

## Safety data sheet

Revision: 15-02-2017  
Replaces: 28-08-2015  
Version: 02.00/GBR

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

#### 1.1. Product identifier

Trade name: BERA Soldering Water 188

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

Recommended uses: Soldering flux.

#### 1.3. Details of the supplier of the safety data sheet

Supplier: Boliden Bergsøe A/S  
Hvissingevej 116  
2600 Glostrup  
Denmark  
Tel: +45 43268300  
Fax: +45 43268301  
Email: metal.glostrup@boliden.com

#### 1.4. Emergency telephone number

0870 600 6266 (UK only) Only available to health professionals.

### SECTION 2: Hazards identification

#### 2.1. Classification of the substance or mixture

CLP-classification (Regulation (EC) No 1272/2008): Acute tox. 4;H302 Skin Corr. 1B; H314 Aquatic Chronic 1; H410 Aquatic Acute 1; H400 Eye Dam. 1; H318 STOT SE 3; H335

Please see section 16 for the full text of H-phrases.

Most serious harmful effects: Harmful if swallowed. Causes severe skin burns and eye damage. Very toxic to aquatic life with long lasting effects. Very toxic to aquatic life. Causes serious eye damage. May cause respiratory irritation.  
Harmful if vapours from molten metal are inhaled or if the skin comes in contact with molten metal.

#### 2.2. Label elements



Signal word: Danger

Contains: Zinc chloride; l-(+)-Lactic acid; Hydrochloric acid

H-phrases: Harmful if swallowed.(H302)  
Causes severe skin burns and eye damage.(H314)  
Very toxic to aquatic life with long lasting effects.(H410)  
May cause respiratory irritation.(H335)  
Avoid release to the environment.(P273)

P-phrases:

Wear protective gloves/protective clothing/eye protection/face protection.(P280)  
IF SWALLOWED: Immediately call a POISON CENTER/doctor.(P301/310-a)  
IF ON SKIN (or hair): Take off immediately all contaminated clothing. Rinse skin with water [or shower].(P303/361/353)  
IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing.(P305/351/338)  
Immediately call a POISON CENTER/doctor.(P310-a)  
Dispose of contents/container in accordance with local regulation.(P501-A)

Supplemental information: None.

### 2.3. Other hazards

The product does not contain any PBT or vPvB substances.

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## SECTION 3: Composition/information on ingredients

### 3.2. Mixtures

Registration number	CAS/EC Number	Substance	CLP-classification (Regulation (EC) No 1272/2008)	w/w%	Note
01-211947243 1-44-xxxx	7646-85-7-d 231-592-0	Zinc chloride	Acute Tox. 4;H302 Skin Corr. 1B;H314 Aquatic Acute 1;H400 Aquatic Chronic 1;H410	30-40	.
.	79-33-4-F 201-196-2	l-(+)-Lactic acid	Skin Irrit. 2; H315 Eye Dam. 1;H315	25-30	.
01-211948486 2-27-xxxx	7647-01-0-G 231-595-7	Hydrochloric acid	Skin Corr. 1B;H314 STOT SE 3;H335 Met. Corr. 1;H290	<3	.
01-211948795 0-27-xxxx	12125-02-9-A 235-186-4	Ammonium chloride	Acute Tox. 4;H302 Eye Irrit. 2;H319	<2,5	.

Please see section 16 for the full text of H-phrases.

Other information: Any letters after the CAS number refer to individual data sets.

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## SECTION 4: First aid measures

### 4.1. Description of first aid measures

Inhalation: Seek fresh air. Seek medical advice in case of persistent discomfort.

Ingestion: Wash out mouth thoroughly and drink 1-2 glasses of water in small sips. Do not induce vomiting. Seek medical advice immediately.

Skin: Immediately remove contaminated clothing, watch and jewellery. Wash the skin thoroughly with water and continue washing for a long time. Seek medical advice immediately.

Eyes: Open eye wide, remove any contact lenses and flush immediately with water (preferably using eye wash equipment). Seek medical advice immediately. Continue flushing until medical attention is obtained.

Other information: When obtaining medical advice, show the safety data sheet or label.

