

1. Product and company identification

Product identifier

Trade name: 617H5 - Orthopox Epoxy Resin

Recommended use and restrictions on use

General use: For orthopedic procedures, for producing molds.

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

WWW: www.ottobock.ca

E-mail: info.canada@ottobock.com

Telephone: (800) 665-3327

Telefax: (800) 463-3659

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 phone number

COLLECT, Telephone: (613) 996-6666

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 20 °C and 101.3 kPa: liquid

Color: Colorless-light yellow

Odor: No data available

Classification: Skin Irritation 2. Eye Irritation 2A. Sensitization - skin 1. Reproductive toxicity 1B.
Aquatic toxicity - chronic 2.

Hazard symbols:



Signal word: **Danger**

Hazard statements: Causes skin irritation.

May cause an allergic skin reaction.

Causes serious eye irritation.

May damage fertility.

Toxic to aquatic life with long lasting effects.

Precautionary statements:

Obtain special instructions before use.
 Avoid breathing mist/vapors/spray.
 Wash hands and face thoroughly after handling.
 Avoid release to the environment.
 Wear protective gloves/protective clothing/eye protection.
 IF exposed or concerned: Get medical advice/attention.
 Take off contaminated clothing and wash it before reuse.
 Collect spillage.

Regulatory status

This material is considered hazardous by the WHMIS in Canada.

Hazards not otherwise classified

Special danger of slipping by leaking/spilling product.
 see section 11: Toxicological information

3. Composition / Information on ingredients

Chemical characterisation: Bisphenol A epoxy resin-composition

Relevant ingredients:

CAS No.	Designation	Concentration	Classification
CAS 1675-54-3	Bis-[4-(2,3-Epoxypropoxy)phenyl]propane	25 - 50 %	Skin Irritation 2. Eye Irritation 2A. Sensitization - skin 1. Aquatic toxicity - chronic 2.
CAS -	Reaction mass of 2,2'-[methylenebis(2,1-phenyleneoxymethylene)]bis(oxirane) and 2,2'-[methylenebis(4,1-phenyleneoxymethylene)]bis(oxirane) and 2-({2-[4-(oxiran-2-ylmethoxy)benzyl]phenoxy}methyl)oxirane	25 - 50 %	Skin Irritation 2. Sensitization - skin 1. Aquatic toxicity - chronic 2.
CAS 2425-79-8	1,4-Bis(2,3-epoxypropoxy)butane	10 - 25 %	Acute Toxicity 4 (oral). Acute Toxicity 4 (dermal). Acute Toxicity 4 (inhalative). Skin Irritation 2. Eye Irritation 2A. Sensitization - skin 1. Reproductive toxicity 1B. Aquatic toxicity - chronic 3.

4. 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 contaminated clothing and wash it before reuse.

In case of inhalation:	If breathing is difficult, remove victim to fresh air and keep at rest in a position comfortable for breathing. Seek medical attention if problems persist. If unconscious place in recovery position and seek medical advice.
Following skin contact:	Immediately clean with water and soap followed by thorough rinsing. 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 consult an ophthalmologist.
After swallowing:	Rinse mouth immediately and drink plenty of water. Never give anything by mouth to an unconscious person. Do not induce vomiting. In case of vomiting, position victim on their side. Keep airway open. Immediately get medical attention.

Most important symptoms and effects, both acute and delayed

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

Information to physician

Treat symptomatically.

For specialist advice physicians should contact the Poisons Information Service.

5. Fire fighting measures

Flash point/flash point range:

No data available

Auto-ignition temperature:

No data available

Suitable extinguishing media:

Water spray jet, carbon dioxide (CO₂), alcohol resistant foam, extinguishing powder.

Extinguishing media which must not be used for safety reasons:

Full water jet

Specific hazards arising from the chemical

May form dangerous gases and vapors in case of fire.

Furthermore, there may develop: Halogenated compounds, Carbon monoxide and carbon dioxide.

Special protective equipment and precautions for fire-fighters:

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

Additional information:

Heating will lead to pressure increase: Danger of bursting and explosion. Keep containers cool with water spray.

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

Do not allow fire water to penetrate into surface or ground water.

Fire residuals and contaminated extinguishing water must be disposed of in accordance with the regulations of the local authorities.

6. Accidental release measures

Personal precautions:

Avoid exposure. Do not breathe mist/vapors/spray. Avoid contact with the substance.
If possible, eliminate leakage. Provide adequate ventilation.

Wear appropriate protective equipment. Take off contaminated clothing and wash it before reuse. Keep unprotected people away.

Environmental precautions:

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

Methods for clean-up:

Isolate leaked material using non-flammable absorption agent (e.g. sand, earth, vermiculit, diatomaceous earth) and collect it for disposal in appropriate containers in accordance with the local regulations (see section 13). Never return spills in original containers for re-use.

