

# Safety data sheet

## according to 1907/2006/EC, Article 31

Printing date 06.11.2012

Revision: 06.11.2012

### 1 Identification of the substance/mixture and of the company/undertaking

· **Product identifier**

· **Trade name:** Zinc chloride crystals; lab grade

· **Article number:** 50-1900-50

· **CAS Number:**

7646-85-7

· **EC number:**

231-592-0

· **Index number:**

030-003-00-2

· **Registration number** 01-2119472431-44

· **Relevant identified uses of the substance or mixture and uses advised against**

Production of inorganic zinc compounds; Electroplating; Laboratory reagent; Catalytic agent; Production of coatings, paints, inks, enamels, varnishes; Formulation of abrasive material for tools; Production of Zinc chloride based fluxing agents; steel surface treatment prior to hot-dip galvanizing; Component for paper coating or treatment for paper products; Textile and leather coating treatment; Additive in the manufacturing of electric-electronic components; Batteries /fuel cells; Production of polymer-matrices, plastics and related preparations; Additive / component for the production of Sealants / Adhesives / Mastics; Additive / component for the production of Lubricants / Grease / Metal working fluids; Additive / component for the production of Polishes / wax blends; Additive component for production of de-icing products; Additive for the formulation of animal feedstuffs; Additive for the formulation of biocidal products; Additive for the formulation of cleaning products; Additive for the formulation of fertilizers; Additive in the formulation of cosmetics; Additive in the formulation of pharma / veterinary products; Component for production of rubber, resins and related preparations.

· **Sector of Use**

SU0 Other

SU1 Agriculture, forestry, fishery

SU4 Manufacture of food products

SU5 Manufacture of textiles, leather, fur

SU6a Manufacture of wood and wood products

SU6b Manufacture of pulp, paper and paper products

SU7 Printing and reproduction of recorded media

SU8 Manufacture of bulk, large scale chemicals (including petroleum products)

SU9 Manufacture of fine chemicals

SU10 Formulation [mixing] of preparations and/or re-packaging (excluding alloys)

SU11 Manufacture of rubber products

SU12 Manufacture of plastics products, including compounding and conversion

SU13 Manufacture of other non-metallic mineral products, e.g. plasters, cement

SU14 Manufacture of basic metals, including alloys

SU15 Manufacture of fabricated metal products, except machinery and equipment

SU16 Manufacture of computer, electronic and optical products, electrical equipment

SU17 General manufacturing, e.g. machinery, equipment, vehicles, other transport equipment

SU18 Manufacture of furniture

SU19 Building and construction work

SU20 Health services

SU24 Scientific research and development

· **Product category**

PC0 Other

PC1 Adhesives, sealants

PC2 Adsorbents

PC4 Anti-Freeze and de-icing products

PC7 Base metals and alloys

PC8 Biocidal products (e.g. Disinfectants, pest control)

PC9a Coatings and paints, thinners, paint removers

PC9b Fillers, putties, plasters, modelling clay

PC9c Finger paints

PC12 Fertilizers

PC14 Metal surface treatment products, including galvanic and electroplating products

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- PC15 Non-metal-surface treatment products
- PC18 Ink and toners
- PC20 Products such as ph-regulators, flocculants, precipitants, neutralization agents
- PC21 Laboratory chemicals
- PC23 Leather tanning, dye, finishing, impregnation and care products
- PC24 Lubricants, greases, release products
- PC25 Metal working fluids
- PC26 Paper and board dye, finishing and impregnation products: including bleaches and other processing aids
- PC28 Perfumes, fragrances
- PC29 Pharmaceuticals
- PC31 Polishes and wax blends
- PC32 Polymer preparations and compounds
- PC33 Semiconductors
- PC34 Textile dyes, finishing and impregnating products; including bleaches and other processing aids
- PC35 Washing and cleaning products (including solvent based products)
- PC36 Water softeners
- PC37 Water treatment chemicals
- PC38 Welding and soldering products (with flux coatings or flux cores.), flux products
- PC39 Cosmetics, personal care products
- PC40 Extraction agents

