

1. Product and company identification

Product identifier

Trade name: 636W17 - Plastic Adhesive

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

General use: Synthetic adhesive 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: Colorless

Odor: Characteristic

Classification: Flammable Liquid - Category 2. Eye Irritation - Category 2A.
Specific Target Organ Toxicity (Single Exposure) - Category 3.

Hazard symbols:



Signal word: **Danger**

Hazard statements: Highly flammable liquid and vapor.
Causes serious eye irritation.
May cause drowsiness or dizziness.

Precautionary statements:

Keep away from heat, hot surfaces, sparks, open flames and other ignition sources. No smoking.
Avoid breathing mist/vapors/spray.
Wear protective gloves/protective clothing/eye protection.
IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing.
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

Higher doses may lead to a narcotic effect.
Potentially explosive mixtures may form if adequate ventilation is not provided.
Inhaling can lead to irritations of the respiratory tract and mucous membrane.
see section 11: Toxicological information

3. Composition / Information on ingredients

Chemical characterization: Adhesive on the basis of Solution of polyurethane.

Relevant ingredients:

CAS No.	Designation	Concentration	Classification
CAS 67-64-1	Acetone	>= 50 %	Flammable Liquid - Category 2. Eye Irritation - Category 2A. Specific Target Organ Toxicity (Single Exposure) - Category 3.
CAS 141-78-6	Ethyl acetate	25 - 50 %	Flammable Liquid - Category 2. Eye Irritation - Category 2A. Specific Target Organ Toxicity (Single Exposure) - Category 3.

4. First aid measures

General information:	IF exposed or concerned: Get medical advice/attention. First aider: Pay attention to self-protection!
In case of inhalation:	Provide fresh air. Seek medical treatment in case of troubles. Monitor breathing. In case of irregular breathing or respiratory arrest provide artificial respiration. Seek medical attention.
Following skin contact:	After contact with skin, wash immediately with soap and plenty of 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. Subsequently seek the immediate attention of an ophthalmologist.
After swallowing:	Do NOT induce vomiting. Immediately get medical attention.

Most important symptoms/effects, acute and delayed

Causes serious eye irritation. May cause drowsiness or dizziness. Repeated exposure may cause skin dryness or cracking.

Information to physician

Treat symptomatically.

5. Fire fighting measures

Flash point/flash point range:

-2.2 °F (DIN 53213)

Auto-ignition temperature: Not self-igniting

Suitable extinguishing media:

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

Co-ordinate fire-fighting measures to the fire surroundings.

Extinguishing media which must not be used for safety reasons:

Full water jet

Specific hazards arising from the chemical

Highly flammable liquid and vapor. 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.

On heating or in case of fire toxic gases may form.

In case of fire: NOx and decomposition products containing HCN may develop. 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. Use fine water spray to cool endangered containers.

You have to dispose of contaminated extinguishing water according to the regulations of the authorities.

Do not inhale explosion and combustion gases.

6. Accidental release measures

Personal precautions:

Eliminate all ignition sources if safe to do so. Provide adequate ventilation.

If necessary: Use appropriate respiratory protection. Avoid breathing mist/vapors/spray.

Avoid contact with skin and eyes. Keep unprotected people away.

Wear protective equipment. Take off contaminated clothing and wash it before reuse.

Environmental precautions:

Do not allow to enter drains, basements or pits.

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

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.

Do not remove residual product with water and detergent.

Additional information: Use only explosion-protected equipment/instruments.
Vapors spread at floor level. Cover drainage holes and evacuate basement.
Beware of reignition.
Liquid evaporates very quickly.
Mixtures with 4% acetone mixed with 96% water still have a flash point of 129.2 °F. In case of important spills, risk of ignition of the acetone-water mixture. Potentially explosive mixtures with air may form above water surface.

7. Handling and storage

Handling

Advices on safe handling: Provide adequate ventilation, and local exhaust as needed.
Avoid contact with skin and eyes. Avoid breathing mist/vapors/spray.
Wear protective equipment. Take off contaminated clothing and wash it before reuse.
Use local exhaust in the field of the processing equipment.
Have eye wash bottle or eye rinse ready at work place.
When handling large quantities, supply emergency spray.