Additional information:

Special danger of slipping by leaking/spilling product.

7. Handling and storage

Handling

Advices on safe handling:

Obtain special instructions before use.

Provide adequate ventilation, and local exhaust as needed. Do not breathe mist/vapors/spray. Do not get in eyes, on skin, or on clothing. Wear appropriate protective equipment.

Do not eat, drink or smoke when using this product. Wash hands thoroughly after handling. Take off immediately all contaminated clothing and wash it before reuse.

Work place should be equipped with a shower and an eye rinsing apparatus.

Precautions against fire and explosion:

Keep away from heat.

When handling larger quantities, take precautionary measures against electrostatic charging.

Keep away from sources of ignition - No smoking.

Storage

Requirements for storerooms and containers:

Keep container tightly closed and in a well-ventilated place.

Keep container dry. Keep only in the original container.

Protect from heat and direct sunlight.

Store containers in upright position.

Hints on joint storage:

Keep away from food, drink and animal feedingstuffs.

Do not store together with: Strong oxidizing agents

8. Exposure controls / personal protection

Engineering controls

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

Protective gloves according to OSHA Standard - 29 CFR: 1910.138.

Glove material: butyl caoutchouc (butyl rubber)

Observe glove manufacturer's instructions concerning penetrability and breakthrough time.

Respiratory protection: In case of inadequate ventilation wear respiratory protection.
The filter class must be suitable for the maximum contaminant concentration (gas/vapour/aerosol/particulates) that may arise when handling the product. If the concentration is exceeded, self-contained breathing apparatus must be used.
Recommendation: Use filter type A (= against vapors of organic substances) according to OSHA Standard - 29 CFR: 1910.134 or ANSI Z88.2.

General hygiene considerations:
Obtain special instructions before use.
Do not breathe mist/vapors/spray. Do not get in eyes, on skin, or on clothing.
Take off immediately all contaminated clothing and wash it before reuse.
Do not eat, drink or smoke when using this product.
Wash hands thoroughly after handling.
Work place should be equipped with a shower and an eye rinsing apparatus.

People who suffer from skins problems, asthma, allergies, chronic or recurring respiratory illnesses must not be deployed in processes, which use this mixture.

Environmental exposure controls

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

9. Physical and chemical properties

Information on basic physical and chemical properties

Appearance:	Physical state at 20 °C and 101.3 kPa: liquid Color: Colorless-light yellow
Odor:	No data available
Odor threshold:	No data available
pH:	No data available
Melting point/freezing point:	No data available
Initial boiling point and boiling range:	No data available
Flash point/flash point range:	No data available
Evaporation rate:	No data available
Flammability:	No data available
Explosion limits:	No data available
Vapor pressure:	No data available
Vapor density:	No data available
Density:	No data available
Solubility:	No data available
Partition coefficient: n-octanol/water:	2.64 - 3.78 log P(o/w) (Bis-[4-(2,3-Epoxypropoxi)phenyl]propane) Based on the n-octanol/water partition coefficient significant accumulation in organisms is not expected. -0.269 - 0.15 log P(o/w) (1,4-Bis(2,3-epoxypropoxy)butane) Based on the n-octanol/water partition coefficient accumulation in organisms is not expected. 3.3 log P(o/w) (Reaction mass of 2,2'-[methylenebis(2,1-phenyleneoxymethylene)]bis(oxirane) and 2,2'-[methylenebis(4,1-phenyleneoxymethylene)]bis(oxirane) and 2-([2-[4-(oxiran-2-ylmethoxy)benzyl]phenoxy)methyl]oxirane) Based on the n-octanol/water partition coefficient significant accumulation in organisms is not expected.

Auto-ignition temperature: No data available

Thermal decomposition: No data available

Additional information: No data available

10. Stability and reactivity

Reactivity: Refer to subsection "Possibility of hazardous reactions".

Chemical stability: Stable under recommended storage conditions.

Possibility of hazardous reactions:
No dangerous reactions are known.

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

Incompatible materials: Strong oxidizing agents.

Hazardous decomposition products:
No decomposition when used properly.

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: > 5,000 mg/kg

Acute toxicity (dermal): Based on available data, the classification criteria are not met.
ATEmix: > 5,000 mg/kg

Acute toxicity (inhalative): Based on available data, the classification criteria are not met.
ATEmix, vapors: > 50 mg/L

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

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

Sensitisation to the respiratory tract: Lack of data.

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

Germ cell mutagenicity/Genotoxicity: Lack of data.

Carcinogenicity: Lack of data.

Reproductive toxicity: Reproductive toxicity 1B = May damage fertility.

Effects on or via lactation: Lack of data.

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

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

Aspiration hazard: Lack of data.

