

SAFETY DATA SHEET

Date Accessed: 25/08/2023

Date Revised: 19/11/2022

SECTION 1. IDENTIFICATION

Product Name: Zinc Bromide

CAS #: 7699-45-8

Relevant identified uses of the substance: Scientific research and development

Supplier details:

Stanford Advanced Materials

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SECTION 2. HAZARDS IDENTIFICATION

2.1 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.

Skin Sens. 1 H317 May cause an allergic skin reaction. Other hazards that do not result in

classification No information known.

2.2 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.

H317 May cause an allergic skin reaction.

H410 Very toxic to aquatic life with long lasting effects.

Precautionary statements

P260 Do not breathe dusts or mists.

P303+P361+P353 IF ON SKIN (or hair): 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. P405 Store locked up.

P501 Dispose of contents/container in accordance with local/regional/national/international regulations. 2.3 Other hazards

Results of PBT and vPvB assessment

PBT: Not applicable.

vPvB: Not applicable

SECTION 3. COMPOSITION/INFORMATION ON INGREDIENTS

Substances

CAS# Designation:

7699-45-8 Zinc bromide

Concentration: ≤100%

Identification number(s):

SECTION 4. FIRST AID MEASURES

4.1 Description of first aid measures

General information Instantly remove any clothing soiled by the product. After inhalation Supply fresh air. If required, provide artificial respiration. Keep patient warm. Consult doctor if symptoms persist. Seek immediate medical advice.

After skin contact

Instantly wash with water and soap and rinse thoroughly.

Seek immediate medical advice.

After eye contact Rinse opened eye for several minutes under running water. Then consult doctor.

After swallowing Seek medical treatment.

4.2 Most important symptoms and effects, both acute and delayed

Causes severe skin burns.

Harmful if swallowed.

May cause an allergic skin reaction.

4.3 Indication of any immediate medical attention and special treatment needed No further relevant information available

SECTION 5. FIREFIGHTING MEASURES

5.1 Extinguishing media

Suitable extinguishing agents Product is not flammable. Use fire-fighting measures that suit the surrounding fire.

5.2 Special hazards arising from the substance or mixture If this product is involved in a fire, the following can be released: Hydrogen bromide (HBr)

Zinc oxide

5.3 Advice for firefighters

Protective equipment:

Wear self-contained breathing apparatus.

Wear full protective suit.

SECTION 6. ACCIDENTAL RELEASE MEASURES

6.1 Personal precautions, protective equipment and emergency procedures

Wear protective equipment. Keep unprotected persons away. Ensure adequate ventilation

6.2 Environmental precautions: Do not allow product to reach sewage system or water bodies. 6.3

Methods and material for containment and cleaning up:

Use neutralising agent.

Dispose of contaminated material as waste according to section 13. Ensure adequate ventilation.

Prevention of secondary hazards: No special measures required. 6.4 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 information on disposal.

SECTION 7. HANDLING AND STORAGE

7.1 Precautions for safe handling

Handle under dry protective gas.

Keep containers tightly sealed.

Store in cool, dry place in tightly closed containers. Ensure good ventilation/exhaustion at the workplace.

Information about protection against explosions and fires: The product is not flammable

7.2 Conditions for safe storage, including any incompatibilities

Storage

Requirements to be met by storerooms and containers: No special requirements. Information about storage in one common storage facility:

Store away from water.

Store away from strong bases.

Store away from oxidising agents.

Further information about storage conditions:

Store under dry inert gas.

This product is hygroscopic.

Keep container tightly sealed.

Store in cool, dry conditions in well sealed containers.

Protect from humidity and keep away from water.

Store in a locked cabinet or with access restricted to technical experts or their assistants. 7.3

Specific

end use(s) No further relevant information available.

SECTION 8. EXPOSURE CONTROLS/PERSONAL PROTECTION

Additional information about design of technical systems:

Properly operating chemical fume hood designed for hazardous chemicals and having an average face velocity of at least 100 feet per minute.

8.1 Control parameters Components with critical values that require monitoring at the workplace:

7699-45-8 Zinc bromide (100,0%)

MAK (Germany) Long-term value: 0,1A* 2E** mg/m³ *alveolengängig; **eintembar

Additional information: No data

8.2 Exposure controls

Personal protective equipment

General protective and hygienic measures

The usual precautionary measures should be adhered to in handling the chemicals. Keep away from foodstuffs, beverages and food.