Precautions against fire and explosion:
Vapors may form explosive mixtures with air.
Exposure to temperatures exceeding 122 °F will increase pressure: resulting in danger of bursting or explosion.
Keep away from sources of ignition - No smoking.
Take precautionary measures against static discharges.
Use only explosion-protected equipment/instruments.

Storage

Requirements for storerooms and containers:
Keep container dry. Keep container tightly closed in a cool, well-ventilated place.
Protect against heat /sun rays. Protect from light.
Steel, stainless steel, and aluminium are stable container materials. Copper may be attacked.
In partially filled containers explosive mixtures may form.
storage temperature: 50 - 77 °F

Hints on joint storage: Keep away from food, drink and animal feedingstuffs.
Keep away from: strong oxidizing agents, alkalis, amines

8. Exposure controls / personal protection

Exposure guidelines

Occupational exposure limit values:

CAS No.	Designation	Type	Limit value
67-64-1	Acetone	USA: ACGIH: STEL	500 ppm
		USA: ACGIH: TWA	250 ppm
		USA: IDLH: TWA	2,500 ppm
		USA: NIOSH: TWA	590 mg/m ³ ; 250 ppm
		USA: OSHA: TWA	2,400 mg/m ³ ; 1,000 ppm
141-78-6	Ethyl acetate	USA: ACGIH: TWA	1,440 mg/m ³ ; 400 ppm
		USA: IDLH: TWA	2,000 ppm [10% LEL]
		USA: NIOSH: TWA	1,400 mg/m ³ ; 400 ppm
		USA: OSHA: TWA	1,400 mg/m ³ ; 400 ppm

Biological limit values:

CAS No.	Designation	Type	Limit value	Parameter	Sampling
67-64-1	Acetone	USA: ACGIH-BEI, urine	25 mg/L	acetone	end of exposure or end of shift

Engineering controls

Explosion protection required. Work only with resistant materials.

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

Use local exhaust in the field of the processing 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.
In case of handling larger quantities: flame-retardant protective clothing, solvent-resistant protective clothing
protective gloves according to OSHA Standard - 29 CFR: 1910.138.
Glove material: Butyl caoutchouc (butyl rubber)-Layer thickness \geq 0,5 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.
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.
Have a breathing apparatus that is not dependent on the circulating air ready for emergencies.
In case of prolonged or repeated exposures: use self-contained breathing apparatus.
Use combination filter type A/P2 according to OSHA Standard - 29 CFR: 1910.134 or ANSI Z88.2.

General hygiene considerations:

Avoid breathing mist/vapors/spray. Avoid contact with skin and eyes.
Take off contaminated clothing and wash it before reuse. Wash hands before breaks and after work.
Keep away from sources of ignition - No smoking.
Have eye wash bottle or eye rinse ready at work place. 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:	Characteristic
Odor threshold:	Not determined
pH:	Not determined
Melting point/freezing point:	Not determined
Initial boiling point and boiling range:	132.8 °F (DIN 53171)
Flash point/flash point range:	-2.2 °F (DIN 53213)
Evaporation rate:	No data available
Flammability:	No data available
Explosion limits:	LEL (Lower Explosion Limit): 2.20 Vol-% (EN 1839) UEL (Upper Explosive Limit): 13.00 Vol-% (EN 1839)
Vapor pressure:	at 68 °F: 233 hPa (DIN 51640) at 122 °F: (Acetone) 800 hPa (DIN 51757)
Vapor density:	No data available
Density:	at 68 °F: 0.88 g/mL
Solubility:	at 68 °F: various organic solvents
Water solubility:	Slightly miscible
Partition coefficient: n-octanol/water:	No data available
Auto-ignition temperature:	Not self-igniting
Thermal decomposition:	No data available
Viscosity, dynamic:	at 68 °F: 3,600 mPa*s (Brookfield (ISO 2555))
Explosive properties:	Product is not explosive. Vapors may form explosive mixtures with air.
Solvent content:	78.9 %
Solid content:	21.1 % (ISO 3251)

10. Stability and reactivity

Reactivity:	Highly flammable liquid and vapor. Vapors may form explosive mixtures with air.
Chemical stability:	Stable under recommended storage conditions.

Possibility of hazardous reactions:

Heating will lead to pressure increase: Danger of bursting and explosion.

Conditions to avoid:

Keep away from heat sources, sparks and open flames.
Protect from direct sunlight.

