

## 636K18 - Sealing Resin Adhesive Gel

Material number 636K18

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### 1. Product and company identification

#### Product identifier

Trade name: 636K18 - Sealing Resin Adhesive Gel

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

General use: 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](http://www.ottobockus.com)

Telephone: +1 (801) 956-2400

Telefax: +1 (801) 956-2401

Dept. 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, viscous

Color: colorless

Odor: ester-like

Classification: Flammable Liquid - Category 2; Skin Irritation - Category 2; Sensitization - skin - Category 1; Specific Target Organ Toxicity (Single Exposure) - Category 3;

Hazard symbols:



Signal word: **Danger**

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Hazard statements:  
 Highly flammable liquid and vapor.  
 Causes skin irritation.  
 May cause an allergic skin reaction.  
 May cause respiratory irritation.

Precautionary statements:  
 Keep away from heat, hot surfaces, sparks, open flames and other ignition sources. No smoking.  
 Avoid breathing vapors.  
 Use only outdoors or in a well-ventilated area.  
 Wear protective gloves/protective clothing/eye protection/face protection.  
 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) and SIMDUT in Canada.

### Hazards not otherwise classified

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.

see section 11: Toxicological information

## 3. Composition / Information on ingredients

Chemical characterization: Acrylic resin, contains Methyl methacrylate (MMA)

Relevant ingredients:

CAS No.	Designation	Content	Classification
CAS 80-62-6	Methyl methacrylate	50 - 100 %	Flammable Liquid - Category 2. Skin Irritation - Category 2. Sensitization - skin - Category 1. Specific Target Organ Toxicity (Single Exposure) - Category 3.
CAS 38668-48-3	N,N-bis-(2-hydroxypropyl)-p-toluidine	< 1 %	Acute Toxicity - oral - Category 3. Eye Damage - Category 1. Aquatic toxicity - chronic - Category 3.

## 4. First aid measures

General information: Take off immediately all contaminated clothing.  
 Call a doctor if you feel unwell.  
 Never give anything by mouth to an unconscious person.  
 If unconscious place in recovery position and seek medical advice.

In case of inhalation: Move victim to fresh air, provide oxygen as needed. Seek medical attention.

Following skin contact: Immediately clean with water and soap and, if available, apply a generous amount of polyethylene glycol 400.  
 Seek medical attention if 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. Immediately get medical attention.

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

May cause respiratory irritation. Causes skin irritation. May cause an allergic skin reaction. The following symptoms may occur: headache, shortage of breath, drowsiness, cough, dizziness, asthma, Sweating.

After resorption of toxic quantities: cardiovascular disorders, modification of hemogram, Blood pressure drop, Gastric and intestinal problems.

### Information to physician

Treat symptomatically.

Monitor breathing. On irritation of the respiratory system use an aerosol dispenser and treat with 5 doses of dexamethasone aerosol (e.g. Auxiloson, Thomae) every 10 minutes until symptoms cease.

In case of swallowing, gastric irrigation with activated carbon as an additive.

Estimated lethal dose: 30g

## 5. Fire fighting measures

Flash point/flash point range:

50 °F

Auto-ignition temperature: not self-igniting

Suitable extinguishing media:

Water spray jet, foam, dry chemical powder, 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. Heating will lead to pressure increase: Danger of bursting and explosion. Potentially explosive vapor/air mixtures may form.

Polymerization along with heat production.

In case of fire may be liberated: nitrogen oxides (NOx), acetic acid, carbon monoxide and carbon dioxide. Toxic gases may form.

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

In case of major fire and large quantities: Evacuate area. Fight fire remotely due to the risk of explosion.

## 6. Accidental release measures

Personal precautions:

Eliminate all ignition sources if safe to do so.

Avoid contact with the substance. Provide adequate ventilation.

Avoid breathing vapors.

Keep unprotected people away. Wear appropriate protective equipment.

Cordon off downwind area at risk and warn inhabitants.

### Environmental precautions:

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

Danger of explosion!

In case of release, notify competent authorities.

### 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.

### Additional information:

Use only non-sparking tools. Take precautionary measures against static discharges.

## 7. Handling and storage

### Handling

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

Do not breathe vapor or spray. Avoid contact with skin and eyes.