Instantly remove any soiled and impregnated garments.

Wash hands during breaks and at the end of the work.

Avoid contact with the eyes and skin.

Maintain an ergonomically appropriate working environment.

Breathing equipment: Use breathing protection with high concentrations. Recommended filter device

for short term use:

Use a respirator with type P100 (USA) or P3 (EN 143) cartridges as a backup to engineering controls.

Risk assessment should be performed to determine if air-purifying respirators are appropriate. Only use equipment tested and approved under appropriate government standards. Protection of hands:

Check protective gloves prior to each use for their proper condition. 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.

Material of gloves Nitrile rubber, NBR

Penetration time of glove material (in minutes) 480

Glove thickness: 0.11 mm

Eye protection:

Tightly sealed safety glasses.

Full face protection

Safety glasses with side shields / NIOSH (US) or EN 166(EU)

Body protection: Protective work clothing.

SECTION 9. PHYSICAL AND CHEMICAL PROPERTIES

9.1 Information on basic physical and chemical properties

General Information

Appearance:

Form: Powder/crystalline/beads Odour: Not determined

Odour threshold: Not determined.

pH-value: Not applicable.

Change in condition

Melting point/freezing point: 394 °C

Initial boiling point and boiling range: 650 °C

Sublimation temperature / start: Not determined

Inflammability (solid, gaseous) Not determined.

Ignition temperature: Not determined

Decomposition temperature: Not determined

Self-inflammability: Not determined.

Explosive properties: Not determined.

Critical values for explosion:

Lower: Not determined

Upper: Not determined

Steam pressure: Not applicable. Density at 20 °C 4,201 g/cm³ Relative density Not determined.

Vapour density Not applicable.

Evaporation rate Not applicable. Solubility in / Miscibility with Water at 20 °C: 4470 g/l Partition coefficient: n-octanol/water: Not determined.

Viscosity:

dynamic: Not applicable.

kinematic: Not applicable. 9.2 Other information No further relevant information available.

SECTION 10. STABILITY AND REACTIVITY

10.1 Reactivity No information known.

10.2 Chemical stability Stable under recommended storage conditions. Thermal decomposition / conditions to be avoided: No decomposition if used and stored according to specifications. 10.3

Possibility of hazardous reactions Reacts with strong oxidising agents 10.4 Conditions to avoid No further relevant information available.

10.5 Incompatible materials:

Bases

Oxidising agents

Water/moisture

10.6 Hazardous decomposition products:

Hydrogen bromide

Zinc oxide

SECTION 11. TOXICOLOGICAL INFORMATION

11.1 Information on toxicological effects

Acute toxicity

Harmful if swallowed.

Swallowing will lead to a strong caustic effect on mouth and throat and to the danger of perforation of esophagus and stomach. Harmful if swallowed.

LD/LC50 values that are relevant for classification: No data

Skin irritation or corrosion:

Causes severe skin burns.

Causes severe skin burns and eye damage.

Eye irritation or corrosion:

Causes serious eye damage.

Causes severe skin burns and eye damage.

Respiratory or skin sensitisation

May cause an allergic skin reaction.

Germ cell mutagenicity: The Registry of Toxic Effects of Chemical Substances (RTECS) contains mutation data for this substance.

Carcinogenicity: No classification data on carcinogenic properties of this material is available from the

EPA, IARC, NTP, OSHA or ACGIH.

Reproductive toxicity: No effects known.

Specific target organ system toxicity - repeated exposure: No effects known.

Specific target organ system toxicity - single exposure: No effects known.

Aspiration hazard: No effects known.

Subacute to chronic toxicity: No effects known.

Additional toxicological information: To the best of our knowledge the acute and chronic toxicity of this

substance is not fully known.

SECTION 12. ECOLOGICAL INFORMATION

12.1 Toxicity

Aquatic toxicity: No further relevant information available.

12.2 Persistence and degradability No further relevant information available.

12.3 Bioaccumulative potential No further relevant information available.

12.4 Mobility in soil No further relevant information available.

Ecotoxicological effects:

Remark: Very toxic for fish Additional ecological information:

General notes:

Water danger class 3 (Self-assessment): extremely hazardous for water.

