

## 617H19 - ORTHOCRYL Lamination Resin

Material number 617H19

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### 1 Identification

#### Product identifier

Trade name: 617H19 - ORTHOCRYL Lamination Resin

#### Recommended use and restrictions on use

General use: Lamination resin 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  
WWW: www.ottobock.ca  
Email: 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 telephone number

**COLLECT, Telephone: (613) 996-6666**  
**Transport:**  
**CONSULTANK Lutz Harder GmbH (Contract QUALI003)**  
**Telephone: +49 (0)178-4337434 (from USA: 01149 178 4337434)**

### 2 Hazard identification

#### Classification

Flammable Liquid 2	Highly flammable liquid and vapour.
Skin Irritation 2	Causes skin irritation.
Sensitization - skin 1	May cause an allergic skin reaction.
Specific Target Organ Toxicity (Single Exposure) 3	May cause respiratory irritation.

#### Information elements

Symbols:



Signal word:

**Danger**

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Hazard statements: Highly flammable liquid and vapour.  
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 mist/vapours/spray.  
Wear protective gloves/protective clothing/eye protection.  
Call a POISON CENTER/doctor if you feel unwell.  
Take off contaminated clothing and wash it before reuse.  
Store in a well-ventilated place. Keep cool.

### Other hazards known to the supplier with respect to the product

Due to reducing substances and heavy metal ions polymerization with heat generation may occur. Take precautionary measures against static discharge.  
Potentially explosive mixtures may form if adequate ventilation is not provided. Higher doses may lead to a narcotic effect.  
Special danger of slipping by leaking/spilling product.

## 3 Composition/Information on ingredients

### Mixture

Chemical name: Solution of acrylic polymers in methylmethacrylate, containing softener. (MMA)

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Hazardous ingredients:

CAS No.	Designation	Content	Classification
CAS 80-62-6	Methyl methacrylate	50 - 100 %	Flammable Liquid 2. Skin Irritation 2. Sensitization - skin 1. Specific Target Organ Toxicity (Single Exposure) 3.
CAS 109-16-0	2,2'-Ethylenedioxydiethyl dimethacrylate	< 5 %	Sensitization - skin 1.
CAS 123-81-9	Ethylene di(S-thioacetate)	< 1 %	Acute Toxicity 4 (oral). Acute Toxicity 4 (dermal). Acute Toxicity 4 (inhalative). Eye Irritation 2A. Sensitization - skin 1. Specific Target Organ Toxicity (Single Exposure) 3.
CAS 141-32-2	n-Butyl acrylate	< 1 %	Flammable Liquid 3. Acute Toxicity 4 (inhalative). Skin Irritation 2. Eye Irritation 2A. Sensitization - skin 1. Specific Target Organ Toxicity (Single Exposure) 3. Aquatic toxicity - chronic 3.
CAS 38668-48-3	1,1'-(p-Tolylimino) dipropan-2-ol	< 1 %	Acute Toxicity 2 (oral). Eye Irritation 2A. Aquatic toxicity - acute 3. Aquatic toxicity - chronic 3.

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

### 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 contaminated clothing and wash it before reuse.
In case of inhalation:	Move victim to fresh air, put at rest and loosen restrictive clothing. Seek medical attention.
In case of swallowing:	Rinse mouth immediately and drink plenty of water. Never give anything by mouth to an unconscious person. Do not induce vomiting. Immediately get medical attention.
In case of skin contact:	After contact with skin, wash immediately with soap and plenty of water. In case of skin reactions, consult a 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 consult an ophthalmologist.

#### Most important symptoms and effects, whether acute or delayed

May cause an allergic skin reaction. Causes skin irritation. May cause respiratory irritation. In case of inhalation: mucous membrane irritation, Cough and shortage of breath. In case of prolonged exposure: headache, drowsiness.

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

Monitor breathing.  
Treat symptomatically.

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### 5 Fire-fighting measures

#### Suitable and unsuitable extinguishing media

Suitable extinguishing media:

Foam, extinguishing powder, carbon dioxide

Unsuitable extinguishing media:

Full water jet

#### Specific hazards arising from the product

Highly flammable liquid and vapour. Concentrated vapours are heavier than air. Explosive mixtures with air may even form at room temperature.

In case of fire may be liberated: Organic materials, sulphur oxides, 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:

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.

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, protective equipment and emergency procedures

Eliminate all ignition sources if safe to do so. Plug leak if safely possible. Provide adequate ventilation.