**Process category**

- PROC0: Other
- PROC1 Use in closed process, no likelihood of exposure
- PROC2 Use in closed, continuous process with occasional controlled exposure
- PROC3 Use in closed batch process (synthesis or formulation)
- PROC4 Use in batch and other process (synthesis) where opportunity for exposure arises
- PROC5 Mixing or blending in batch processes for formulation of preparations and articles (multistage and/or significant contact)
- PROC6 Calendering operations
- PROC7 Industrial spraying
- PROC8a Transfer of substance or preparation (charging/discharging) from/to vessels/large containers at non-dedicated facilities
- PROC8b Transfer of substance or preparation (charging/discharging) from/to vessels/large containers at dedicated facilities
- PROC9 Transfer of substance or preparation into small containers (dedicated filling line, including weighing)
- PROC10 Roller application or brushing
- PROC11 Non industrial spraying
- PROC13 Treatment of articles by dipping and pouring
- PROC14 Production of preparations or articles by tableting, compression, extrusion, pelletisation
- PROC15 Use as laboratory reagent
- PROC17 Lubrication at high energy conditions and in partly open process
- PROC19 Hand-mixing with intimate contact and only PPE available
- PROC20 Heat and pressure transfer fluids in dispersive, professional use but closed systems
- PROC21 Low energy manipulation of substances bound in materials and/or articles
- PROC22 Potentially closed processing operations with minerals/metals at elevated temperature - Industrial setting
- PROC23 Open processing and transfer operations with minerals/metals at elevated temperature
- PROC24 High (mechanical) energy work-up of substances bound in materials and/or articles
- PROC25 Other hot work operations with metals
- PROC26 Handling of solid inorganic substances at ambient temperature

**Environmental release category**

- ERC1 Manufacture of substances
- ERC2 Formulation of preparations
- ERC3 Formulation in materials

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- ERC4 Industrial use of processing aids in processes and products, not becoming part of articles
- ERC5 Industrial use resulting in inclusion into or onto a matrix
- ERC6a Industrial use resulting in manufacture of another substance (use of intermediates)
- ERC6b Industrial use of reactive processing aids
- ERC6d Industrial use of process regulators for polymerisation processes in production of resins, rubbers, polymers
- ERC7 Industrial use of substances in closed systems
- ERC8a Wide dispersive indoor use of processing aids in open systems
- ERC8b Wide dispersive indoor use of reactive substances in open systems
- ERC8c Wide dispersive indoor use resulting in inclusion into or onto a matrix
- ERC8d Wide dispersive outdoor use of processing aids in open systems
- ERC8e Wide dispersive outdoor use of reactive substances in open systems
- ERC8f Wide dispersive outdoor use resulting in inclusion into or onto a matrix
- ERC9a Wide dispersive indoor use of substances in closed systems
- ERC9b Wide dispersive outdoor use of substances in closed systems
- ERC10a Wide dispersive outdoor use of long-life articles and materials with low release
- ERC10b Wide dispersive outdoor use of long-life articles and materials with high or intended release (including abrasive processing)
- ERC11a Wide dispersive indoor use of long-life articles and materials with low release

· **Article category**

- AC01 Other (not intended to be released)
- AC1 Vehicles
- AC2 Machinery, mechanical appliances, electrical/electronic articles
- AC3 Electrical batteries and accumulators
- AC4 Stone, plaster, cement, glass and ceramic articles
- AC5 Fabrics, textiles and apparel
- AC6 Leather articles
- AC7 Metal articles
- AC10 Rubber articles
- AC11 Wood articles
- AC13 Plastic articles

· **Application of the substance / the preparation**

The substance has many industrial, professional and consumer applications.

· **Details of the supplier of the safety data sheet**

· **Manufacturer/Supplier:**

Severn Biotech Ltd.  
 Unit 2,  
 Park Lane,  
 Kidderminster,  
 Worcestershire.  
 DY11 6TJ  
 UK  
 Tel: 0044 1562 825286  
 Fax: 0044 1562 825284  
 email: info@severnbiotech.com

· **Further information obtainable from:** Product safety department.

