

Material Safety Data Sheet

Lead(II) Bromide, 98+%

ACC# 95133

Section 1 - Chemical Product and Company Identification

MSDS Name: Lead(II) Bromide, 98+%

Catalog Numbers: AC198850000, AC198851000, AC198855000

Synonyms: None

Company Identification:

Acros Organics N.V.

One Reagent Lane

Fair Lawn, NJ 07410

For information in North America, call: 800-ACROS-01

For emergencies in the US, call CHEMTREC: 800-424-9300

Section 2 - Composition, Information on Ingredients

| CAS# | Chemical Name | Percent | EINECS/ELINCS |
|------------|-----------------------------------|---------|---------------|
| 10031-22-8 | Lead Bromide (PbBr ₂) | 98+% | 233-084-4 |

Section 3 - Hazards Identification

EMERGENCY OVERVIEW

Appearance: white crystalline powder.

Warning! Harmful if inhaled or swallowed. Causes eye and skin irritation. Causes digestive and respiratory tract irritation. May cause central nervous system effects. May cause blood abnormalities. Possible risk of harm to the unborn child. May cause cancer based on animal studies. May cause kidney damage. May cause cardiac disturbances. May cause liver and kidney damage. This product contains lead, a chemical known to the state of California to cause cancer. May cause reproductive and fetal effects.

Target Organs: Blood, kidneys, central nervous system, liver, cardiovascular system, blood forming organs, reproductive system.

Potential Health Effects

Eye: May cause eye irritation. Causes eye irritation and possible injury.

Skin: May cause skin irritation. Causes skin irritation.

Ingestion: Harmful if swallowed. Causes gastrointestinal irritation with nausea, vomiting and diarrhea. May cause liver and kidney damage. May cause cardiac disturbances. Exposure may cause anemia and other blood abnormalities. Ingestion of lead compounds can produce symptoms of lead poisoning. Symptoms of lead poisoning or plumbism include weakness, weight loss, lassitude, insomnia, and hypotension. It also includes constipation, anorexia, abdominal discomfort and colic. Acute lead poisoning can cause muscle weakness, "lead line" on the gums, metallic taste, definite loss of appetite, insomnia, dizziness, high lead levels in blood and urine with shock, coma and death in extreme cases. Many lead compounds can cause toxic effects in the blood-forming organs, kidneys, and central nervous

Inhalation: Harmful if inhaled. Causes respiratory tract irritation. Inhalation of fumes may cause metal fume fever, which is characterized by flu-like symptoms with metallic taste, fever, chills, cough, weakness, chest pain, muscle pain and increased white blood cell count. May cause effects similar to those described for ingestion. May cause anemia. May cause cardiac abnormalities.

Chronic: May cause liver and kidney damage. May cause cancer in humans. Chronic exposure to lead may result in plumbism which is characterized by lead line in gum, headache, muscle weakness, mental changes. Chronic exposure to lead may cause adverse effects on human reproduction, embryonic and fetal development and postnatal (e.g., mental) development.

Section 4 - First Aid Measures

Eyes: Immediately flush eyes with plenty of water for at least 15 minutes, occasionally lifting the upper and lower eyelids. Get medical aid.

Skin: Get medical aid. Immediately flush skin with plenty of water for at least 15 minutes while removing contaminated clothing and shoes. Wash clothing before reuse.

Ingestion: Never give anything by mouth to an unconscious person. Get medical aid immediately. Do NOT induce vomiting. If conscious and alert, rinse mouth and drink 2-4 cupfuls of milk or water.

Inhalation: Remove from exposure and move to fresh air immediately. If breathing is difficult, give oxygen. Get medical aid. Do NOT use mouth-to-mouth resuscitation. If breathing has ceased apply artificial respiration using oxygen and a suitable mechanical device such as a bag and a mask.

Notes to Physician: Treat symptomatically and supportively.

Antidote: The use of Dimercaprol or BAL (British Anti-Lewisite) as a chelating agent should be determined by qualified medical personnel. The use of Calcium disodium EDTA as a chelating agent should be determined by qualified medical personnel. The use of D-Penicillamine as a chelating agent should be determined by qualified medical personnel.

Section 5 - Fire Fighting Measures

General Information: As in any fire, wear a self-contained breathing apparatus in pressure-demand, MSHA/NIOSH (approved or equivalent), and full protective gear. During a fire, irritating and highly toxic gases may be generated by thermal decomposition or combustion. Containers may explode when heated. Non-combustible, substance itself does not burn but may decompose upon heating to produce irritating, corrosive and/or toxic fumes. Runoff from fire control or dilution water may cause pollution.

Extinguishing Media: Use agent most appropriate to extinguish fire. For small fires, use dry chemical, carbon dioxide, or water spray.

For large fires, use water spray, fog or regular foam.

