

1. Identification

Product identifier

Trade name: 636W58 - PUR Foam Adhesive

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

General use: Adhesive for orthopedic procedures.
Possible use: Spray application
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. |
| Eye Irritation - Category 2A | Causes serious eye irritation. |
| Carcinogenicity - Category 2 | Suspected of causing cancer. |
| 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 serious eye irritation.
- May cause respiratory irritation.
- Suspected of causing cancer.

Precautionary statements:

- Obtain special instructions before use.
- Keep away from heat, hot surfaces, sparks, open flames and other ignition sources. No smoking.
- Avoid breathing vapors/spray.
- Wear protective gloves and eye protection.
- IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing.
- IF exposed or concerned: Get medical advice/attention.
- Store in a well-ventilated place. Keep container tightly closed.

Other hazards

Higher doses may lead to a narcotic effect.

3. Composition/information on ingredients

Mixtures

Chemical characterization: Fluid, thermoplastic polyurethane adhesive, added with volatile, organic solvents.

Relevant ingredients:

| CAS No. | Designation | Concentration | Classification |
|--------------|-----------------|---------------|--|
| CAS 109-99-9 | Tetrahydrofuran | 50 - 90 % | Flammable Liquid - Category 2. Eye Irritation - Category 2. Carcinogenicity - Category 2. Specific Target Organ Toxicity (Single Exposure) - Category 3. |

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

4. First aid measures

General information: If victim is at risk of losing consciousness, position and transport on their side.

In case of inhalation: Move victim to fresh air, put at rest and loosen restrictive clothing. In case of irregular breathing or respiratory arrest provide artificial respiration. Seek medical attention.

Following skin contact: Thoroughly wash skin with soap and water. Follow up by applying skin cream. Take off immediately all contaminated or soaked clothing. In case of skin irritation, consult a physician.

After eye contact: Immediately flush eyes with plenty of flowing water for 10 to 15 minutes holding eyelids apart. Subsequently consult an ophthalmologist.

After swallowing: Do not induce vomiting. Rinse mouth with water. Have victim drink large quantities of water, with active charcoal if possible. Keep victim calm and seek medical attention immediately.

Most important symptoms/effects, acute and delayed

In case of inhalation:

Mucous membrane irritation, cough, shortage of breath, headache dizziness, nausea, unconsciousness.

Higher doses may lead to a narcotic effect.

In case of ingestion:

Irritations of mucous membranes in the mouth, pharynx, oesophagus and gastrointestinal tract.

After contact with skin: May cause irritations.

Tetrahydrofuran: Danger of cutaneous absorption.

Prolonged/repetitive skin contact may cause skin defatting or dermatitis.

Information to physician

Attention in case of vomiting and stomach pumping: danger of aspiration.

Restore the protective fat layer of the skin by applying skin cream in order to avoid skin inflammation (dermatitis).

Treat symptomatically.

5. Fire-fighting measures

Suitable (and unsuitable) extinguishing media

Suitable extinguishing media:

Water spray jet, alcohol resistant foam, dry chemical powder, carbon dioxide, sand.

Extinguishing media which must not be used for safety reasons:

strong water jet

Specific hazards arising from the chemical

In case of fire carbon monoxide (CO) may be released. Vapors may proceed on the ground over great distances and cause fire and backflashes.

Protective equipment and precautions for firefighters

Wear a self-contained breathing apparatus and chemical protective clothing.

Additional information:

Use fine water spray to cool endangered containers.

6. Accidental release measures

Personal precautions, protective equipment and emergency procedures

Remove all sources of ignition.

Avoid contact with skin and eyes.

Do not breathe vapors. Provide adequate ventilation.

Remove persons to safety. Wear suitable protective clothing.

Environmental precautions:

Do not empty into drains.

Methods and material for containment and cleaning up

Methods for clean-up:

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

Thoroughly clean the contaminated area with water. Effluents are to be considered as hazardous waste.

7. Handling and storage

Precautions for safe handling

Advices on safe handling: Provide adequate ventilation, and local exhaust as needed.

Extract vapors by suction at point of emission.

Avoid contact with skin and eyes.

Do not breathe vapors. Provide adequate ventilation.

Wear appropriate protective equipment.

Precautions against fire and explosion:

Keep away from sources of ignition - No smoking.

Use only explosion-protected equipment/instruments.

Vapors form potentially explosive mixtures with air, which are heavier than air. Air-Vapor mixture may travel great distances at floor level and lead to backflash when exposed to an ignition source.

Conditions for safe storage, including any incompatibilities

Requirements for storerooms and containers:

Keep container tightly closed in a cool, well-ventilated place.