Avoid the formation of aerosol. Wear appropriate protective equipment.

### Precautions against fire and explosion:

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

Take precautionary measures against static discharges.

Ground/bond container and receiving equipment.

Use explosion-proof equipment and non-sparking tools/utensils.

Avoid shock and friction.

Potentially explosive vapor/air mixtures may form.

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

### Storage

#### Requirements for storerooms and containers:

Keep in a cool, well-ventilated place. Keep container dry.

Container should not be closed gas-tight. Keep only in the original container.

Protect against heat /sun rays.

Protect from light.

Provide room air exhaust at ground level.

Store containers in upright position. Explosion protection required.

#### Hints on joint storage:

Do not store together with combustible materials or highly flammable solids.

Do not store together with organic peroxides, ammonia or persulphates.

keep away from acids.

Keep away from food, drink and animal feedingstuffs.

## 8. Exposure controls / personal protection

### Exposure guidelines

#### Occupational exposure limit values:

CAS No.	Designation	Type	Limit value
80-62-6	Methyl methacrylate	USA: ACGIH: STEL	410 mg/m <sup>3</sup> ; 100 ppm
		USA: ACGIH: TWA	205 mg/m <sup>3</sup> ; 50 ppm
		USA: NIOSH: TWA	410 mg/m <sup>3</sup> ; 100 ppm
		USA: OSHA: TWA	410 mg/m <sup>3</sup> ; 100 ppm

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### Engineering controls

Make sure there is sufficient air exchange and / or that working rooms are air suctioned.  
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	Use solvent-resistant protective clothing. In case of handling larger quantities: Flame-resistant antistatic protective clothing Protective gloves according to OSHA Standard - 29 CFR: 1910.138. Glove material: Butyl caoutchouc (butyl rubber). Breakthrough time: >480 min. Unsuitable materials: natural rubber (Caoutchouc), latex. 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 combination filter type A/P according to OSHA Standard - 29 CFR: 1910.134 or ANSI Z88.2.
General hygiene considerations:	Do not breathe vapor or spray. Avoid contact with skin and eyes. When using do not eat, drink or smoke. Keep away from food, drink and animal feedingstuffs. Take off immediately all contaminated clothing. Separate storage of work clothes. Wash hands before breaks and after work.

## 9. Physical and chemical properties

### Information on basic physical and chemical properties

Appearance:	Form: liquid, viscous Color: colorless
Odor:	ester-like
Odor threshold:	No data available
pH value:	No data available
Melting point/freezing point:	No data available
Initial boiling point and boiling range:	213.8 °F
Flash point/flash point range:	50 °F
Evaporation rate:	No data available
Flammability:	Highly flammable liquid and vapor.
Explosion limits:	LEL (Lower Explosion Limit): 2.10 Vol-% UEL (Upper Explosive Limit): (Methyl methacrylate) 12.50 Vol-%
Vapor pressure:	at 68 °F: 47 hPa
Vapor density:	No data available
Density:	at 68 °F: 1.06 g/cm <sup>3</sup>
Solubility:	alcohol
Water solubility:	at 68 °F: 16 g/L
Partition coefficient: n-octanol/water:	No data available
Auto-ignition temperature:	not self-igniting
Thermal decomposition:	No data available

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Explosive properties:	Product is not explosive. Potentially explosive vapor/air mixtures may form.
Ignition temperature:	806 °F
Solid content:	27.1 %

## 10. Stability and reactivity

Reactivity:	Highly flammable liquid and vapor.
Chemical stability:	Stable under recommended storage conditions.
Possibility of hazardous reactions	<p>Vapors are heavier than air and will travel at floor level.</p> <p>In case of fire, explosive mixtures may form with air.</p> <p>Heating will lead to pressure increase: Danger of bursting and explosion.</p> <p>Polymerization along with heat production.</p>
Conditions to avoid:	<p>Keep away from heat, hot surfaces, sparks, open flames and other ignition sources. No smoking.</p> <p>Take precautionary measures against static discharge.</p> <p>Protect from light.</p>
Incompatible materials:	<p>Watch for exothermic reactions with peroxides.</p> <p>Reacts with acids, Radical former.</p> <p>Do not store together with organic peroxides, ammonia or persulphates.</p>
Hazardous decomposition products:	In case of fire may be liberated: nitrogen oxides (NOx), acetic acid, carbon monoxide and carbon dioxide. Toxic gases may form.
Thermal decomposition:	No data available

