

1 Identification

Product identifier

Trade name: 170Z5 - Loctite 638

Recommended use and restrictions on use

General use: Adhesive for orthopedic procedures.
Reserved for industrial and professional use.

Initial supplier identifier

Company name: Otto Bock HealthCare Canada Ltd.

Street/POB-No.: 5470 Harvester Road

Postal code, city: Burlington, ON L7L 5N5, CA
Canada

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Department responsible for information:

Mark Agro, Telephone: (800) 665-3327 (9 am - 5 pm)

Additional information:

Corporate headquarters:
Ottobock SE & Co. KGaA
Max-Näder-Straße 15
Duderstadt
Germany

Emergency telephone number

COLLECT, Telephone: (613) 996-6666

2 Hazard identification

Classification

Skin Irritation 2

Eye Damage 1

Sensitization - skin 1

Carcinogenicity 2

Specific Target Organ Toxicity (Single Exposure) 3

Aquatic toxicity - chronic 3

Causes skin irritation.

Causes serious eye damage.

May cause an allergic skin reaction.

Suspected of causing cancer.

May cause respiratory irritation.

Harmful to aquatic life with long lasting effects.

Information elements

Symbols:



Signal word:

Danger

Hazard statements:

- Causes skin irritation.
- May cause an allergic skin reaction.
- Causes serious eye damage.
- May cause respiratory irritation.
- Suspected of causing cancer.
- Harmful to aquatic life with long lasting effects.

Precautionary statements:

- Obtain special instructions before use.
- Avoid breathing mist/vapours/spray.
- Use only outdoors or in a well-ventilated area.
- Wear protective gloves/protective clothing/eye protection/face 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.
- Immediately call a POISON CENTER/doctor.
- If skin irritation occurs: Get medical advice/attention.
- Wash contaminated clothing before reuse.

Other hazards known to the supplier with respect to the product

Special danger of slipping by leaking/spilling product.

3 Composition/Information on ingredients

Mixture

Chemical name: Methacrylate-based adhesive.

Hazardous ingredients:

CAS No.	Designation	Content	Classification
CAS 7779-31-9	3,3,5-Trimethylcyclohexyl Methacrylate	10 - 20 %	not classified
CAS 868-77-9	2-Hydroxyethyl methacrylate	10 - 20 %	Skin Irritation 2. Eye Irritation 2A. Sensitization - skin 1.
CAS 27813-02-1	Methacrylic acid, monoester with propane-1,2-diol	< 5 %	Eye Irritation 2A. Sensitization - skin 1.
CAS 79-10-7	Acrylic acid	< 5 %	Flammable Liquid 3. Acute Toxicity 4 (oral). Acute Toxicity 4 (dermal). Acute Toxicity 4 (inhalative). Skin Corrosion 1A. Specific Target Organ Toxicity (Single Exposure) 3. Aquatic toxicity - acute 1. Aquatic toxicity - chronic 2.
CAS 80-15-9	Cumene hydroperoxide	< 1 %	Organic Peroxide E. Acute Toxicity 4 (oral). Acute Toxicity 4 (dermal). Acute Toxicity 3 (inhalative). Skin Corrosion 1B. Specific Target Organ Toxicity (Repeated Exposure) 2. Aquatic toxicity - chronic 2.
CAS 114-83-0	1-Acetyl-2-phenylhydrazine	< 1 %	Acute Toxicity 3 (oral). Skin Irritation 2. Eye Irritation 2A. Sensitization - skin 1. Carcinogenicity 2. Specific Target Organ Toxicity (Single Exposure) 3.
CAS 110-16-7	Maleic acid	< 1 %	Acute Toxicity 4 (oral). Acute Toxicity 4 (dermal). Skin Irritation 2. Eye Irritation 2A. Sensitization - skin 1. Specific Target Organ Toxicity (Single Exposure) 3.
CAS 109-16-0	2,2'-Ethylenedioxydiethyl dimethacrylate	< 1 %	Sensitization - skin 1.
CAS 79-41-4	Methacrylic acid	< 1 %	Acute Toxicity 4 (oral). Acute Toxicity 3 (dermal). Acute Toxicity 4 (inhalative). Skin Corrosion 1A.

