

## 1. Product and company identification

### Product identifier

Trade name: 83A2 - Silvent "H"

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

General use: Solvent, for orthopedic procedures.  
For commercial user only.

### 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: Form: liquid

Color: colorless

Odor: weak like petroleum

Classification: Flammable Liquid - Category 2. Skin Irritation - Category 2.  
Specific Target Organ Toxicity (Single Exposure) - Category 3. Aspiration Toxicity -  
Category 1. Aquatic toxicity - acute - Category 1. Aquatic toxicity - chronic - Category 1.

Hazard symbols:



Signal word: **Danger**

**Hazard statements:**

- Highly flammable liquid and vapor.
- May be fatal if swallowed and enters airways.
- Causes skin irritation.
- May cause drowsiness or dizziness.
- Very toxic to aquatic life with long lasting effects.

**Precautionary statements:**

- Keep away from heat, hot surfaces, sparks, open flames and other ignition sources. No smoking.
- Use only outdoors or in a well-ventilated area.
- Avoid release to the environment.
- Wear protective gloves/protective clothing/eye protection/face protection.
- Call a POISON CENTER/doctor if you feel unwell.
- Do NOT induce vomiting.

### Regulatory status

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

### Hazards not otherwise classified

see section 11: Toxicological information

## 3. Composition / Information on ingredients

Chemical characterization:  $\text{CH}_3\text{-(CH}_2\text{)}_5\text{-CH}_3 = \text{C}_7 \text{ H}_{16}$ , n-Heptane

CAS-Number: 142-82-5

RTECS-Number: MI7700000

## 4. First aid measures

**General information:** If victim is at risk of losing consciousness, position and transport on their side. Do not allow victim to become chilled. Keep victim warm. Take off immediately all contaminated clothing.

**In case of inhalation:** Move victim to fresh air, put at rest and loosen restrictive clothing. In case of respiratory difficulties seek medical attention.

**Following skin contact:** After contact with skin, wash immediately with soap and plenty of water. Consult a doctor if skin irritation persists.

**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:** Rinse mouth immediately and drink plenty of water. Do not induce vomiting. Danger of aspiration! Keep airway open. Immediately get medical attention.

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

Irritation.  
After resorption: Headache, dizziness, inebriation, agitation, unconsciousness, apnea.

### Information to physician

Following exposure through the pores use activated carbon and a saline laxative.  
In case of inhalation In case of breathing difficulties administer oxygen.  
Subsequent observance for pneumonia and lung oedema.

## 5. Fire fighting measures

Flash point/flash point range:

24.8 °F

Auto-ignition temperature: No data available

Suitable extinguishing media:

Extinguishing powder, alcohol resistant foam, water spray jet, carbon dioxide.

Extinguishing media which must not be used for safety reasons:

Strong water jet

### Specific hazards arising from the chemical

Highly flammable liquid and vapor. Liquid evaporates quickly.

Explosive mixtures with air may even form at room temperature.

Vapors are heavier than air and will travel at floor level. Beware of reignition.

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:

Cool endangered containers with water spray and, if possible, remove from danger zone. Do not allow fire water to penetrate into surface or ground water.

## 6. Accidental release measures

Personal precautions:

Remove all sources of ignition.

Plug leak if safely possible.

Avoid contact with skin and eyes. Wear protective equipment.

Do not breathe vapors. Provide adequate ventilation.

Environmental precautions:

Do not allow to enter drains, surface waters, basements or pits.

Risk of explosion if the liquid enters the sewage system.

When released into the environment, alert police and fire brigade.

Methods for clean-up:

Take up with non-flammable, liquid binding material (e.g. sand/earth/diatomaceous earth/vermiculit) and perform disposal according to instructions. Thoroughly clean surrounding area.

In case of spills of large quantities: Dam spills and pump to remove. Contact expert.

Additional information:

Use only spark proof tools. Beware of reignition.

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. Do not inhale substance.

Execute works under fume hood. Provide room air exhaust at ground level.

Avoid the formation of aerosol/vapors. Avoid contact with skin and eyes.

Precautions against fire and explosion:

Keep away from sources of ignition - No smoking. Take precautionary measures against static discharges.

Vapors may form explosive mixtures with air.

Beware of reignition. Do not weld. Use only spark proof tools.

Use only explosion-proof equipment. Use grounding equipment.

## Storage

Requirements for storerooms and containers:

Keep containers tightly closed and at a temperature between 59 °F and 77 °F.

Provide adequate ventilation. Keep away from sources of ignition and heat.

Qualified materials: steel, stainless steel, iron.

Hints on joint storage:

Do not store together with combustible or self-igniting materials or any highly flammable solids.

Further details:

Store locked up.