Flash Point: Not applicable.

Autoignition Temperature: Not applicable.

Explosion Limits, Lower:Not available.

Upper: Not available.

NFPA Rating: (estimated) Health: 2; Flammability: 0; Instability: 0

Section 6 - Accidental Release Measures

General Information: Use proper personal protective equipment as indicated in Section 8.

Spills/Leaks: Clean up spills immediately, observing precautions in the Protective Equipment section. Sweep up, then place into a suitable container for disposal. Avoid generating dusty conditions. Provide ventilation.

Section 7 - Handling and Storage

Handling: Wash thoroughly after handling. Remove contaminated clothing and wash before reuse. Use with adequate ventilation. Minimize dust generation and accumulation. Avoid contact with eyes, skin, and clothing. Keep container tightly closed. Avoid ingestion and inhalation.

Storage: Store in a tightly closed container. Keep from contact with oxidizing materials. Store in a cool, dry, well-ventilated area away from incompatible substances.

Section 8 - Exposure Controls, Personal Protection

Engineering Controls: Facilities storing or utilizing this material should be equipped with an eyewash facility and a safety shower. Use adequate ventilation to keep airborne concentrations low.

Exposure Limits

| Chemical Name | ACGIH | NIOSH | OSHA - Final PELs |
|-----------------------------------|--|--|---|
| Lead Bromide (PbBr ₂) | 0.05 mg/m ³ TWA (as Pb) (listed under Lead, inorganic compounds). | 0.050 mg/m ³ TWA (as Pb) (listed under Lead compounds). | 50 æg/m ³ TWA (as Pb); 30 æg/m ³ Action Level (as Pb. Poison - see 29 CFR 1910.10 25) (listed under Lead, inorganic compounds). |

OSHA Vacated PELs: Lead Bromide (PbBr₂): No OSHA Vacated PELs are listed for this chemical.

Personal Protective Equipment

Eyes: Wear appropriate protective eyeglasses or chemical safety goggles as described by OSHA's eye and face protection regulations in 29 CFR 1910.133 or European Standard EN166.

Skin: Wear appropriate protective gloves and clothing to prevent skin exposure.

Clothing: Wear appropriate protective clothing to prevent skin exposure.

Respirators: Follow the OSHA respirator regulations found in 29 CFR 1910.134 or European Standard EN 149. Use a NIOSH/MSHA or European Standard EN 149 approved respirator if exposure limits are exceeded or if irritation or other symptoms are experienced.

Section 9 - Physical and Chemical Properties

Physical State: Crystalline powder

Appearance: off-white - white

Odor: Not available.

pH: Not available.

Vapor Pressure: Not available.

Vapor Density: Not available.

Evaporation Rate:Not applicable.

Viscosity: Not applicable.

Boiling Point: 916 deg C

Freezing/Melting Point:373 deg C

Decomposition Temperature:Not available.

Solubility: Very slightly soluble in cold water.

Specific Gravity/Density:Not available.

Molecular Formula:PbBr₂

Molecular Weight:367.008

Section 10 - Stability and Reactivity

Chemical Stability: Stable at room temperature in closed containers under normal storage and handling conditions.

Conditions to Avoid: Incompatible materials, dust generation, excess heat, strong oxidants.

Incompatibilities with Other Materials: Strong oxidizers.

Hazardous Decomposition Products: Irritating and toxic fumes and gases, hydrogen bromide, lead/lead oxides.

Hazardous Polymerization: Has not been reported.

Section 11 - Toxicological Information

RTECS#:

CAS# 10031-22-8 unlisted.

LD50/LC50:

Not available.

Carcinogenicity:

CAS# 10031-22-8:

- **ACGIH:** A3 - Confirmed animal carcinogen with unknown relevance to humans (listed as 'Lead, inorganic compounds').
- **California:** carcinogen, initial date 10/1/92 (listed as Lead compounds).
- **NTP:** Suspect carcinogen (listed as Lead compounds).
- **IARC:** Group 2A carcinogen (listed as Lead, inorganic compounds).

Epidemiology: Epidemiological studies have not shown a relationship between lead exposure and the incidence of cancer in lead workers. A study involving battery plant workers showed a significant rise in the standardized mortality ratio for gastric and lung cancer. IARC has concluded that the evidence for carcinogenicity of lead to humans is inadequate although there is sufficient evidence of carcinogenicity of some lead salts to animals. Repeated exposure to lead has caused many toxic effects including: neurological changes, kidney damage, and blood abnormalities.

Teratogenicity: Teratogenic effects have occurred in humans.

Reproductive Effects: Similar compounds have shown adverse reproductive effects.

Mutagenicity: Mutagenic effects have occurred in experimental animals.

Neurotoxicity: Repeated exposure to lead has caused neurological changes.

Other Studies:

Section 12 - Ecological Information

No information available.