### 4.2. Most important symptoms and effects, both acute and delayed

Harmful if swallowed. Ingestion may cause caustic burning in mouth, aoesophagus and stomach. Pains in mouth, throat and stomach. Difficulty swallowing, feeling unwell and vomiting of blood. Brown spots and burns may appear in and around the mouth. Has a caustic burning effect and causes burning pain, reddening, blistering and burning sores if it comes in contact with skin. Eye contact may result in deep caustic burns, pain, tearing and cramping of the eyelids. Risk of serious eye injury and loss of sight. Inhalation is irritating to the upper airways. Harmful if vapours from molten metal are inhaled or if the skin comes in contact with molten metal.

### 4.3. Indication of any immediate medical attention and special treatment needed

Treat symptoms. No special immediate treatment required. Ensure that medical personnel are aware of the material involved, and take precautions to protect themselves.

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## SECTION 5: Firefighting measures

### 5.1. Extinguishing media

Suitable extinguishing media Extinguish with powder, foam, carbon dioxide or water mist. Use water or water mist to cool non-ignited stock.

Unsuitable extinguishing media Do not use water stream, as it may spread the fire.

## 5.2. Special hazards arising from the substance or mixture

The product is not directly flammable. Avoid inhalation of vapour and fumes – seek fresh air. Product decomposes in fire conditions or when heated to high temperatures, and inflammable and toxic gases may be released.

## 5.3. Advice for firefighters

Move containers from danger area if it can be done without risk. Avoid inhalation of vapour and flue gases – seek fresh air. Wear Self-Contained Breathing Apparatus (SCBA) with a chemical protection suit. Extinguishing water which has been in contact with the product may be corrosive.

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## SECTION 6: Accidental release measures

### 6.1. Personal precautions, protective equipment and emergency procedures

For non-emergency personnel: In case of insufficient ventilation, wear respiratory protective equipment. Wear safety goggles/face protection. Wear gloves. Stay upwind/keep distance from source. Stop leak if this can be done without risk.

For emergency responders: In addition to the above: Chemical protective suit equivalent to EN 943-2 is recommended.

### 6.2. Environmental precautions

Prevent spillage from entering drains and/or surface water.

### 6.3. Methods and material for containment and cleaning up

Contain and absorb spill with sand or other absorbent material and transfer to suitable waste containers. Wipe up minor spills with a cloth. Caution! Causes burns.

### 6.4. Reference to other sections

See section 8 for type of protective equipment. See section 13 for instructions on disposal.

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## SECTION 7: Handling and storage

### 7.1. Precautions for safe handling

Running water and eye wash equipment must be available. Wash hands before breaks, before using restroom facilities, and at the end of work. Work under effective process ventilation (e.g. local exhaust ventilation).

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

Store safely, out of reach of children and away from food, animal feeding stuffs, medicines, etc. Store in a dry, cool, well-ventilated area. Keep in tightly closed original packaging.

### 7.3. Specific end use(s)

None.

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## SECTION 8: Exposure controls/personal protection

### 8.1. Control parameters

Occupational exposure limits:

Ingredient:	Exposure limit	Comments
Ammonium chloride	- (8h), - (15m) ppm	-
.	10 (8h), 20 (15m) mg/m <sup>3</sup>	.
Zinc chloride	- (8h), - (15m) ppm	Fume
.	1 (8h), 2 (15m) mg/m <sup>3</sup>	.
Hydrochloric acid	1 (8h), 5 (15m) ppm	-
.	2 (8h), 8 (15m) mg/m <sup>3</sup>	.

Legal basis: EH40/2005 Workplace exposure limits. Last amended December 2011.

Measuring methods: Compliance with the stated occupational exposure limits may be checked by occupational hygiene measurements.

DNEL values: 7647-01-0-G:  
Workers:  
Inhalation DNEL (acute/short-term exposure - local effects), 15 mg/m<sup>3</sup>.  
Inhalation DNEL (long-term exposure - systemic effects), 8 mg/m<sup>3</sup>.

PNEC values: 7647-01-0-G:  
PNEC aqua (freshwater) 0,036 mg/l.  
PNEC aqua (marine water) 0,036 mg/l.  
PNEC aqua (intermittent releases) 0,045 mg/l, .  
PNEC STP (wastewater-treatment facilities) 0,036 mg/l.

## 8.2. Exposure controls

Appropriate engineering controls:	Wear the personal protective equipment specified below.
Personal protective equipment, eye/face protection:	Wear safety goggles/face protection. Eye protection must conform to EN 166.
Personal protective equipment, skin protection:	Wear plastic or rubber protective gloves. Breakthrough time has not been determined for the product. Change gloves often. Gloves must conform to EN 374. Wear protective gloves which protect against contact and splashing from molten metal.
Personal protective equipment, respiratory protection:	In case of heating/use of the product in an area with inadequate ventilation, wear respiratory protection with filter B/P3. Respiratory protection must conform to one of the following standards: EN 136/140/145.
Environmental exposure controls:	Ensure compliance with local regulations for emissions.