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

Additional information: Odour threshold: 0,1 ppm (acrylic acid).

4 First-aid measures

Description of necessary first-aid measures

General information: First aider: Pay attention to self-protection!
If medical advice is needed, have product container or label at hand. Take off immediately all contaminated clothing.

In case of inhalation: Move victim to fresh air.
Seek medical attention if problems persist.

- In case of swallowing: Rinse mouth immediately and drink plenty of water. Do not induce vomiting. Consult physician.
- In case of skin contact: Take off immediately all contaminated clothing and wash it before reuse. After contact with skin, wash immediately with soap and plenty of water. Subsequently consult physician.
- In case of 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.

Most important symptoms and effects, whether acute or delayed

Causes skin irritation. May cause an allergic skin reaction. Causes serious eye damage. May cause respiratory irritation.

Indication of immediate medical attention and special treatment needed, if necessary

Treat symptomatically.

5 Fire-fighting measures

Suitable and unsuitable extinguishing media

Suitable extinguishing media:

Carbon dioxide, extinguishing powder, foam.

Unsuitable extinguishing media:

full water jet

Specific hazards arising from the product

In case of fire may be liberated: Sulphur oxides, nitrogen oxides (NO_x), carbon monoxide and carbon dioxide.

Special protective equipment and precautions for fire-fighters

Wear self-contained positive pressure breathing apparatus and full firefighting protective clothing.

6 Accidental release measures

Personal precautions, protective equipment and emergency procedures

Provide adequate ventilation. Avoid contact with skin and eyes. Avoid breathing mist/vapours/spray.

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

Keep away from sources of ignition - No smoking.

Environmental precautions:

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

Methods and material for containment and cleaning up

Smaller amounts: Wash with generous amount of water and soap.

Large amounts: Take up with non-flammable, liquid binding material (e.g. sand/earth/diatomaceous earth/vermiculit) and perform disposal according to instructions.

Special waste.

Clean contaminated area with soap and water. Provide adequate ventilation.

Additional information:

Special danger of slipping by leaking/spilling product.

7 Handling and storage

Precautions for safe handling

Advices on safe handling: Provide adequate ventilation, and local exhaust as needed.
Avoid breathing mist/vapours/spray.
Wear appropriate protective equipment. Take off immediately all contaminated clothing and wash it before reuse.
Wash hands thoroughly after handling. Do not eat, drink or smoke when using this product.
When handling large quantities, supply emergency spray.

Precautions against fire and explosion:

Keep away from sources of ignition - No smoking.

Conditions for safe storage, including any incompatibilities

Requirements for storerooms and containers:

Keep only in the original container. Do not return unused portions of product to original container.

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

Hints on joint storage:

Do not store together with oxidizing agents or strong acids.

8 Exposure controls/Personal protection

Control parameters

Occupational exposure limit values:

CAS No.	Designation	Type	Limit value
79-10-7	Acrylic acid	Canada: Alberta, OEL 8 hour	5.9 mg/m ³ ; 2 ppm (may be absorbed through the skin)
		Canada: BC, OEL TWA	2 ppm (may be absorbed through the skin)
		Canada: Québec, VEMP	5.9 mg/m ³ ; 2 ppm (may be absorbed through the skin)
79-41-4	Methacrylic acid	Canada: Alberta, OEL 8 hour	70 mg/m ³ ; 20 ppm
		Canada: BC, OEL TWA	20 ppm
		Canada: Québec, VEMP	70 mg/m ³ ; 20 ppm

Appropriate engineering controls

Provide local exhaust as close as possible to point of adhesion.

Individual protection measures, such as personal protective equipment

Respiratory protection: Respiratory protection must be worn whenever the TLV (WEL) levels have been exceeded. Use filter type A according to OSHA Standard - 29 CFR: 1910.134 or ANSI Z88.2.

Hand protection: 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.

Eye protection: tightly sealed goggles according to OSHA Standard - 29 CFR: 1910.133 or ANSI Z87.1-2010.

Body protection: Wear suitable protective clothing.