## 8. Exposure controls / personal protection

### Exposure guidelines

Occupational exposure limit values:

Type	Limit value
USA: ACGIH: STEL	2,050 mg/m <sup>3</sup> ; 500 ppm
USA: ACGIH: TWA	1,640 mg/m <sup>3</sup> ; 400 ppm
USA: IDLH: TWA	750 ppm
USA: NIOSH: Ceiling	1,800 mg/m <sup>3</sup> ; 440 ppm
USA: NIOSH: TWA	350 mg/m <sup>3</sup> ; 85 ppm
USA: OSHA: TWA	2,000 mg/m <sup>3</sup> ; 500 ppm

### Engineering controls

Execute works under fume hood. Do not inhale substance.

The substance should only be handled in closed apparatus or systems.

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, antistatic.  
Protective gloves according to OSHA Standard - 29 CFR: 1910.138.  
Glove material: Nitrile rubber-Layer thickness > 0,4 mm.  
Breakthrough time: > 480 min.  
Possible alternatives: Fluororubber (Viton) (0,4 mm).  
Unsuitable materials: natural rubber, butyl caoutchouc (butyl rubber), PVC.  
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.  
Use filter type A (= against vapors of organic substances) according to OSHA Standard - 29 CFR: 1910.134 or ANSI Z88.2.  
In case of prolonged or repeated exposures: use self-contained breathing apparatus.

General hygiene considerations:

Take off immediately all contaminated clothing.

Avoid contact with skin and eyes.

Do not breathe vapors. Wash hands before breaks and after work.

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:	Form: liquid Color: colorless
Odor:	weak like petroleum
Odor threshold:	No data available
pH:	No data available
Melting point/freezing point:	-130.9 °F
Initial boiling point and boiling range:	209.012 °F (1013 hPa)
Flash point/flash point range:	24.8 °F
Evaporation rate:	No data available
Flammability:	No data available
Explosion limits:	LEL (Lower Explosion Limit): 1.10 Vol-% UEL (Upper Explosive Limit): 6.70 Vol-%
Vapor pressure:	at 68 °F: 48 hPa at 122 °F: 190 hPa
Vapor density:	No data available
Density:	at 68 °F: 0.684 g/mL
Solubility:	soluble in ethanol and acetone
Water solubility:	at 68 °F: 0.05 g/L
Partition coefficient: n-octanol/water:	4.66 log P(o/w) Based on the n-octanol/water partition coefficient accumulation in organisms is possible.
Auto-ignition temperature:	No data available
Thermal decomposition:	No data available
Viscosity, dynamic:	at 68 °F: 0.42 mPa*s
Explosive properties:	Explosive mixtures with air may even form at room temperature.
Ignition temperature:	419 °F
Additional information:	Molar mass: 100,21 g/mol Odor threshold: 50 ppm Relative vapor density at 68 °F (air=1): 3,45 Saturation concentration at 68 °F: 197000 mg/m <sup>3</sup>

## 10. Stability and reactivity

Reactivity:	Highly flammable liquid and vapor.
Chemical stability:	Stable under recommended storage conditions. Liquid evaporates quickly. At normal air pressure, the product may be distilled without decomposition. Unsuitable materials: Rubber. Various plastics are incompatible work materials.

Possibility of hazardous reactions:

Explosive mixtures with air may even form at room temperature.  
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. Ignition by hot surfaces, sparks and open flames.

Conditions to avoid: Keep away from heat sources, sparks and open flames.

Incompatible materials: Strong oxidizing agents (Risk of fire/Danger of explosion)

Hazardous decomposition products:

In case of fire may be liberated: Carbon monoxide and carbon dioxide.

Thermal decomposition: No data available

## 11. Toxicological information

### Toxicological tests

Acute toxicity: LD50 Rat, oral: > 15,000 mg/kg

LC50 Rat, inhalative: 103 g/m<sup>3</sup>/4h

LD50 Rabbit, dermal: > 3,160 mg/kg

Toxicological effects: Acute toxicity (oral): Lack of data.

Acute toxicity (dermal): Lack of data.

Acute toxicity (inhalative): Lack of data.

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

Serious eye damage/irritation: Lack of data.

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): Specific Target Organ Toxicity (Single Exposure) - Category 3 = May cause drowsiness or dizziness.

Specific target organ toxicity (repeated exposure): Lack of data.

Aspiration hazard: Aspiration Toxicity -

Category 1 = May be fatal if swallowed and enters airways.

Other information: Sensitization: Not known to cause sensitization.

Physiologically benign according to current data (not a mutagen, carcinogen or teratogen).

### Symptoms

In case of inhalation: Vapors irritate mucous membranes and respiratory system.

If higher concentrations occur: Headache, dizziness, inebriation, agitation, unconsciousness, apnea.

In case of ingestion:

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

When swallowed and vomited immediately, aspiration into the lungs may occur resulting in chemical pneumonia or suffocation.

Other symptoms: Dizziness, unconsciousness, breathing paralysis. Pulmonary edema is possible.

After contact with skin:

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

After eye contact: May cause irritations.