Do not allow product to reach ground water, water bodies or sewage system, even in small quantities.

Danger to drinking water if even extremely small quantities leak into soil. Also poisonous for fish and plankton in water bodies. May cause long lasting harmful effects to aquatic life.

Avoid transfer into the environment.

Very toxic for aquatic organisms

12.5 Results of PBT and vPvB assessment

PBT: Not applicable.

vPvB: Not applicable

12.6 Other adverse effects No further relevant information available.

SECTION 13. DISPOSAL CONSIDERATIONS

13.1 Waste treatment methods

Recommendation

Hand over to disposers of hazardous waste.

Must be specially treated under adherence to official regulations. Consult state, local or national regulations for proper disposal.

Uncleaned packagings:

Recommendation: Disposal must be made according to official regulations.

SECTION 14. TRANSPORT INFORMATION

UN-Number

ADR, IMDG, IATA UN3260

14.2 UN proper shipping name

ADR 3260 CORROSIVE SOLID, ACIDIC, INORGANIC, N.O.S. (Zinc bromide) IMDG CORROSIVE

SOLID, ACIDIC, INORGANIC, N.O.S. (Zinc bromide), MARINE POLLUTANT

IATA CORROSIVE SOLID, ACIDIC, INORGANIC, N.O.S. (Zinc bromide)

14.3 Transport hazard class(es)

ADR

Class 8 (C2) Corrosive substances. Label 8

IMDG

Class 8 Corrosive substances.

Label 8

IATA

Class 8 Corrosive substances.

Label 8

Packing group

ADR, IMDG, IATA II

14.5 Environmental hazards: Environmentally hazardous substance, solid; Marine Pollutant Marine

pollutant: Symbol (fish and tree)14.6 Special precautions for user Warning: Corrosive substances.

Kemler Number: 80

EMS Number: F-A,S-B

Segregation groups Acids

Stowage Category B

14.7 Transport in bulk according to Annex II of Marpol and the IBC Code Not applicable.

Transport/Additional information:

ADR

Limited quantities (LQ) 1 kg Excepted quantities (EQ) Code: E2

Maximum net quantity per inner packaging: 30 g

Maximum net quantity per outer packaging: 500 g Transport category 2

Tunnel restriction code E

IMDG

Limited quantities (LQ) 1 kg Excepted quantities (EQ) Code: E2

Maximum net quantity per inner packaging: 30 g

Maximum net quantity per outer packaging: 500 g

UN "Model Regulation": UN 3260 CORROSIVE SOLID, ACIDIC, INORGANIC, N.O.S. (ZINC BROMIDE),

8, II

SECTION 15. REGULATORY INFORMATION

15.1 Safety, health and environmental regulations/legislation specific for the substance or mixture
Australian Inventory of Chemical Substances Substance is listed.

Standard for the Uniform Scheduling of Medicines and Poisons Substance is not listed.

Directive 2012/18/EU

Named dangerous substances - ANNEX I Substance is not listed.

Seveso category E1 Hazardous to the Aquatic Environment Qualifying quantity (tonnes) for the application of lower-tier requirements 100 t

Qualifying quantity (tonnes) for the application of upper-tier requirements 200 t

National regulations

Information about limitation of use:

Employment restrictions concerning young persons must be observed. For use only by technically qualified individuals.

Classification according to VbF: Not applicable

Water hazard class: Water danger class 3 (Self-assessment): extremely hazardous for water. Other regulations, limitations and prohibitive regulations

ELINCS (European List of Notified Chemical Substances) Substance is not listed.

Substance of Very High Concern (SVHC) according to the REACH Regulations (EC) No. 1907/2006.

Substance is not listed.

The conditions of restrictions according to Article 67 and Annex XVII of the Regulation (EC) No 1907/2006 (REACH) for the manufacturing, placing on the market and use must be observed.

Substance is not listed.

Annex XIV of the REACH Regulations (requiring Authorization for use) Substance is not listed

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

SECTION 16. OTHER INFORMATION

Safety Data Sheet according to Regulation (EC) No. 1907/2006 (REACH). The above information is believed to be correct but does not purport to be all inclusive and shall be used only as a guide. The information in this document is based on the present state of our knowledge and is applicable to the product with regard to appropriate safety precautions. It does not represent any guarantee of the properties of the product.