Wear appropriate protective equipment. Take off contaminated clothing and wash it before reuse. Avoid contact with skin and eyes.

Avoid breathing mist/vapours/spray. When vapours form, use respiratory protection. Keep unprotected people away.

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 and material for containment and cleaning up

Smaller amounts: Soak up with absorbent materials such as sand, siliceous earth, acid- or universal binder. Store in special closed containers and dispose of according to ordinance.

In case of greater quantities: Collect mechanically (use only explosion-proof equipment when pumping out).

Additional information:

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

Special danger of slipping by leaking/spilling product.

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### 7 Handling and storage

#### Precautions for safe handling

Advices on safe handling: Provide adequate ventilation, and local exhaust as needed.  
Provide room air exhaust at ground level. Concentrated vapours are heavier than air.  
Wear appropriate protective equipment. Avoid contact with skin and eyes.  
Avoid breathing mist/vapours/spray. When vapours form, use respiratory protection.  
Take off contaminated clothing and wash it before reuse. Do not eat, drink or smoke when using this product.  
Work place should be equipped with a shower and an eye rinsing apparatus.  
Wash hands before breaks and after work.

Precautions against fire and explosion:

Keep away from sources of ignition - No smoking.  
Take precautionary measures against static discharges.  
Flammable mixtures may form in the air when product is heated above the flash point and/or during spraying.  
Use only explosion-proof equipment.

#### Conditions for safe storage, including any incompatibilities

Requirements for storerooms and containers:

Keep only in the original container at temperature not exceeding 35 °C.  
Keep container tightly closed. Protect from light.  
Because oxygen (air) is necessary to stabilize product, fill container only to 90% of capacity.  
Provide adequate oxygen (air) circulation for large containers to ensure product stability.  
Store containers in upright position.

Hints on joint storage:

Keep away from food, drink and animal feedingstuffs.  
Do not store together with organic peroxides, ammonia or persulphates.  
Do not store together with heavy metals.

### 8 Exposure controls/Personal protection

#### Control parameters

Occupational exposure limit values:

CAS No.	Designation	Type	Limit value
80-62-6	Methyl methacrylate	Canada: Alberta, OEL 15 min	410 mg/m <sup>3</sup> ; 100 ppm
		Canada: Alberta, OEL 8 hour	205 mg/m <sup>3</sup> ; 50 ppm
		Canada: BC, OEL STEL	100 ppm
		Canada: BC, OEL TWA	50 ppm
		Canada: Québec, VECD	100 ppm
		Canada: Québec, VEMP	50 ppm
141-32-2	n-Butyl acrylate	Canada: Alberta, OEL 8 hour	10 mg/m <sup>3</sup> ; 2 ppm
		Canada: BC, OEL TWA	2 ppm
		Canada: Québec, VEMP	2 ppm

#### Appropriate engineering controls

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

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### 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 (= against vapours of organic substances) 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: butyl caoutchouc (butyl rubber) - Layer thickness 0.7 mm. Breakthrough time: 60 min Observe glove manufacturer's instructions concerning penetrability and breakthrough time. Clean skin thoroughly after working.
Eye protection:	Tightly sealed goggles according to OSHA Standard - 29 CFR: 1910.133 or ANSI Z87.1-2010.
Body protection:	Wear suitable protective clothing. When handling larger quantities: face protection, rubber boots and rubber apron.
General hygiene considerations:	Avoid breathing mist/vapours/spray. Avoid contact with skin and eyes. Wash hands before breaks and after work. Separate storage of work clothes. Keep away from sources of ignition - No smoking. Take off contaminated clothing and wash it before reuse. When using do not eat or drink. Work place should be equipped with a shower and an eye rinsing apparatus.

### 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:	colourless
Odour:	ester-like
Odour threshold:	No data available
Melting point and freezing point:	No data available
Boiling point or initial boiling point and boiling range:	100.5 °C (Methyl methacrylate)
Flammability:	Highly flammable liquid and vapour.
Lower and upper explosion limit or lower and upper flammability limit:	LEL (Lower Explosion Limit): 2.10 Vol-% (Methyl methacrylate) UEL (Upper Explosive Limit): 12.50 Vol-% (Methyl methacrylate)
Flash point/flash point range:	10 °C (Methyl methacrylate)
Evaporation rate:	No data available
Auto-ignition temperature:	No data available
Decomposition temperature:	No data available
pH:	approx. 7 (aqueous solution)
Dynamic viscosity:	approx. 500 mPa*s
Water solubility:	at 20 °C: approx. 16 g/L (Methyl methacrylate)