Hints on joint storage:

Do not store together with oxidizing agents.

8. Exposure controls/personal protection

Control parameters

Occupational exposure limit values:

| CAS No. | Designation | Type | Limit value |
|----------|-----------------|------------------|---|
| 109-99-9 | Tetrahydrofuran | USA: ACGIH: STEL | 295 mg/m ³ ; 100 ppm (may be absorbed through the skin) |
| | | USA: ACGIH: TWA | 147 mg/m ³ ; 50 ppm (may be absorbed through the skin) |
| | | USA: IDLH: TWA | 2,000 ppm [10% LEL] |
| | | USA: NIOSH: STEL | 735 mg/m ³ ; 250 ppm |
| | | USA: NIOSH: TWA | 590 mg/m ³ ; 200 ppm |
| | | USA: OSHA: TWA | 590 mg/m ³ ; 200 ppm |

Biological limit values:

| CAS No. | Designation | Type | Limit value | Parameter | Sampling |
|----------|-----------------|-----------------------|-------------|-----------------|---------------------------------|
| 109-99-9 | Tetrahydrofuran | USA: ACGIH-BEI, urine | 2 mg/L | Tetrahydrofuran | end of exposure or end of shift |

Appropriate engineering controls

Provide good ventilation and/or an exhaust system in the work area.

Take precautionary measures against static discharges.

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. Use breathing protection with splashing medium. Use filter type A1P2 according to OSHA Standard - 29 CFR: 1910.134 or ANSI Z88.2. In case of prolonged or repeated exposures: use self-contained breathing apparatus. |
| Hand protection: | Protective gloves according to OSHA Standard - 29 CFR: 1910.138. Glove material: Neoprene, Nitrile rubber. 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: | Protective work clothing, chemical resistant safety shoes. |
| General hygiene considerations: | Keep away from sources of ignition - No smoking. Avoid contact with skin and eyes. Do not breathe vapors. When using do not eat, drink or smoke. Processing temperature: room temperature. |

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: | transparent |
| Odor: | characteristic |
| Odor threshold: | No data available |
| Melting point/freezing point: | -162.4 °F |
| Initial boiling point and boiling range: | 150.8 °F (ASTM D 97) |
| Flammability: | No data available |
| Explosion limits: | LEL (Lower Explosion Limit): 1.50 Vol-% UEL (Upper Explosive Limit): 12.00 Vol-% |
| Flash point/flash point range: | -5.8 °F (IP 170 Abel) |
| Evaporation rate: | No data available |
| Auto-ignition temperature: | No data available |
| Decomposition temperature: | No data available |
| pH: | No data available |
| Viscosity, kinematic: | at 68 °F: 95 s (DIN 53211, 4mm Beche) |
| Water solubility: | at 68 °F: miscible |
| Partition coefficient: n-octanol/water: | No data available |
| Vapor pressure: | at 68 °F: 173 hPa at 122 °F: Tetrahydrofurane 578.4 hPa |
| Density: | at 68 °F: 0.9 g/mL |
| Vapor density: | No data available |

Particle characteristics: Not applicable

Additional information

Ignition temperature: 413.6 °F (ASTM 2155)

10. Stability and reactivity

Reactivity: Highly flammable liquid and vapor.
May form explosive peroxides.
Tetrahydrofuran: light-sensitive, sensitive to air. Attacks many plastics and rubbers.

Chemical stability: Product is stable under normal storage conditions.

Possibility of hazardous reactions:
In use, may form flammable/explosive vapor-air mixture. Vapors may proceed on the ground over great distances and cause fire and backflashes.

Conditions to avoid: Keep away from heat. Avoid shock and friction.
Avoid open flames. Keep away from sources of ignition. Keep away from heat.

Incompatible materials: Tetrahydrofuran: Violent reaction with oxidizing agents.

Hazardous decomposition products:
Peroxide may form when product is exposed to light and air.
In case of fire may be liberated: Carbon monoxide and carbon dioxide.

11. Toxicological information

Information on toxicological effects

Acute toxicity: LD50 Rat, oral: (Tetrahydrofuran) 1,650 mg/kg
LC50 Rat, inhalative: (Tetrahydrofuran) 54 mg/l/4h

Toxicological effects: Acute toxicity (oral): Lack of data.
Acute toxicity (dermal): Lack of data.
Acute toxicity (inhalative): Lack of data.
Skin corrosion/irritation: Lack of data.
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: Carcinogenicity - Category 2 = Suspected of causing cancer.
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.
Organs affected: central nervous system.
exposure route: inhalation.
Specific target organ toxicity (repeated exposure): Lack of data.
Aspiration hazard: Lack of data.