Section 13 - Disposal Considerations

Chemical waste generators must determine whether a discarded chemical is classified as a hazardous waste. US EPA guidelines for the classification determination are listed in 40 CFR Parts 261.3. Additionally, waste generators must consult state and local hazardous waste regulations to ensure complete and accurate classification.

RCRA P-Series: None listed.

RCRA U-Series: None listed.

Section 14 - Transport Information

| | US DOT | Canada TDG |
|-----------------------|---------------------------------|--|
| Shipping Name: | LEAD COMPOUNDS, SOLUBLE, N.O.S. | LEAD COMPOUNDS SOLUBLE, NOS (LEAD BROMIDE) |
| Hazard Class: | 6.1 | 6.1 |
| UN Number: | UN2291 | UN2291 |
| Packing Group: | III | III |

Section 15 - Regulatory Information

US FEDERAL

TSCA

CAS# 10031-22-8 is listed on the TSCA inventory.

Health & Safety Reporting List

None of the chemicals are on the Health & Safety Reporting List.

Chemical Test Rules

None of the chemicals in this product are under a Chemical Test Rule.

Section 12b

None of the chemicals are listed under TSCA Section 12b.

TSCA Significant New Use Rule

None of the chemicals in this material have a SNUR under TSCA.

CERCLA Hazardous Substances and corresponding RQs

None of the chemicals in this material have an RQ.

SARA Section 302 Extremely Hazardous Substances

None of the chemicals in this product have a TPQ.

Section 313

This material contains Lead Bromide (PbBr₂) (listed as Lead, inorganic compounds), 98+%, (CAS# 10031-22-8) which is subject to the reporting requirements of Section 313 of SARA Title III and 40 CFR Part 373.

Clean Air Act:

CAS# 10031-22-8 (listed as Lead compounds) is listed as a hazardous air pollutant (HAP).

This material does not contain any Class 1 Ozone depleters.

This material does not contain any Class 2 Ozone depleters.

Clean Water Act:

None of the chemicals in this product are listed as Hazardous Substances under the CWA.

None of the chemicals in this product are listed as Priority Pollutants under the CWA. CAS# 10031-22-8 is listed as a Toxic Pollutant under the Clean Water Act.

OSHA:

None of the chemicals in this product are considered highly hazardous by OSHA.

STATE

CAS# 10031-22-8 can be found on the following state right to know lists: California, (listed as Lead compounds), Pennsylvania,

(listed as Lead compounds), Minnesota, (listed as Lead, inorganic compounds), Massachusetts.

California Prop 65

The following statement(s) is(are) made in order to comply with the California Safe Drinking Water Act:

WARNING: This product contains Lead Bromide (PbBr₂), listed as 'Lead compounds', a chemical known to the state of California to cause cancer. WARNING: This product contains Lead Bromide (PbBr₂), listed as 'Lead, inorganic compounds', a chemical known to the state of California to cause developmental reproductive toxicity.

California No Significant Risk Level: None of the chemicals in this product are listed.

European/International Regulations

European Labeling in Accordance with EC Directives

Hazard Symbols:

T N

Risk Phrases:

R 20/22 Harmful by inhalation and if swallowed.

R 33 Danger of cumulative effects.

R 61 May cause harm to the unborn child.

R 62 Possible risk of impaired fertility.

R 50/53 Very toxic to aquatic organisms, may cause long-term adverse effects in the aquatic environment.

Safety Phrases:

S 45 In case of accident or if you feel unwell, seek medical advice immediately (show the label where possible).

S 53 Avoid exposure - obtain special instructions before use.

S 60 This material and its container must be disposed of as hazardous waste.

S 61 Avoid release to the environment. Refer to special instructions /safety data sheets.

WGK (Water Danger/Protection)

CAS# 10031-22-8: No information available.

Canada - DSL/NDSL

CAS# 10031-22-8 is listed on Canada's NDSL List.

Canada - WHMIS

not available.

This product has been classified in accordance with the hazard criteria of the Controlled Products Regulations and the MSDS contains all of the information required by those regulations.

Canadian Ingredient Disclosure List

CAS# 10031-22-8 (listed as Lead, inorganic compounds) is listed on the Canadian Ingredient Disclosure List.

Section 16 - Additional Information

MSDS Creation Date: 9/02/1997

Revision #7 Date: 10/03/2005

The information above is believed to be accurate and represents the best information currently available to us. However, we make no warranty of merchantability or any other warranty, express or implied, with respect to such information, and we assume no liability resulting from its use. Users should make their own investigations to determine the suitability of the information for their particular purposes. In no event shall Fisher be liable for any claims, losses, or damages of any third party or for lost profits or any special, indirect, incidental, consequential or exemplary damages, howsoever arising, even if Fisher has been advised of the possibility of such damages.