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Partition coefficient — n-octanol/water: No data available  
Vapour pressure: at 20 °C: 38.7 hPa (Methyl methacrylate)  
Density and/or relative density: at 20 °C: approx. 1 g/mL  
Vapour density: at 20 °C: >= 1  
Particle characteristics: Not applicable

### Additional information

Explosive properties: Explosive mixtures with air may even form at room temperature.  
Ignition temperature: 430 °C (Methyl methacrylate)  
Additional information: Self-accelerating polymerisation temperature (SAPT), relating to the transport duration: > 50 °C

## 10 Stability and reactivity

Reactivity: Highly flammable liquid and vapour.  
Concentrated vapours are heavier than air.  
Explosive mixtures with air may even form at room temperature.

Chemical stability: Stable under recommended storage conditions.

Possibility of hazardous reactions:  
Product is normally delivered in a stable state. However, if shelf life and/or recommended storage temperature are exceeded to a large degree, product may polymerize and generate heat.  
Due to reducing substances, peroxides and heavy metal ions, polymerization with heat generation may occur.  
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 light.

Incompatible materials: Amines, sulphur compounds, alkali compounds, reducing agent, oxidizing agents, peroxides, heavy metals

Hazardous decomposition products: No decomposition when used properly.

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### 11 Toxicological information

#### Information on the likely routes of exposure

No data available

#### Health hazard information

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

ATEmix (calculated): > 5,000 mg/kg

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

ATEmix (calculated): > 5,000 mg/kg

Acute toxicity (inhalative): Lack of data.

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

Serious eye damage/irritation: Lack of data.

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: 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): Lack of data.

Aspiration hazard: Lack of data.

#### Other information:

Information about Methyl methacrylate:

LD50 Rat, oral: > 5,000 mg/kg

LD50 Rabbit, dermal: > 5,000 mg/kg

LC50 Rat, inhalative: 29.8 mg/L/4h

For carcinogenic effects:

IARC Rating: Group 3

OSHA Carcinogen: not listed

NTP Rating: not listed

Information about 2,2'-Ethylenedioxydiethyl dimethacrylate:

LD50 Rat, oral: > 5,000 mg/kg

LD50 Mouse (male), dermal: > 2,000 mg/kg

Information about Ethylene di(S-thioacetate):

LD50 Rat (male), oral: 303 mg/kg

LC0 Rabbit, dermal: 200 mg/kg

LC0 Rat, inhalative (dust, mist, smoke): 2.25 mg/L/1h

LC0 Rat, inhalative (dust, mist, smoke): 1.125 mg/L/4h

Information about n-Butyl acrylate:

LD50 Rat, oral: 3,150 mg/kg

LD50 Rabbit (male), dermal: > 2,000 mg/kg

LC50 Rat, inhalative (dust, mist, smoke): 10.3 mg/L/4h

Information about N,N-Bis-(2-hydroxypropyl)-p-toluidine:

LD50 Rat, oral: 25 mg/kg

LD50 Rat, dermal: > 2,000 mg/kg



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**Symptoms**

In case of prolonged exposure: Headache, drowsiness

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

In case of ingestion:

Irritations of mucous membranes in the mouth, pharynx, oesophagus and gastrointestinal tract. Can damage your health.

After eye contact: May cause irritations.

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### 12 Ecological information

#### Ecotoxicity

Aquatic toxicity:

Information about Methyl methacrylate:

Fish toxicity:

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

NOEC Danio rerio (zebrafish): 9.4 mg/L/32d (OECD 210)

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)

Algae toxicity:

EC50 Selenastrum capricornutum: > 100 mg/L/72h (OECD 201)

NOEC Selenastrum capricornutum: > 100 mg/L/72h (OECD 201)

Information about 2,2'-Ethylenedioxydiethyl dimethacrylate:

Fish toxicity:

LC50 Danio rerio (zebrafish): 16.4 mg/L/96h (OECD 203)

Daphnia toxicity:

NOEC Daphnia magna (Big water flea): 32 mg/L/21d (OECD 211)

Algae toxicity:

EC50 Pseudokirchneriella subcapitata (green algae): > 100 mg/L/72h (OECD 201)

NOEC Pseudokirchneriella subcapitata (green algae): 18.6 mg/L/72h (OECD 201)

Information about Ethylene di(S-thioacetate):

Fish toxicity:

LC50 Leuciscus idus: 4.85 mg/L/48h (DIN 38412 Teil 15)