Other information: Tetrahydrofuran:
Higher doses may lead to a narcotic effect.
Causes depression of CNS.
Sensitization: Not known to cause sensitization.

Symptoms

In case of inhalation:
Mucous membrane irritation, cough, shortage of breath, headache dizziness, nausea, unconsciousness.
Higher doses may lead to a narcotic effect.
In case of ingestion:
Irritations of mucous membranes in the mouth, pharynx, oesophagus and gastrointestinal tract.
After contact with skin: May cause irritations.
Tetrahydrofuran: Danger of cutaneous absorption.
Prolonged/repetitive skin contact may cause skin defatting or dermatitis.

12. Ecological information

Ecotoxicity

Aquatic toxicity: Tetrahydrofuran:
Daphnia toxicity:
EC50 Daphnia magna: 382 mg/L/ 24 h.
Fish toxicity:
LC50 Pimephales promelas: 2160 mg/L/ 96 h.
LC50 Leuciscus idus: 2820 mg/L.
Effects in sewage plants: Technically correct releases of minimal concentrations to adapted biological sewage treatment facility, will not disturb the biodegradability of activated sludge.
Further details: Product may not be released into water without pre-treatment (biological sewage plant).

Persistence and degradability

Further details: Tetrahydrofuran:
Biodegradation: 39% / 28 d (closed bottle test).
Product is not readily biodegradable.

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 penetrate into soil, waterbodies or drains.

13. Disposal considerations

Waste treatment methods

Product

Recommendation: Incinerate as hazardous waste according to applicable local, state, and federal regulations.

Package

Recommendation: Dispose of waste according to applicable legislation.
Non-contaminated packages may be recycled.

14. Transport information

UN number

DOT: UN1993

IMDG, IATA-DGR: UN 1993

UN proper shipping name

DOT: UN 1993, FLAMMABLE LIQUIDS, N.O.S. (Tetrahydrofurane)

IMDG, IATA-DGR: UN 1993, FLAMMABLE LIQUID, N.O.S. (Tetrahydrofurane)

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

Symbols: G

Special Provisions: IB2, T7, TP1, TP8, TP28

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: B

Sea transport (IMDG)

EmS: F-E, S-E
 Special Provisions: 274
 Limited quantities: 1 L
 Excepted quantities: E2
 Package - Instructions: P001
 Package - Provisions: -
 IBC - Instructions: IBC02
 IBC - Provisions: -
 Tank instructions - IMO: -
 Tank instructions - UN: T7
 Tank instructions - Provisions: TP1, TP8, TP28
 Stowage and handling: Category B.
 Properties and observations: -
 Marine pollutant: no
 Segregation group: none

Air transport (IATA)

Proper shipping name: UN 1993, FLAMMABLE LIQUID, N.O.S. (Tetrahydrofuran)
 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): 3H

15. Regulatory information

National regulations - U.S. Federal Regulations

Tetrahydrofuran: TSCA Inventory: listed
 Clean Air Act:
 CAA SOCM Chemical: yes
 Other Environmental Laws:
 CERCLA: RQ 1000 lbs.
 NIOSH Recommendations:
 Occupational Health Guideline: 0602

National regulations - U.S. State Regulations

Tetrahydrofuran: New York Right-To-Know: listed

Further regulations, limitations and legal requirements

No data available

16. Other information

Text for labeling: Contains 50 - 90 % Tetrahydrofuran.
 Contains Tetrahydrofuran.

Revision date: 12/17/2025
Date of first version: 2/11/1996
Reason of change: General revision: Safety Data Sheet according to Hazardous Products Regulations (HPR) 2022
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: 1 (Slight)

HMIS Version III Rating:

Health: 2 (Moderate) - Chronic effects

Flammability: 3 (Serious)

Physical Hazard: 1 (Slight)

Personal Protection: X = Consult your supervisor

| | | |
|-----------------|---|---|
| HEALTH | * | 2 |
| FLAMMABILITY | | 3 |
| PHYSICAL HAZARD | | 1 |
| | | X |

Abbreviations and acronyms:

AS/NZS: Australian Standards/New Zealand Standards
Carcinogenicity: Carcinogenicity
CAS: Chemical Abstracts Service
CFR: Code of Federal Regulations
CLP: Classification, Labelling and Packaging
CNS: Central Nervous System
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 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
OEL: Occupational Exposure Limit Value
OSHA: Occupational Safety and Health Administration
PBT: Persistent, bioaccumulative and toxic
PNEC: Predicted no-effect concentration
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.