## 11. Toxicological information

### Toxicological tests

Toxicological effects:	<p>Acute toxicity (oral): Lack of data.</p> <p>Acute toxicity (dermal): Lack of data.</p> <p>Acute toxicity (inhalative): Lack of data.</p> <p>Skin corrosion/irritation: Skin Irritation - Category 2 = Causes skin irritation.</p> <p>Serious eye damage/irritation: Lack of data.</p> <p>Sensitisation to the respiratory tract: Lack of data.</p> <p>Skin sensitisation: Sensitization - skin - Category 1 = May cause an allergic skin reaction.</p> <p>Germ cell mutagenicity/Genotoxicity: Lack of data.</p> <p>Carcinogenicity: Lack of data.</p> <p>Reproductive toxicity: Lack of data.</p> <p>Effects on or via lactation: Lack of data.</p> <p>Specific target organ toxicity (single exposure): Specific Target Organ Toxicity (Single Exposure) - Category 3 = May cause respiratory irritation.</p> <p>Specific target organ toxicity (repeated exposure): Lack of data.</p> <p>Aspiration hazard: Lack of data.</p>
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### Other information:

Following information applies to the component Methyl methacrylate:

LD50 Rat, oral: 7872 mg/kg (OECD 401)

LC50 Rat, inhalative: 7093 ppm/4h = 29,8 mg/L/4h

LD50 Rabbit, dermal: >5000 mg/kg

Irritant effect on the eye: Rabbit: Not an irritant (Draize)

Varying incidences of allergic reactions have been observed in humans. (Symptoms:

Headache, eye irritations, skin problems)

In-vitro Mutagenicity:

Gene-mutations mammalian cells: inconclusive (OECD 476).

Chromosomal aberrations mammalian cells: inconclusive.

Bacterial mutagenicity: negative (Ames test, OECD 471) .

In-vivo Mutagenicity:

Chromosomal aberrations mammalian cells, rat: negative.

Micronucleus test:, Mouse: negative (OECD 474).

Teratogenicity:

Rat, inhalative: 2028 ppm, 6 - 15 d

Product did not show any carcinogenous, mutagenous or teratogenic effects in animal experiments.

Chronic toxicity:

NOAEL (oral), rat: 124.1 mg/kg bw/d.

NOAEC (inhalative), rat: 2028 mg/m<sup>3</sup>.

Target organ: nose

Symptoms: Damage of the mucous membranes in nose, throat and lungs. Degeneration of olfactory epithelia.

Estimated lethal dose: 30g

### Symptoms

Can damage your health.

The following symptoms may occur: Headache, Drowsiness, dizziness, Nausea, Asthma, Loss of appetite, Modification of hemogram, Blood pressure drop, Gastric and intestinal problems, dizziness, Sweating, Danger of respiratory disorders.

After resorption of toxic quantities: cardiovascular disorders, modification of hemogram, Blood pressure drop, Gastric and intestinal problems.

In case of inhalation: Mucous membrane irritation, Cough and shortage of breath.

In case of ingestion: Methyl methacrylate:

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

After eye contact: causes tears

## 12. Ecological information

### Ecotoxicity

Aquatic toxicity: Following information applies to the component Methyl methacrylate:

Algae toxicity:

EC3 *Scenedesmus quadricauda*: 37mg/L/8d (DIN 38412 T.9)

EC50 *Selenastrum capricornutum*: >100mg/L/48h

Bacterial toxicity:

EC0 *Pseudomonas putida*: 100 mg/L

Daphnia toxicity:

EC50 *Daphnia magna* (Big water flea): 69 mg/L, 48h (OECD 202)

NOEC *Daphnia magna* (Big water flea): 37 mg/L/21d (OECD 202)

Fish toxicity:

LC50 *Oncorhynchus mykiss* >79 mg/L/96h (OECD 203)

NOEC *Oncorhynchus mykiss* >40 mg/L/96h (OECD 203)

NOEC *Brachydanio rerio* (zebra-fish): 9,4 mg/kg (OECD 210)

### Mobility in soil

No data available

### Persistence and degradability

Further details: Biodegradation: 94 %/14 d (MMA, OECD 301C)

Product is readily biodegradable.