Incompatible materials:

Attacks many plastics and rubbers. On contact with barium hydroxide, sodium hydroxide and many other alkaline materials condensation may occur.
Keep away from: strong oxidizing agents, alkalis, amines

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: > 2,000 mg/kg

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

ATEmix calculated: > 2,000 mg/kg

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

ATEmix calculated: > 20 mg/L

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

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

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

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

Germ cell mutagenicity/Genotoxicity: Based on available data, the classification criteria are not met.

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

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 drowsiness or dizziness.

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 acetone:

LD50 Rat, oral: 5,800

LD50 Rabbit, dermal: > 7,400 mg/kg

LC50 Rat, inhalative (vapor): 76 mg/L/4h

Information about ethyl acetate:

LD50 Rat, oral: 5,800 mg/kg

LD50 Rabbit, dermal: > 20,000 mg/kg

LD50 Rat, inhalative (vapor): > 22.5 mg/L/6h

Symptoms

Burning eyes and skin.

In case of inhalation:

fatigue, nausea, Headache, dizziness, drowsiness, vomiting, breathing paralysis, unconsciousness.

In case of ingestion:

The absorption of even very small amounts of this product through the stomach may lead to health problems.

symptoms: Drowsiness, vomiting. Gastric and intestinal problems.

After contact with skin:

Repeated exposure may cause skin dryness or cracking, due to defatting properties.

After eye contact: Corneal damage

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

12. Ecological information

Ecotoxicity

Aquatic toxicity:

Information about acetone:

Fish toxicity:

LC50 *Lepomis macrochirus* (Bluegill): 8,300 mg/L/96h

Daphnia toxicity:

EC50 *Daphnia magna* (Big water flea): 12,600 - 12,700 mg/L/48h

Information about ethyl acetate:

Fish toxicity:

LC50 *Pimephales promelas* (fathead minnow): 230 mg/L/96h

Daphnia toxicity:

EC50 *Daphnia magna* (Big water flea): 717 mg/L/48h

Algae toxicity:

IC50 *Desmodesmus subspicatus* (green algae): 3,300 mg/L/48h

Mobility in soil

No data available

Persistence and degradability

Further details:

Information about Acetone:

Biodegradability: 91 %/28 d.

Information about Ethyl acetate:

Biodegradability: 100 %/28 d.

Additional ecological information

Volatile organic compounds (VOC):

78.84 % by weight / 6,938 g/L

General information:

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

13. Disposal considerations

Product

Recommendation:

Incinerate as hazardous waste according to applicable local, state, and federal regulations.
Do not dispose of with household waste.

Do not empty into drains.

Package

Recommendation: Dispose of waste according to applicable legislation.
Non-contaminated packages may be recycled.
Cans not thoroughly emptied are to be sent to the problem waste disposal.

14. Transport information

UN number

ADR/RID, IMDG, IATA-DGR:

UN 1133

UN proper shipping name

ADR/RID, IMDG, IATA-DGR:

UN 1133, ADHESIVES

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:

III

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:

UN1133

Proper shipping name:

UN 1133, ADHESIVES

Hazard class or Division:

3

Packing Group:

III

Labels:

3

Special Provisions:

B1, B52, IB3, T2, TP1

Packaging – Exceptions:

150

Packaging – Non-bulk:

173

Packaging – Bulk:

242

Quantity limitations – Passenger aircraft / rail:

60 L

Quantity limitations – Cargo only:

220 L

Vessel stowage – Location:

A

Vessel stowage – Other:



Sea transport (IMDG)

UN number:	UN 1133
Proper shipping name::	UN 1133, ADHESIVES
Class or division, Subsidiary risk:	Class 3, Subrisk -
Packing Group:	III
EmS:	F-E, S-D
Special Provisions:	223 955
Limited quantities:	5 L
Excepted quantities:	E1
Package - Instructions:	P001, LP01
Package - Provisions:	PP1
IBC - Instructions:	IBC03
IBC - Provisions:	-
Tank instructions - IMO:	-
Tank instructions - UN:	T2
Tank instructions - Provisions:	TP1
Stowage and handling:	Category A.
Properties and observations:	Adhesives are solutions of gums, resins, etc., usually volatile due to the solvents. Miscibility with water depends upon their composition.
Marine pollutant:	no
Segregation group:	none
Remarks:	Viscous according to 2.3.2.2 of the IMDG code

Air transport (IATA)