· **Emergency telephone number:** Tel: 0044 1562 825286 (not 24 hours)

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## 2 Hazards identification

- **Classification of the substance or mixture**
- **Classification according to Regulation (EC) No 1272/2008**



GHS05 corrosion

Skin Corr. 1B      H314 Causes severe skin burns and eye damage.



GHS09 environment

Aquatic Acute 1      H400 Very toxic to aquatic life.

Aquatic Chronic 1      H410 Very toxic to aquatic life with long lasting effects.



GHS07

Acute Tox. 4      H302 Harmful if swallowed.

- **Classification according to Directive 67/548/EEC or Directive 1999/45/EC**



C; Corrosive

R34:      Causes burns.



Xn; Harmful

R22:      Harmful if swallowed.



N; Dangerous for the environment

R50/53:      Very toxic to aquatic organisms, may cause long-term adverse effects in the aquatic environment.

- **Information concerning particular hazards for human and environment: Not applicable.**

- **Label elements**

- **Labelling according to Regulation (EC) No 1272/2008**

The substance is classified and labelled according to the CLP regulation.

- **Hazard pictograms** GHS05, GHS07, GHS09

- **Signal word** Danger

- **Hazard statements**

H302 Harmful if swallowed.

H314 Causes severe skin burns and eye damage.

H410 Very toxic to aquatic life with long lasting effects.

- **Precautionary statements**

P280      Wear protective gloves/protective clothing/eye protection/face protection.

P273      Avoid release to the environment.

P270      Do not eat, drink or smoke when using this product.

P303+P361+P353 IF ON SKIN (or hair): Remove/Take off immediately all contaminated clothing. Rinse skin with water/shower.

P305+P351+P338 IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing.

P301+P330+P331 IF SWALLOWED: rinse mouth. Do NOT induce vomiting.

- **Other hazards**

- **Results of PBT and vPvB assessment**

- **PBT:** Not applicable.

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· **vPvB:** Not applicable.

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### 3 Composition/information on ingredients

- **Chemical characterization: Substances**
- **CAS No. Description**  
7646-85-7 Zinc chloride
- **Identification number(s)**
- **EC number:** 231-592-0
- **Index number:** 030-003-00-2

### 4 First aid measures

- **Description of first aid measures**
- **General information:**  
Immediately remove any clothing soiled by the product.  
Symptoms of poisoning may even occur after several hours; therefore medical observation for at least 48 hours after the accident.
- **After inhalation:** Supply fresh air; consult doctor in case of complaints.
- **After skin contact:**  
**DO NOT DELAY!**  
If skin irritation continues, consult a doctor.  
Immediately wash with water and soap and rinse thoroughly.
- **After eye contact:**  
**DO NOT DELAY!**  
Check for and remove any contact lenses.  
Rinse opened eye for several minutes under running water. Then consult a doctor.
- **After swallowing:**  
**DO NOT DELAY!**  
Rinse out mouth and then drink plenty of water.  
Do not induce vomiting; call for medical help immediately.
- **Information for doctor:**  
Treat symptomatically and supportively.  
Refer to section 11.
- **Most important symptoms and effects, both acute and delayed**  
No further relevant information available.
- **Indication of any immediate medical attention and special treatment needed**  
No further relevant information available.

### 5 Firefighting measures

- **Extinguishing media**
- **Suitable extinguishing agents:**  
CO<sub>2</sub>, powder or water spray. Fight larger fires with water spray or alcohol resistant foam.
- **Special hazards arising from the substance or mixture**  
During heating or in case of fire poisonous gases are produced.  
Hydrogen chloride (HCl)  
Not combustible. Gives off irritating or toxic fumes (or gases) in a fire.
- **Advice for firefighters**
- **Protective equipment:**  
Wear self-contained respiratory protective device.  
Wear fully protective suit.

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Do not inhale explosion gases or combustion gases.

### 6 Accidental release measures

- **Personal precautions, protective equipment and emergency procedures**

Ensure adequate ventilation

Avoid formation of dust.

Wear protective equipment. Keep unprotected persons away.

- **Environmental precautions:**

Do not allow to penetrate the ground/soil.

Do not allow to enter sewers/ surface or ground water.