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## SECTION 9: Physical and chemical properties

### 9.1. Information on basic physical and chemical properties

State:	Liquid
Colour:	Yellowish
Odour:	Odourless
Odour threshold:	No data
pH (solution for use):	No data
pH (concentrate):	No data
Melting point/freezing point:	No data
Initial boiling point and boiling range:	No data
Flash point:	No data
Evaporation rate:	No data
Flammability (solid, gas):	No data
Upper/lower flammability limits:	No data
Upper/lower explosive limits:	No data
Vapour pressure:	No data
Vapour density:	No data
Relative density:	1,4
Solubility:	Miscible with the following: Water.
Partition coefficient n-octanol/water:	No data
Auto-ignition temperature:	No data
Decomposition temperature:	No data
Viscosity:	No data
Explosive properties:	No data
Oxidising properties:	No data

### 9.2. Other information

None.

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## SECTION 10: Stability and reactivity

### 10.1. Reactivity

Not reactive.

### 10.2. Chemical stability

The product is stable when used in accordance with the supplier's directions.

### 10.3. Possibility of hazardous reactions

None known.

### 10.4. Conditions to avoid

Avoid heating and contact with ignition sources.

### 10.5. Incompatible materials

None known.

### 10.6. Hazardous decomposition products

Product decomposes in fire conditions or when heated to high temperatures, and inflammable and toxic gases may be released.

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## SECTION 11: Toxicological information

### 11.1. Information on toxicological effects

Acute toxicity - oral:	Harmful if swallowed.
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7646-85-7-d: Rat: LD50 = 350 mg/kg  
12125-02-9-A: Rat: LD50 = 1410 mg/kg  
79-33-4-F: Rat: LD50 = 3730 mg/kg (OECD 401)

Acute toxicity - dermal:	The product does not have to be classified. Based on existing data, the classification criteria are deemed not to have been met. 79-33-4-F: Rabbit: LD50 >2000 mg/kg (OECD 402)
Acute toxicity - inhalation:	The product does not have to be classified. Test data are not available.
Skin corrosion/irritation:	Has a caustic burning effect and causes burning pain, reddening, blistering and burning sores if it comes in contact with skin.
Serious eye damage/eye irritation:	Eye contact may result in deep caustic burns, pain, tearing and cramping of the eyelids. Risk of serious eye injury and loss of sight.
Respiratory sensitisation or skin sensitisation:	The product does not have to be classified. Test data are not available.
Germ cell mutagenicity:	The product does not have to be classified. Test data are not available.
Carcinogenic properties:	The product does not have to be classified. Test data are not available.
Reproductive toxicity:	The product does not have to be classified. Test data are not available.
Single STOT exposure:	Inhalation is irritating to the upper airways. Test data are not available. Inhalation of smoke from the soldering / welding process may cause irritation to the upper airways. May cause a burning sensation in the nose, mouth and throat, as well as headaches, coughing and discomfort.
Repeated STOT exposure:	The product does not have to be classified. Test data are not available. Prolonged exposure to welding smoke and particles constitutes a risk of developing asthmatic diseases, various respiratory disorders and cancer of the respiratory system. Prolonged inhalation may cause water in the lungs.
Aspiration hazard:	The product does not have to be classified. Test data are not available.
Other toxicological effects:	Ingestion may cause caustic burning in mouth, oesophagus and stomach. Pains in mouth, throat and stomach. Difficulty swallowing, feeling unwell and vomiting of blood. Brown spots and burns may appear in and around the mouth.

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## SECTION 12: Ecological information

### 12.1. Toxicity

Very toxic to aquatic life with long lasting effects.

#### Acute toxicity:

7646-85-7-d:  
Fish: Danio rerio: 96hLC50 = 38 mg/l  
Crustacea: Daphnia magna: 48hEC50 = 0,33 mg/l

12125-02-9-A:  
Fish: Cyprinus carpio: 96hLC50 = 209 mg/l  
Crustacea: Daphnia pulex: 48hEC50 >100 mg/l

79-33-4-F:  
Fish: Brachydanio rerio: 96hLC50 = 320 mg/l  
Crustacea: Daphnia magna: 48hEC50 = 240 mg/l  
Algae: Selenastrum capricornutum: 72hEC50 = 3500 mg/l

### 12.2. Persistence and degradability

Test data are not available.

