:	TSCA Inventory: listed
Methacrylic acid:	TSCA Inventory: listed
	Clean Air Act:
	CAA SOCM Chemical: yes
	NIOSH Recommendations:
	Occupational Health Guideline: 0386*
1,4-Naphthoquinone:	TSCA Inventory: listed
	Other Environmental Laws:
	CERCLA: RQ 5000 lbs.
	RCRA Hazardous Wastes: Code U166
	RCRA Groundwater Monitoring: Methods 8270 / PQL 10

National regulations - U.S. State Regulations

Methacrylic acid:

Idaho Air Pollutant List:

Title 585 -- AAC: 3.5 -- EL: 4.67 -- WEL: 70 - Title 586 -

Massachusetts Haz. Substance codes: 4,5,6

Minnesota Haz. Substance: Codes: A -- Ratings: -

Pennsylvania Haz. Substance code: -

Washington Air Contaminant:

TWA: 20 ppm - 70 mg

Skin: Protective measures should be taken to prevent or reduce skin absorption.

16. Other information

Text for labeling:

Contains 25 - 30 % Oleic acid, ethoxylated, 5 - < 10 % Silicon dioxide nanoparticle, 1 - 5 % 2-Hydroxyethyl methacrylate, ethoxylated, 1 - < 2.5 % Cumene hydroperoxide, 0.1 - < 1 % N,N-diethyl-p-toluidine, 0.1 - < 1 % Methacrylic acid, < 0.1 % 1,4-Naphthoquinone.

Hazard rating systems:



NFPA Hazard Rating:

Health: 1 (Slight)

Fire: 1 (Slight)

Reactivity: 0 (Minimal)

HMIS Version III Rating:

Health: 1 (Slight) - Chronic effects

Flammability: 1 (Slight)

Physical Hazard: 0 (Minimal)

Personal Protection: X = Consult your supervisor

HEALTH	*	1
FLAMMABILITY		1
PHYSICAL HAZARD		0
X		

Classification procedure:

Physical hazards: on basis of test data

Health hazards, environmental hazards: calculation method

Abbreviations and acronyms:

Acute Toxicity: Acute toxicity
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
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
ATE: Acute toxicity estimate
ATEmix: Acute Toxicity Estimate of mixture
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
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
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
log P(o/w): Partition coefficient: octanol/water
MARPOL: Maritime Pollution: The International Convention for the Prevention of Pollution from Ships
M-factor: Multiplication factor
NOEC: No Observed Effect Concentration
OECD: Organisation for Economic Co-operation and Development
OEL: Occupational Exposure Limit Value
Organic Peroxide: Organic peroxide
OSHA: Occupational Safety and Health Administration
PBT: Persistent, bioaccumulative and toxic
PNEC: Predicted no-effect concentration
RID: Regulations Concerning the International Carriage of Dangerous Goods by Rail
Sensitization - skin: Skin sensitisation
Skin Corrosion: Skin corrosion
Skin Irritation: Skin irritation
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

Reason of change: Changes in section 2: Classification, labelling
Changes in section 3: Composition/information on ingredients
Changes in section 9: Physical and chemical properties
General revision

Date of first version: 2/24/2005

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.