- **Methods and material for containment and cleaning up:**

Pick up mechanically.

Send for recovery or disposal in suitable receptacles.

Ensure adequate ventilation.

- **Reference to other sections**

See Section 7 for information on safe handling.

See Section 8 for information on personal protection equipment.

See Section 13 for disposal information.

### 7 Handling and storage

- **Handling:**

- **Precautions for safe handling**

Prevent formation of dust.

Ensure good ventilation/exhaustion at the workplace.

Avoid direct contact (skin contact, ingestion and/or inhalation of fume/mist/dust) with the product.

Safety showers and eye wash facilities should be available at the work area.

- **Information about fire - and explosion protection:** No special measures required.

- **Conditions for safe storage, including any incompatibilities**

- **Storage:**

- **Requirements to be met by storerooms and receptacles:** Prevent any seepage into the ground.

- **Information about storage in one common storage facility:**

Store away from foodstuffs.

Store away from metals.

- **Further information about storage conditions:**

Keep container tightly sealed.

Store in a banded area.

Store in cool, dry conditions in well sealed receptacles.

Protect from humidity and water.

- **Specific end use(s)** No further relevant information available.

### 8 Exposure controls/personal protection

- **Additional information about design of technical facilities:** No further data; see item 7.

- **Control parameters**

- **Ingredients with limit values that require monitoring at the workplace:**

**7646-85-7 Zinc chloride**

WEL	Short-term value: 2 mg/m <sup>3</sup>
	Long-term value: 1 mg/m <sup>3</sup>

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- **DNELs**

- WORKERS**

- Long-term exposure - systemic effects

- Dermal DN(M)EL

- DNEL (Derived No Effect Level): 8.3 mg/kg bw/day

- Inhalation DN(M)EL

- DNEL (Derived No Effect Level): 1 mg/m<sup>3</sup>

- GENERAL POPULATION**

- Long-term exposure - systemic effects

- Dermal DN(M)EL

- DNEL (Derived No Effect Level): 8.3 mg/kg bw/day

- Inhalation DN(M)EL

- DNEL (Derived No Effect Level): 1.3 mg/m<sup>3</sup>

- Oral DN(M)EL

- DNEL (Derived No Effect Level): 0.83 mg/kg bw/day

- **PNECs**

- PNEC aqua (freshwater): 20.6 µg/L

- PNEC aqua (marine water): 6.1 µg/L

- PNEC STP: 52 µg/L

- PNEC sediment (freshwater): 117.8 mg/kg sediment dw

- PNEC sediment (marine water): 56.5 mg/kg sediment dw

- PNEC soil: 35.6 mg/kg soil dw

- PNEC oral: No potential for bioaccumulation

- **Additional information:** The lists valid during the making were used as basis.

- **Exposure controls**

- **Personal protective equipment:**

- Select PPE appropriate for the operations taking place taking into account the product properties.

- **General protective and hygienic measures:**

- Do not eat, drink, smoke or sniff while working.

- Do not breath dust

- Keep away from foodstuffs, beverages and feed.

- Immediately remove all soiled and contaminated clothing

- Wash hands before breaks and at the end of work.

- Avoid contact with the eyes and skin.

- Storing food in the working area is prohibited.

- A safe system of work must be formulated and followed to ensure that workers who may be pregnant or breastfeeding do not come into direct contact with the product.

- A safe system of work must be formulated and followed to ensure safe working with this product.

- Relevant workers must receive suitable and sufficient training and supervision.

- Take note of assigned Workplace Exposure Limits.

- Ensure that eyewash stations and safety showers are close to the workstation location.

- Depending on the degree of exposure, periodic medical examination is suggested.

- **Respiratory protection:**

- In case of brief exposure or low pollution use respiratory filter device. In case of intensive or longer exposure use self-contained respiratory protective device.

- **Protection of hands:**



Protective gloves

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The glove material has to be impermeable and resistant to the product/ the substance/ the preparation.  
Selection of the glove material on consideration of the penetration times, rates of diffusion and the degradation

· **Material of gloves**

The selection of the suitable gloves does not only depend on the material, but also on further marks of quality and varies from manufacturer to manufacturer.