## 12. Ecological information

### Ecotoxicity

Aquatic toxicity: Very toxic to aquatic organisms, may cause long-term adverse effects in the aquatic environment. Substance floats on the water surface.

Algae toxicity: EC50 algae: 1,5 mg/L/8 h.

Daphnia toxicity: EC50 Daphnia magna: 1,5 mg/L/48 h.

Fish toxicity: LC50 Carassius auratus: 4 mg/L/24 h.

Further details: Henry constant: 278730 Pa\*m<sup>3</sup>/mol (volatile).

### Mobility in soil

No data available

### Persistence and degradability

Further details: Product is biodegradable.

Bioconcentration factor (BCF): 340 - 2000 (calculated)

### Additional ecological information

Oxygen demand: BOD: 1,92 mgO<sub>2</sub>/l/5d

ThOD: 3,5 g/g

Volatile organic compounds (VOC):

100 % by weight / 684 g/L

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

In case of spills of large quantities: Danger to drinking water.

## 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.

## 14. Transport information

### UN number

ADR/RID, IMDG, IATA-DGR:

UN 1206

### UN proper shipping name

ADR/RID, IATA-DGR: UN 1206, HEPTANES

IMDG: UN 1206, HEPTANES (n-Heptane), MARINE POLLUTANT

### Transport hazard class(es)

ADR/RID: Class 3, Code: F1

IMDG: Class 3, Subrisk P

IATA-DGR: Class 3

### Packing group

ADR/RID, IMDG, IATA-DGR:

II

### Environmental hazards

Marine pollutant: yes

### 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: UN1206  
Proper shipping name: UN 1206, HEPTANES  
Hazard class or Division: 3  
Packing Group: II  
Labels: 3  
Special Provisions: IB2, T4, TP2  
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)

UN number: UN 1206  
Proper shipping name: UN 1206, HEPTANES (n-Heptane), MARINE POLLUTANT  
Class or division, Subsidiary risk: Class 3, Subrisk P  
Packing Group: II  
EmS: F-E, S-D  
Special Provisions: -  
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: TP2  
Stowage and handling: Category B.  
Properties and observations: Colourless volatile liquids. Explosive limits: 1.1%-6,7%. n-HEPTANE: flashpoint -4°C c.c. Immiscible with water. Irritating to skin, eyes and mucous membranes.  
Marine pollutant: yes  
Segregation group: none

### Air transport (IATA)

UN/ID number: UN 1206  
Proper shipping name: UN 1206, HEPTANES  
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  
Emergency Response Guide-Code (ERG): 3H

## 15. Regulatory information

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

TSCA Inventory: listed  
NIOSH Recommendations:  
Occupational Health Guideline: 0312

## National regulations - U.S. State Regulations

California Proposition 65 code: not listed  
Idaho Air Pollutant List:  
Title 585: AAC: 82 - EL: 109 - OEL: 1640 - Title 586: -  
Massachusetts Haz. Substance codes: 2,4,5,6  
Minnesota Haz. Substance:  
Codes: ANO - Ratings: -  
Pennsylvania Haz. Substance code: -  
Washington Air Contaminant:  
TWA: 400 ppm - 1600 mg - STEL: 500 ppm - 2000 mg  
California Proposition 65 code: not listed  
Idaho Air Pollutant List:  
Title 585: AAC: 82 - EL: 109 - OEL: 1640 - Title 586: -  
Massachusetts Haz. Substance codes: 2,4,5,6  
Minnesota Haz. Substance:  
Codes: ANO - Ratings: -  
Pennsylvania Haz. Substance code: -  
Washington Air Contaminant:  
TWA: 400 ppm - 1600 mg - STEL: 500 ppm - 2000 mg

## National regulations - Great Britain

Hazchem-Code: 3YE

## 16. Other information

Text for labeling:

Contains 100 % n-Heptane.  
Contains n-Heptane.

Hazard rating systems:



NFPA Hazard Rating:  
Health: 2 (Moderate)  
Fire: 3 (Serious)  
Reactivity: 0 (Minimal)

HMIS Version III Rating:  
Health: 2 (Moderate)  
Flammability: 3 (Serious)  
Physical Hazard: 0 (Minimal)  
Personal Protection: X = Consult your supervisor

HEALTH	2
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  
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  
Aspiration Toxicity: Aspiration toxicity  
BCF: Bioconcentration Factor  
BOD: Biochemical oxygen demand  
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  
OEL: Occupational Exposure Limit Value  
OSHA: Occupational Safety and Health Administration  
PBT: Persistent, bioaccumulative and toxic  
PNEC: Predicted no-effect concentration  
PVC: Polyvinyl chloride  
RID: Regulations Concerning the International Carriage of Dangerous Goods by Rail  
Skin Irritation: Skin irritation  
STOT SE: Specific target organ toxicity - single exposure  
ThOD: Theoretical Oxygen Demand  
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: Changes in section 14: General revision

Date of first version: 1/13/1998

### 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.