### Additional ecological information

Volatile organic compounds (VOC):

89 % by weight = 945.6 g/L

General information:

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

## 13. Disposal considerations

### Product

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

### Contaminated packaging

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

Non-contaminated packages may be recycled.



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### 14. Transport information

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

Identification number: UN1133  
 Proper shipping name: UN 1133, UN 1133, adhesives  
 Hazard class or Division: 3  
 Packing Group: II  
 Labels: 3  
 Special provisions: 149, B52, IB2, T4, TP1, TP8  
 Packaging – Exceptions: 150  
 Packaging – Non-bulk: 173  
 Packaging – Bulk: 242  
 Quantity limitations – Passenger aircraft / rail: 5 L  
 Quantity limitations – Cargo only: 60 L  
 Vessel stowage – Location: B  
 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: II  
 EmS: F-E, S-D  
 Special provisions: -  
 Limited quantities: 5 L  
 Excepted quantities: E2  
 Contaminated packaging - Instructions: P001  
 Contaminated packaging - Provisions: PP1  
 IBC - Instructions: IBC02  
 IBC - Provisions: -  
 Tank instructions - IMO: -  
 Tank instructions - UN: T4  
 Tank instructions - Provisions: TP1, TP8  
 Stowage and handling: Category B.  
 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

#### Air transport (IATA)

UN/ID number: UN 1133  
 Proper shipping name: UN 1133, Adhesives  
 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  
 Special provisions: A3  
 Emergency Response Guide-Code (ERG): 3L

### 15. Regulatory information

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

Methyl methacrylate: TSCA Inventory: listed; EPA flags T  
TSCA HPVC: not listed  
TSCA: listed - Flags: T  
Carcinogen Status:  
IARC Rating: Group 3  
OSHA Carcinogen: not listed  
NTP Rating: not listed  
Clean Air Act:  
Hazardous Air Pollutants: Code XOY  
SOCMI Chemical: yes  
Clean Water Act:  
Hazardous Substances: RQ 1000 lbs.  
Other Environmental Laws:  
CERCLA: RQ 1000 lbs.  
RCRA Hazardous Wastes: Code U162  
RCRA Groundwater Monitoring: Methods 8015, 8240 / PQL 2, 5  
SARA Title III Section 313, Toxic Release: Conc. 1.0% / Threshold Standard  
NIOSH Recommendations:  
Occupational Health Guideline: 0426

N,N-bis-(2-hydroxypropyl)-p-toluidine: TSCA Inventory: listed  
TSCA HPVC: not listed  
TSCA: listed

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

Methyl methacrylate: Delaware Air Quality Management List:  
DRQ: 1000 - RQ State: Federal Regulations Apply  
Idaho Air Pollutant List:  
Title 585; AAC: 20,5 - EL: 27,3 - OEL: 410 - Title 586: -  
Massachusetts Haz. Substance Codes: 2,4,5,6 F8 F9  
Main: HAP - 2000  
Minnesota Haz. Substance:  
Codes: AO - Ratings: 3.79 - Status: Air Pollutant. Title III. TRI.  
New Jersey RTK Hazardous Substance:  
DOT: 1247 - Sub No.: 1277  
New York List of Hazardous Substances:  
RQ-Air: 1000 - RQ-Land: 1  
No Note Associated with this chemical  
Pennsylvania Haz. Substance Code: E  
Washington Air Contaminant: TWA: 100 ppm = 410 mg

#### National regulations - Great Britain

Hazchem-Code: •3YE

### 16. Other information

Text for labeling: Contains 50 - 100 % Methyl methacrylate, < 1 % N,N-bis-(2-hydroxypropyl)-p-toluidine.  
Safety data sheet available on request.

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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

Reason of change:

Changes in section 1.3: Corporate headquarters

Date of first version:

10/27/1994

**Department issuing data sheet**

Contact person:

see section 1: Dept. 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.