· **Penetration time of glove material**

The exact break through time has to be found out by the manufacturer of the protective gloves and has to be observed.

· **Eye protection:**



Tightly sealed goggles

· **Body protection:** Protective work clothing

## 9 Physical and chemical properties

· **Information on basic physical and chemical properties**

· **General Information**

· **Appearance:**

<b>Form:</b>	Powder
<b>Colour:</b>	White
· <b>Odour:</b>	Mild
· <b>Odour threshold:</b>	Not determined.

· **pH-value:** Not applicable.

· **Change in condition**

<b>Melting point/Melting range:</b>	287 °C (decomp)
<b>Boiling point/Boiling range:</b>	Undetermined.

· **Flash point:** Not applicable.

· **Flammability (solid, gaseous):** Product is not flammable.

· **Ignition temperature:**

**Decomposition temperature:** Not determined.

· **Self-igniting:** Not determined.

· **Danger of explosion:** Product does not present an explosion hazard.

· **Explosion limits:**

<b>Lower:</b>	Not determined.
<b>Upper:</b>	Not determined.

· **Vapour pressure:** Not applicable.

· **Density at 20 °C:** 2.93 g/cm<sup>3</sup>

· <b>Bulk density at 20 °C:</b>	1400 kg/m <sup>3</sup>
· <b>Relative density</b>	Not determined.
· <b>Vapour density</b>	Not applicable.
· <b>Evaporation rate</b>	Not applicable.

· **Solubility in / Miscibility with water:** Easily soluble.

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- **Partition coefficient (n-octanol/water):** Not determined.
- **Viscosity:**
  - Dynamic:** Not applicable.
  - Kinematic:** Not applicable.
- **Other information** No further relevant information available.

## 10 Stability and reactivity

- **Reactivity**
- **Chemical stability**
- **Thermal decomposition / conditions to be avoided:**  
No decomposition if used and stored according to specifications.  
Decomposes on heating. This produces toxic fumes of hydrogen chloride and zinc oxide.
- **Possibility of hazardous reactions**  
When mixed with potassium, a weak explosion will occur on impact.  
The solution in water is a medium strong acid.
- **Conditions to avoid** No further relevant information available.
- **Incompatible materials:**  
Strong bases.  
Finely powdered metals.  
Cyanides and sulphides  
Powdered zinc.
- **Hazardous decomposition products:** Hydrogen chloride (HCl)

## 11 Toxicological information

- **Information on toxicological effects**
- **Acute toxicity:**

· **LD/LC50 values relevant for classification:**

Oral	LD50	1260 mg/kg (rat)
Dermal	LD50	>2000 mg/kg (rabbit)

- **Primary irritant effect:**
- **on the skin:** Caustic effect on skin and mucous membranes.
- **on the eye:** Strong caustic effect.
- **Sensitization:** No sensitizing effects known.
- **Additional toxicological information:**  
Swallowing will lead to a strong caustic effect on mouth and throat and to the danger of perforation of esophagus and stomach.

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Routes of exposure: The substance can be absorbed into the body by inhalation of its aerosol and by ingestion.

Inhalation risk: Evaporation at 20 degs. C is negligible; a harmful concentration of airborne particles can, however, be reached quickly when dispersed, especially if powdered.

Effects of short-term exposure: The substance is corrosive to the eyes and skin. The aerosol is irritating to the respiratory tract. Corrosive on ingestion. Inhalation of fume may cause lung oedema. The symptoms of lung oedema often do not become manifest until a few hours have passed and they are aggravated by physical effort.

Ingestion could cause effects on the pancreas. Acute exposure to high concentrations of zinc chloride fume can lead to Adult Respiratory Distress Syndrome leading to pulmonary fibrosis and death.

Ingestion may cause corrosion and permanent tissue destruction of the esophagus and digestive tract.