### 12.3. Bioaccumulative potential

No bioaccumulation expected.

### 12.4. Mobility in soil

Test data are not available.

#### 12.5. Results of PBT and vPvB assessment

The product does not contain any PBT or vPvB substances.

#### 12.6. Other adverse effects

None known.

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### SECTION 13: Disposal considerations

#### 13.1. Waste treatment methods

Avoid discharge to drain or surface water. Collect spills and waste in closed, leak-proof containers for disposal at the local hazardous waste site.

EWC code: Depends on line of business and use, for instance 16 03 03\* inorganic wastes containing dangerous substances

Absorbent/cloth contaminated with the product:  
EWC code: 15 02 02 absorbents, filter materials (including oil filters not otherwise specified), wiping cloths, protective clothing contaminated by dangerous substances

Empty, cleansed packaging should be disposed of for recycling. Uncleansed packaging is to be disposed of via the local waste-removal scheme.

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### SECTION 14: Transport information

#### ADR/RID

14.1. UN number 1840

14.2. UN proper shipping name ZINC CHLORIDE SOLUTION

14.3. Transport hazard class(es) 8

14.4. Packing group III

Hazard identification number 80

Tunnel restriction code: E

14.5. Environmental hazards The product must be labelled as an environmental hazard (symbol: fish and tree) in packaging sizes of more than 5 kg/l.

#### ADN

14.1. UN number 1840

14.2. UN proper shipping name ZINC CHLORIDE SOLUTION

14.3. Transport hazard class(es) 8

14.4. Packing group III

14.5. Environmental hazards The product must be labelled as an environmental hazard (symbol: fish and tree) in packaging sizes of more than 5 kg/l.

Transport in tank vessels: Not applicable.

#### IMDG

14.1. UN number 1840

14.2. UN proper shipping name ZINC CHLORIDE SOLUTION

14.3. Transport hazard class(es) 8

14.4. Packing group III

14.5. Environmental hazards The product must be labelled as a Marine Pollutant (MP) in packaging sizes of more than 5 kg/l.

IMDG Code segregation group: Evaluated by IMO, IMDC Code 3.1.4.4

#### ICAO/IATA

14.1. UN number 1840

14.2. UN proper shipping name ZINC CHLORIDE SOLUTION

14.3. Transport hazard class(es)	8
14.4. Packing group	III
14.5. Environmental hazards	The product must be labelled as an environmental hazard (symbol: fish and tree) in packaging sizes of more than 5 kg/l.
<b>14.6. Special precautions for user</b>	None.
<b>14.7. Transport in bulk according to Annex II of MARPOL73/78 and the IBC Code</b>	Not applicable.

## SECTION 15: Regulatory information

Covered by: Council Directive 94/33/EC of 22 June 1994 on the protection of young people at work.

### 15.1. Safety, health and environmental regulations/legislation specific for the substance or mixture

Special provisions: Special care should be applied for employees under the age of 18. Young people under the age of 18 may not carry out any work causing harmful exposure to this product.

### 15.2. Chemical safety assessment

Chemical safety assessment has not been performed.

## SECTION 16: Other information

Changes have been made in the following sections: 2,4,11,16

Abbreviation explanations: PBT: Persistent, Bioaccumulative and Toxic  
vPvB: Very Persistent and Very Bioaccumulative  
STOT: Specific Target Organ Toxicity

Classification method: Calculation based on the hazards of the known components.

H-phrases: H290 May be corrosive to metals.  
H302 Harmful if swallowed.  
H314 Causes severe skin burns and eye damage.  
H315 Causes skin irritation.  
H318 Causes serious eye damage.  
H319 Causes serious eye irritation.  
H335 May cause respiratory irritation.  
H400 Very toxic to aquatic life.  
H410 Very toxic to aquatic life with long lasting effects.

Training: A thorough knowledge of this safety data sheet should be a prerequisite condition.

Other information: This safety data sheet has been prepared for and applies to this product only. It is based on our current knowledge and the information that the supplier was able to provide about the product at the time of preparation. The safety data sheet complies with applicable law on preparation of safety data sheets in accordance with 1907/2006/EC (REACH) as subsequently changed.