UN/ID number:	UN 1133
Proper shipping name::	UN 1133, ADHESIVES
Class or division, Subsidiary risk:	Class 3
Packing Group:	III
Hazard label:	Flamm. liquid
Excepted Quantity Code:	E1
Passenger and Cargo Aircraft: Ltd.Qty.:	Pack.Instr. Y344 - Max. Net Qty/Pkg. 10 L
Passenger and Cargo Aircraft:	Pack.Instr. 355 - Max. Net Qty/Pkg. 60 L
Cargo Aircraft only:	Pack.Instr. 366 - Max. Net Qty/Pkg. 220 L
Special Provisions:	A3
Emergency Response Guide-Code (ERG):	3L
Remarks:	Viscous according to IATA § 3.3.3.1

15. Regulatory information

National regulations - U.S. Federal Regulations

Acetone:	<p>TSCA Inventory: listed</p> <p>Clean Air Act:</p> <p>CAA SOCM Chemical: yes</p> <p>Other Environmental Laws:</p> <p>CERCLA: RQ 5000 lbs.</p> <p>RCRA Hazardous Wastes: Code U002</p> <p>RCRA Groundwater Monitoring: Methods 8240 / PQL 100</p> <p>NIOSH Recommendations:</p> <p>Occupational Health Guideline: 0004*</p>
Ethyl acetate:	<p>TSCA Inventory: listed</p> <p>Other Environmental Laws:</p> <p>CERCLA: RQ 5000 lbs.</p> <p>RCRA Hazardous Wastes: Code U112</p> <p>NIOSH Recommendations:</p> <p>Occupational Health Guideline: 0260</p>

National regulations - U.S. State Regulations

Acetone:	<p>California Prop 65 List: None</p> <p>Delaware Air Quality Management List:</p> <p>DRQ: 5000 - RQ State: Federal Regulations Apply</p> <p>Idaho Air Pollutant List:</p> <p>Title 585: AAC: 89 - EL: 119 - OEL: 1780</p> <p>Massachusetts Haz. Substance codes: 2,4,5,6 F8 F9</p> <p>Minnesota Haz. Substance:</p> <p>Codes: AON - Ratings: 7.16 - Status: Title III</p> <p>New York List of Hazardous Substances:</p> <p>RQ-Air: 5000 - RQ-Land: 1 - Note: No Note Associated with this chemical.</p> <p>Pennsylvania Haz. Substance code: E</p> <p>Washington Air Contaminant:</p> <p>TWA: 750 ppm - 1800 mg - STEL: 1000 ppm - 2400 mg</p>
Ethyl acetate:	<p>Delaware Air Quality Management List:</p> <p>DRQ: 5000 - RQ State: Federal Regulations Apply</p> <p>Idaho Air Pollutant List:</p> <p>Title 585: AAC: 70 - EL: 93,3 - OEL: 1400 - Title 586: -</p> <p>Main Hazardous Air Pollutants:</p> <p>Me 2005: HAP - Hap Rpt: 20000</p> <p>Massachusetts Haz. Substance codes: 2,4,5,6 F8</p> <p>Minnesota Haz. Substance:</p> <p>Codes: AO - Ratings: 6.83 - Status: Title III.</p> <p>New York List of Hazardous Substances:</p> <p>RQ-Air: 5000 - RQ-Land: 1 - Note: No Note Associated with this chemical.</p> <p>Pennsylvania Haz. Substance code: E</p> <p>Washington Air Contaminant:</p> <p>TWA: 400 ppm - 1400 mg</p>

16. Other information

Text for labeling:

Contains >= 50 % Acetone, 25 - 50 % Ethyl acetate. Safety data sheet available on request.

Hazard rating systems:



NFPA Hazard Rating:

Health: 1 (Slight)

Fire: 3 (Serious)

Reactivity: 0 (Minimal)

HMIS Version III Rating:

Health: 1 (Slight)

Flammability: 3 (Serious)

Physical Hazard: 0 (Minimal)

Personal Protection: X = Consult your supervisor

HEALTH	1
FLAMMABILITY	3
PHYSICAL HAZARD	0
	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
 ATEmix: Acute Toxicity Estimate of mixture
 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 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
 IC50: Inhibition Concentration 50%
 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
 RID: Regulations Concerning the International Carriage of Dangerous Goods by Rail
 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:

10/30/1994

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.