Other information:

Information about Bis-[4-(2,3-Epoxypropoxy)phenyl]propane (CAS No. 1675-54-3):

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

LD50 Rabbit, dermal: > 23,000 mg/kg

Information about Reaction mass of

2,2'-[methylenebis(2,1-phenyleneoxymethylene)]bis(oxirane) and

2,2'-[methylenebis(4,1-phenyleneoxymethylene)]bis(oxirane) and

2-({2-[4-(oxiran-2-ylmethoxy)benzyl]phenoxy}methyl)oxirane (List number 701-263-0):

LD50 Rat, oral: > 5,000 mg/kg (OECD 401, no mortality occurred)

LD50 Rat, dermal: > 2,000 mg/kg (OECD 402, no mortality occurred)

Information about 1,4-Bis(2,3-epoxypropoxy)butane (CAS No. 2425-79-8):

LD50 Rat, oral: 1.163 mg/kg (OECD 401)

LD50 Rat, dermal: > 2,150 mg/kg (OECD 402, no mortality occurred)

LD50 Rabbit, dermal: 1,130 mg/kg

ATE inhalative, vapors: 11 mg/L

Symptoms

After sensitization even concentrations below the exposure limit values may cause asthma.

Other symptoms: Reduced fetal weight, weight increase, increase in skeletal deformities

In case of ingestion:

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

After contact with skin: Irritation, redness

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

12. Ecological information

Ecotoxicity

Aquatic toxicity:

Toxic to aquatic life with long lasting effects.

Information about Bis-[4-(2,3-Epoxypropoxy)phenyl]propane (CAS No. 1675-54-3):

Fish toxicity:

LC50 Oncorhynchus mykiss: 2.0 mg/L/96h (geometric mean concentration)

Daphnia toxicity:

EC50 Daphnia magna (Big water flea): 1.8 mg/L/48h (geometric mean concentration)

NOEC Daphnia magna (Big water flea): 0.3 mg/L/21d (OECD 211)

Algae toxicity:

EC50 Scenedesmus capricornutum, growth rate: > 11 mg/L/72h (maximum achievable concentration)

NOEC Scenedesmus capricornutum, growth rate: 4.2 mg/L/72h

Information about Reaction mass of

2,2'-[methylenebis(2,1-phenyleneoxymethylene)]bis(oxirane) and

2,2'-[methylenebis(4,1-phenyleneoxymethylene)]bis(oxirane) and

2-({2-[4-(oxiran-2-ylmethoxy)benzyl]phenoxy}methyl)oxirane (List number 701-263-0):

Fish toxicity:

LC50: 2.54 mg/L/96h

Daphnia toxicity:

EC50 Daphnia magna (Big water flea): 2.55 mg/L/48h

NOEC Daphnia magna (Big water flea): 0.3 mg/L/21d (OECD 211)

Algae toxicity:

EC50 Selenastrum capricornutum (green algae), growth rate: 1.8 mg/L/72h

Mobility in soil

No data available

Persistence and degradability

Further details: Product is not readily biodegradable.

Additional ecological information

AOX reference: The product contains organically bound halogen. Thus it may add to the AOX value.

Volatile organic compounds (VOC):

0 % by weight

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

13. Disposal considerations

Product

Recommendation: Do not dispose of with household waste.
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.
Non-contaminated packages may be recycled.

14. Transport information

UN number

ADR/RID, IMDG, IATA-DGR:

UN 3082

UN proper shipping name

ADR/RID, IMDG, IATA-DGR:

UN 3082, ENVIRONMENTALLY HAZARDOUS SUBSTANCE, LIQUID, N.O.S.
(Bisphenol-A epoxy resin (average molecular weight ≤ 700)
Bisphenol-F-epichlorohydrine resin (molecular weight ≤ 700))

Transport hazard class(es)

ADR/RID: Class 9, Code: M6

IMDG: Class 9, Subrisk -

IATA-DGR: Class 9

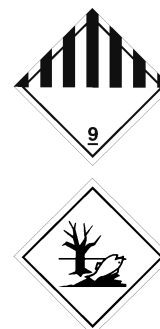
Packing group

ADR/RID, IMDG, IATA-DGR:

III

Environmental hazards

Marine pollutant: yes



Transport in bulk according to Annex II of MARPOL 73/78 and the IBC Code

No data available

Canada: Transportation of Dangerous Goods (TDG)

UN Number: UN3082
 Shipping name: UN 3082,
 ENVIRONMENTALLY HAZARDOUS SUBSTANCE, LIQUID, N.O.S.
 (Bisphenol-A epoxy resin (average molecular weight ≤ 700)
 Bisphenol-F-epichlorhydrine resin (molecular weight ≤ 700))
 TDG class: 9
 Packing group: III
 Special provisions: 16, 99
 Explosive limit and limited quantity index: 5 L
 Marine pollutant: P