Information about n-Butyl acrylate:

Fish toxicity:

LC50 Oncorhynchus mykiss: > 5.2 mg/L/96h (OECD 203)

Daphnia toxicity:

EC50 Daphnia magna (Big water flea): 8.2 mg/L/48h (OECD 202)

NOEC Daphnia magna (Big water flea): 0.136 mg/L/21d (OECD 211)

Algae toxicity:

EC50 Selenastrum capricornutum: 2.65 mg/L/72h (OECD 201)

Bacterial toxicity:

EC0 activated sludge: > 150 mg/L/3d

Information about N,N-Bis-(2-hydroxypropyl)-p-toluidine:

Fish toxicity:

LC50 Danio rerio (zebrafish): 17 mg/L/96h

Daphnia toxicity:

EC50 Daphnia magna (Big water flea): 28.8 mg/L/48h (OECD 202)

Algae toxicity:

EC50 Desmodesmus subspicatus (green algae): 245 mg/L/72h (OECD 201)

Bacterial toxicity:

EC10: > 1,995 mg/L/30 min (OECD 209)

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### Persistence and degradability

Further details: Information about Methyl methacrylate:  
Biodegradation: 94 %/14 d (OECD 301C.)  
Product is readily biodegradable.

### Bioaccumulative potential

Partition coefficient — n-octanol/water:  
No data available

### Mobility in soil

No data available

### Other adverse effects

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

### Waste treatment methods

#### Product

Recommendation: Incinerate as hazardous waste 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.  
Handle empty containers with care. Incineration may cause explosion.

## 14 Transport information

### UN number

TDG: UN1866  
IMDG, IATA-DGR: UN 1866

### UN proper shipping name

TDG: UN 1866, resin solution  
IMDG, IATA-DGR: UN 1866, RESIN SOLUTION

### Transport hazard class

TDG: 3  
IMDG: Class 3, Subrisk -  
IATA-DGR: Class 3

### Packing group

TDG, IMDG, IATA-DGR: II



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### 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)

Explosive limit and limited quantity index: 5 L

Passenger carrying road or rail index: 5 L

#### Sea transport (IMDG)

EmS: F-E, S-E

Special Provisions: -

Limited quantities: 5 L

Excepted quantities: E2

Package - Instructions: P001

Package - 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: Miscibility with water depends upon the composition.

Marine pollutant: no

Segregation group: none

Remarks: For packages < = 30 litres: PG III (IMDG 2.3.2.2)

#### Air transport (IATA)

Proper shipping name: UN 1866, RESIN SOLUTION

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

Remarks: For packages < = 30 litres: PG III (IATA 3.3.3.1)

#### Further information

Self-accelerating polymerisation temperature (SAPT), relating to the transport duration: > 50 °C

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### 15 Regulatory information

#### National regulations - Canada

Product: DSL: All ingredients are listed or exempt from listing.  
Methyl methacrylate: DSL: listed  
Priority Substances List: listed (PSL 1)  
2,2'-Ethylenedioxydiethyl dimethacrylate: DSL: listed  
Ethylene di(S-thioacetate): DSL: listed  
n-Butyl acrylate: DSL: listed  
1,1'-(p-Tolylimino)dipropen-2-ol: DSL: listed

#### Further regulations, limitations and legal requirements

No data available

### 16 Other information

Text for labelling: Contains:  
Methyl methacrylate  
2,2'-Ethylenedioxydiethyl dimethacrylate  
Ethylene di(S-thioacetate)  
n-Butyl acrylate  
Revision date: 17/12/2025  
Date of first version: 26/10/1994  
Reason of change: General revision: Safety Data Sheet according to Hazardous Products Regulations (HPR) 2022

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### 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  
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  
DSL: Domestic Substances List  
EC: Effective Concentration  
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  
IMDG Code: International Maritime Dangerous Goods Code  
IMO: International Maritime Organization  
LC0: Lethal concentration 0%  
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  
MFSU: Manufacture, formulation, supply and use  
NOEC: No Observed Effect Concentration  
OECD: Organisation for Economic Co-operation and Development  
OEL: Occupational Exposure Limit Value  
OSHA: Occupational Safety and Health Administration  
PBT: Persistent, bioaccumulative and toxic  
PNEC: Predicted no-effect concentration  
PSL: Priority Substances List  
Sensitization - skin: Skin sensitisation  
Skin Irritation: Skin irritation  
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  
UN: United Nations  
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.