General hygiene considerations:

Use only in well-ventilated areas. Avoid breathing mist/vapours/spray.
When using do not eat, drink or smoke.
Keep away from food and drinks.
Avoid contact with skin and eyes. Take off immediately all contaminated clothing and wash it before reuse.
Wash hands before breaks and after work.
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

Physical state at 20 °C and 101.3 kPa	liquid
Colour:	green
Odour:	characteristic, irritant
Odour threshold:	No data available
Melting point and freezing point:	No data available
Boiling point or initial boiling point and boiling range:	No data available
Flammability:	No data available
Lower and upper explosion limit or lower and upper flammability limit:	No data available
Flash point/flash point range:	93.3 °C
Evaporation rate:	No data available
Auto-ignition temperature:	No data available
Decomposition temperature:	No data available
pH:	No data available
Solubility:	soluble in acetone
Water solubility:	insoluble
Partition coefficient — n-octanol/water:	No data available
Vapour pressure:	no data available
Density and/or relative density	1.1 g/mL
Vapour density:	No data available
Particle characteristics:	Not applicable

Additional information

Explosive properties:	no data available
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10 Stability and reactivity

Reactivity:	Refer to subsection "Possibility of hazardous reactions".
Chemical stability:	Stable under recommended storage conditions.
Possibility of hazardous reactions:	Reacts with strong acids and strong oxidizing agents.

Conditions to avoid: No data available

Incompatible materials: keep away from strong acids and strong oxidizing agents.

Hazardous decomposition products:
Sulphur oxides, nitrogen oxides (NO_x), carbon monoxide and carbon dioxide.

11 Toxicological information

Information on the likely routes of exposure

No data available

Health hazard information

Acute toxicity (oral): Lack of data.

Acute toxicity (dermal): Lack of data.

Acute toxicity (inhalative): Lack of data.

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

Serious eye damage/irritation: Eye Damage 1 = Causes serious eye damage.

Sensitisation to the respiratory tract: Lack of data.

Skin sensitisation: Sensitization - skin 1 = May cause an allergic skin reaction.

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

Carcinogenicity: Carcinogenicity 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) 3 = May cause respiratory irritation.

Specific target organ toxicity (repeated exposure): Based on available data, the classification criteria are not met. Information about 2,2'-Ethylenedioxydiethyl dimethacrylate:

Specific symptoms in animal studies, Rat, oral: NOAEL = 1,000 mg/kg/d (OECD 422, read across)

Information about 2-Hydroxyethyl methacrylate:

Specific symptoms in animal studies, Rat, oral: NOAEL = 100 mg/kg/d (OECD 422, read across)

Aspiration hazard: Lack of data.

Other information:

Information about 2-Hydroxyethyl methacrylate

Acute toxicity:

LD50 Rat, oral > 5,000 mg/kg

LD50 Rabbit, dermal > 5,000 mg/kg

Information about Cumene hydroperoxide:

Acute toxicity:

LD50 Rat, oral 550 mg/kg

LD50, dermal 1,200 - 1,520 mg/kg

Information about Methacrylic acid:

LD50 Rat, oral > 1,320 mg/kg (OECD 401, read across)

LD50 dermal 500 mg/kg (ATE)

LC50 Rat, inhalative (aerosol) 11 mg/L/4h (OECD 403, read across)

Information about Acrylic acid:

LD50 Rat, oral 1,500 mg/kg (BASF-test, read across)

LD50 Rabbit dermal > 2,000 mg/kg (OECD 402, read across)

LC50, inhalative (vapour) 11 mg/L (ATE)

Information about Maleic acid:

LD50 Rat, oral 708 mg/kg

LD50 Rabbit dermal 1,560 mg/kg

Information about 2,2'-Ethylenedioxydiethyl dimethacrylate

Acute toxicity:

LD50 Rat, oral 10,837 mg/kg

LD50 Mouse, dermal > 2,000 mg/kg

Symptoms

In case of inhalation:

Irritant. cough, shortness of breath, shortage of breath, cramp feeling in breast.

After contact with skin: Irritation and redness may occur.

12 Ecological information

Ecotoxicity

Aquatic toxicity:

Harmful to aquatic life with long lasting effects.