Sea transport (IMDG)

UN number: UN 3082
 Proper shipping name: UN 3082,
 ENVIRONMENTALLY HAZARDOUS SUBSTANCE, LIQUID, N.O.S.
 (Bisphenol-A epoxy resin (average molecular weight ≤ 700)
 Bisphenol-F-epichlorhydrine resin (molecular weight ≤ 700))
 Class or division, Subsidiary risk: Class 9, Subrisk -
 Packing Group: III
 EmS: F-A, S-F
 Special Provisions: 274 335 375 969
 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: T4
 Tank instructions - Provisions: TP1, TP29
 Stowage and handling: Category A.
 Properties and observations: -
 Marine pollutant: yes
 Segregation group: none

Air transport (IATA)

UN/ID number: UN 3082
 Proper shipping name: UN 3082,
 ENVIRONMENTALLY HAZARDOUS SUBSTANCE, LIQUID, N.O.S.
 (Bisphenol-A epoxy resin (average molecular weight ≤ 700)
 Bisphenol-F-epichlorhydrine resin (molecular weight ≤ 700))
 Class or division, Subsidiary risk: Class 9
 Packing Group: III
 Hazard label: Miscellaneous & Environmentally hazardous
 Excepted Quantity Code: E1
 Passenger and Cargo Aircraft: Ltd.Qty.: Pack.Instr. Y964 - Max. Net Qty/Pkg. 30 kg G
 Passenger and Cargo Aircraft: Pack.Instr. 964 - Max. Net Qty/Pkg. 450 L
 Cargo Aircraft only: Pack.Instr. 964 - Max. Net Qty/Pkg. 450 L
 Special Provisions: A97 A158 A197 A215
 Emergency Response Guide-Code (ERG): 9L

Further information

Make sure that persons transporting the product know what to do in case of an accident or leakage.

15. Regulatory information

National regulations - Canada

Bis-[4-(2,3-Epoxypropoxy)phenyl]propane: DSL: listed

1,4-Bis(2,3-epoxypropoxy)butane: DSL: listed

16. Other information

Text for labeling:

Contains 25 - 50 % Bis-[4-(2,3-Epoxypropoxy)phenyl]propane, 25 - 50 % Reaction mass of 2,2'-[methylenebis(2,1-phenyleneoxymethylene)]bis(oxirane) and 2,2'-[methylenebis(4,1-phenyleneoxymethylene)]bis(oxirane) and 2-({2-[4-(oxiran-2-ylmethoxy)benzyl]phenoxy)methyl}oxirane, 10 - 25 % 1,4-Bis(2,3-epoxypropoxy)butane.

Restricted to professional users.

Hazard rating systems:



NFPA Hazard Rating:

Health: 1 (Slight)

Fire: 1 (Slight)

Reactivity: 0 (Minimal)

HMIS Version III Rating:

Health: 1 (Slight)

Flammability: 1 (Slight)

Physical Hazard: 0 (Minimal)

Personal Protection: X = Consult your supervisor

HEALTH	1
FLAMMABILITY	1
PHYSICAL HAZARD	0
	X

Classification procedure:

Physical hazards: on basis of test data

Health hazards, environmental hazards: calculation method

Abbreviations and acronyms:

Acute Toxicity: Acute toxicity
 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
 AOX: Adsorbable Organic Halogens
 Aquatic toxicity - chronic: Hazardous to the aquatic environment - chronic
 AS/NZS: Australian Standards/New Zealand Standards
 ATE: Acute toxicity estimate
 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
 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%
 log P(o/w): Partition coefficient: octanol/water
 MARPOL: Maritime Pollution: The International Convention for the Prevention of Pollution from Ships
 MFSU: Manufacture, formulation, supply and use
 NOEC: No Observed Effect Concentration
 OECD: Organisation for Economic Co-operation and Development
 OSHA: Occupational Safety and Health Administration
 PBT: Persistent, bioaccumulative and toxic
 PNEC: Predicted no-effect concentration
 Reproductive toxicity: Reproductive toxicity
 RID: Regulations Concerning the International Carriage of Dangerous Goods by Rail
 Sensitization - skin: Skin sensitisation
 Skin Irritation: Skin irritation
 TRGS: Technical Rules for Hazardous Substances
 UN: United Nations
 vPvB: Very persistent and very bioaccumulative
 WHMIS: Workplace Hazardous Materials Information System

Reason of change: Changes in section 2: Classification, labeling
 Changes in section 3: Composition/information on ingredients
 Changes in section 11: Toxicological information
 Changes in section 12: Ecological information
 Changes in section 14: IMDG 2025
 General revision

Date of first version: 17/1/2018

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.