## 12 Ecological information

- **Toxicity**
- **Aquatic toxicity:** No further relevant information available.
- **Persistence and degradability** No further relevant information available.
- **Behaviour in environmental systems:**
- **Bioaccumulative potential** Product is not expected to bioaccumulate.
- **Mobility in soil** No further relevant information available.
- **Ecotoxicological effects:**
- **Remark:** Very toxic for fish
- **Additional ecological information:**
- **General notes:**
  - Water hazard class 3 (German Regulation) (Assessment by list): extremely hazardous for water
  - Do not allow product to reach ground water, water course or sewage system, even in small quantities.
  - Must not reach sewage water or drainage ditch undiluted or unneutralized.
  - Danger to drinking water if even extremely small quantities leak into the ground.
  - Also poisonous for fish and plankton in water bodies.
  - Very toxic for aquatic organisms
- **Results of PBT and vPvB assessment**
- **PBT:** Not applicable.
- **vPvB:** Not applicable.
- **Other adverse effects** No further relevant information available.

## 13 Disposal considerations

- **Waste treatment methods**
- **Recommendation**
  - Contact waste processors for recycling information.
  - Must not be disposed together with household garbage. Do not allow product to reach sewage system.
  - Used, degraded or contaminated product may be classified as hazardous waste. Anyone classifying hazardous waste and determining its fate must be qualified in accordance with state and international legislation.
- **European waste catalogue**
  - Waste key numbers in accordance with the European Waste catalogue (EWC) are origin-referred defined. Since this product is used in several industries, no waste key can be provided by the supplier.
  - The waste key number should be determined in arrangement with your waste disposal partner or the responsible authority.

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- **Uncleaned packaging:**
- **Recommendation:** Container remains hazardous when empty. Continue to observe all precautions.

### 14 Transport information

<ul style="list-style-type: none"> <li>· UN-Number</li> <li>· ADR, IMDG, IATA</li> </ul>	UN2331
<ul style="list-style-type: none"> <li>· UN proper shipping name</li> <li>· ADR</li> <li>· IMDG, IATA</li> </ul>	2331 ZINC CHLORIDE, ANHYDROUS, ENVIRONMENTALLY HAZARDOUS ZINC CHLORIDE, ANHYDROUS
<ul style="list-style-type: none"> <li>· Transport hazard class(es)</li> <li>· ADR</li> </ul>	<div style="display: flex; justify-content: space-around; align-items: center;">   </div>
<ul style="list-style-type: none"> <li>· Class</li> <li>· Label</li> </ul>	8 Corrosive substances. 8
<ul style="list-style-type: none"> <li>· IMDG, IATA</li> </ul>	
<ul style="list-style-type: none"> <li>· Class</li> <li>· Label</li> </ul>	8 Corrosive substances. 8
<ul style="list-style-type: none"> <li>· Packing group</li> <li>· ADR, IMDG, IATA</li> </ul>	III
<ul style="list-style-type: none"> <li>· Environmental hazards:</li> <li>· Marine pollutant:</li> <li>· Special marking (ADR):</li> </ul>	Environmentally hazardous substance, solid; Marine Pollutant No Symbol (fish and tree)
<ul style="list-style-type: none"> <li>· Special precautions for user</li> <li>· Danger code (Kemler):</li> <li>· EMS Number:</li> <li>· Segregation groups</li> </ul>	Warning: Corrosive substances. 80 F-A,S-B Acids, heavy metals and their salts (including their organometallic compounds)
<ul style="list-style-type: none"> <li>· Transport in bulk according to Annex II of MARPOL73/78 and the IBC Code</li> </ul>	Not applicable.
<ul style="list-style-type: none"> <li>· Transport/Additional information:</li> </ul>	
<ul style="list-style-type: none"> <li>· ADR</li> <li>· Limited quantities (LQ)</li> <li>· Transport category</li> <li>· Tunnel restriction code</li> </ul>	5 kg 3 E

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· UN "Model Regulation":	UN2331, ZINC CHLORIDE, ANHYDROUS, ENVIRONMENTALLY HAZARDOUS, 8, III
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**15 Regulatory information**

· **Chemical safety assessment:** A Chemical Safety Assessment has not been carried out.

**16 Other information**

This information is based on our present knowledge. However, this shall not constitute a guarantee for any specific product features and shall not establish a legally valid contractual relationship.

· **Department issuing MSDS:** Product safety department.

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