Cumene hydroperoxide:

Algae toxicity: *Pseudokirchneriella subcapitata* (green algae): ErC 3.1 mg/L/72h, OECD 201, read across

Daphnia toxicity: *Daphnia magna* (Big water flea) EC50: 18 mg/L/48h, OECD 202, read across

Fish toxicity: *Oncorhynchus mykiss* LC50: 3.9 mg/L/96h, OECD 203, read across

Acrylic acid:

Algae toxicity: *Desmodesmus subspicatus* (green algae): EC10 0.03 mg/L/72h, OECD 201, read across

Algae toxicity: *Desmodesmus subspicatus* (green algae): EC50 0.13 mg/L/72h, OECD 201, read across

Daphnia toxicity: *Daphnia magna* (Big water flea) NOEC: 19 mg/L/21d, EPA OTS 797.1330, read across

Fish toxicity: *Oncorhynchus mykiss* LC50: 27 mg/L/96h, EPA OTS 797.1400, read across

Bacterial toxicity: EC10: 41 mg/L/16h

Persistence and degradability

Further details: Product is not biodegradable.
 Acrylic acid:
 Biodegradation: 81% (OECD 301D, read across)
 Product is readily biodegradable.
 Biodegradation: aerobic, 100% (OECD 302 B, read across)
 Cumene hydroperoxide: Degradation: 0 %, OECD 301 B, read across

Bioaccumulative potential

Cumene hydroperoxide: Distribution coefficient: 2.16
 Acrylic acid: Distribution coefficient: 0.46 (OECD 107, read across)
 Bioconcentration factor (BCF):
 Cumene hydroperoxide: Bioconcentration factor (BCF): 9.1, OECD 305, read across
 Acrylic acid: Bioconcentration factor (BCF): 3.16

Mobility in soil

No data available

Other adverse effects

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

13 Disposal considerations

Waste treatment methods

Product

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

Package

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

14 Transport information

UN number

TDG, IMDG, IATA-DGR: not applicable

UN proper shipping name

TDG, IMDG, IATA-DGR: No dangerous good in sense of this transport regulation.

Transport hazard class

TDG, IMDG, IATA-DGR: not applicable

Packing group

TDG, IMDG, IATA-DGR: not applicable

Environmental hazards

Marine pollutant: no

Special precautions in connection with transport or conveyance either within or outside the premises

Canada: Transportation of Dangerous Goods (TDG)

Shipping name: No dangerous good in sense of this transport regulation.

Sea transport (IMDG)

Proper shipping name: No dangerous good in sense of this transport regulation.

Marine pollutant: no

Air transport (IATA)

Proper shipping name: No dangerous good in sense of this transport regulation.

Further information

No dangerous good in sense of these transport regulations.

15 Regulatory information

National regulations - Canada

3,3,5-Trimethylcyclohexyl Methacrylate:	NDSL: listed
2-Hydroxyethyl methacrylate:	DSL: listed
Methacrylic acid, monoester with propane-1,2-diol:	DSL: listed
Acrylic acid:	DSL: listed
Cumene hydroperoxide:	DSL: listed
1-Acetyl-2-phenylhydrazine:	DSL: listed
Maleic acid:	DSL: listed
2,2'-Ethylenedioxydiethyl dimethacrylate:	DSL: listed
Methacrylic acid:	DSL: listed

Further regulations, limitations and legal requirements

No data available

16 Other information

Revision date:	17/12/2025
Date of first version:	26/6/2017
Reason of change:	General revision: Safety Data Sheet according to Hazardous Products Regulations (HPR) 2022

Abbreviations and acronyms:

Acute Toxicity: Acute toxicity
 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
 BCF: Bioconcentration Factor
 Carcinogenicity: Carcinogenicity
 CAS: Chemical Abstracts Service
 CFR: Code of Federal Regulations
 CLP: Classification, Labelling and Packaging
 DMEL: Derived minimal effect level
 DNEL: Derived no-effect level
 DSL: Domestic Substances List
 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%
 MARPOL: Maritime Pollution: The International Convention for the Prevention of Pollution from Ships
 NDNL: Non-Domestic Substances List
 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
 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
 TDG: Transportation of Dangerous Goods Regulation in Canada
 TLV: Threshold Limit Value
 TRGS: Technical Rules for Hazardous Substances
 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.