SAFETY DATA SHEET

1. Identification

Product identifier Bayluscide Technical; Bay 73 Technical
Other means of identification Not available.
Recommended use Industrial use.
Recommended restrictions None known.

Manufacturer / Importer / Supplier / Distributor information
Supplier U.S. Fish and Wildlife Service
Address 1849 C Street NW Washington, D.C. 20240
United States
Emergency telephone number Chemtrec (U.S.) 1-800-424-9300
Canutec (Canada) 1-613-996-6666

2. Hazard(s) identification

Physical hazards Not classified.
Health hazards Acute toxicity, inhalation Category 4
Serious eye damage/eye irritation Category 2A
OSHA defined hazards Not classified.

Label elements

Signal word Warning
Hazard statement Causes serious eye irritation. Harmful if inhaled.
Precautionary statement
Prevention Avoid breathing dust. Wear eye/face protection. Wash thoroughly after handling. Use only outdoors or in a well-ventilated area.
Response If inhaled: Remove person to fresh air and keep comfortable for breathing. Call a poison center/doctor if you feel unwell. If in eyes: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing. If eye irritation persists: Get medical advice/attention.
Storage Store away from incompatible materials.
Disposal Dispose of contents/container in accordance with local/regional/national/international regulations.

3. Composition/information on ingredients

Mixtures

<table>
<thead>
<tr>
<th>Chemical name</th>
<th>CAS number</th>
<th>%</th>
</tr>
</thead>
<tbody>
<tr>
<td>Niclosamide ethanolamine salt</td>
<td>1420-04-8</td>
<td>&gt;95.4</td>
</tr>
<tr>
<td>2-chloro-4-nitroaniline</td>
<td>121-87-9</td>
<td>0.4-1.5</td>
</tr>
<tr>
<td>5-chloro-2-hydroxybenzoic acid</td>
<td>321-14-2</td>
<td>0.15-1.5</td>
</tr>
</tbody>
</table>

Composition comments All concentrations are in percent by weight unless ingredient is a gas. Gas concentrations are in percent by volume.

4. First-aid measures

Inhalation Remove victim to fresh air. If breathing is difficult, give oxygen. Get medical attention.
Skin contact Remove contaminated clothing and shoes. Wash the skin immediately with soap and water. Get medical attention if irritation develops and persists.
Eye contact Do not rub eyes. Immediately flush with plenty of water for at least 15 minutes. If easy to do, remove contact lenses. Get medical attention immediately.
Ingestion

Never give anything by mouth to a victim who is unconscious or is having convulsions. Immediately rinse mouth and drink plenty of water or milk. Keep person under observation. Do not induce vomiting. If vomiting occurs, keep head low. Seek immediate medical attention or advice.

Most important symptoms/effects, acute and delayed

Irritation of eyes and mucous membranes. Irritation of nose and throat. Cough. Skin irritation.

Indication of immediate medical attention and special treatment needed

Treat symptomatically.

General information

Ensure that medical personnel are aware of the material(s) involved, and take precautions to protect themselves.

5. Fire-fighting measures

Suitable extinguishing media

Dry chemical powder, water spray.

Unsuitable extinguishing media

None known.

Specific hazards arising from the chemical

Avoid generating dust; fine dust dispersed in air in sufficient concentrations, and in the presence of an ignition source is a potential dust explosion hazard.

Special protective equipment and precautions for firefighters

Self-contained breathing apparatus and full protective clothing must be worn in case of fire. Selection of respiratory protection for firefighting: follow the general fire precautions indicated in the workplace.

Fire-fighting equipment/instructions

Move containers from fire area if you can do so without risk.

6. Accidental release measures

Personal precautions, protective equipment and emergency procedures

Extinguish all ignition sources. Avoid sparks, flames, heat and smoking. Avoid inhalation of dust and contact with skin and eyes. Use personal protection as recommended in Section 8 of the SDS.

Methods and materials for containment and cleaning up

Cover with plastic sheet to prevent spreading. Dust deposits should not be allowed to accumulate on surfaces, as these may form an explosive mixture if they are released into the atmosphere in sufficient concentration. Avoid dispersal of dust in the air (i.e., clearing dust surfaces with compressed air). Nonsparking tools should be used. Use a non-combustible material like vermiculite, sand or earth to soak up the product and place into a container for later disposal. Following product recovery, flush area with water. Ventilate the area.

Environmental precautions

Avoid discharge into drains, water courses or onto the ground unless authorized by permit.

7. Handling and storage

Precautions for safe handling

Avoid inhalation of dust and contact with skin and eyes. Minimize dust generation and accumulation. Add material slowly when mixing with water. Do not add water to the material; instead, add the material to the water. Wash at the end of each work shift and before eating, smoking and using the toilet. Change contaminated clothing. Observe good industrial hygiene practices.

Conditions for safe storage, including any incompatibilities

Keep upright. Store in tightly closed original container in a dry, cool and well-ventilated place. Protect from direct sunlight. Store away from incompatible materials. Do not reuse containers. Routine housekeeping should be instituted to ensure that dusts do not accumulate on surfaces. Dry powders can build static electricity charges when subjected to the friction of transfer and mixing operations. Provide adequate precautions, such as electrical grounding and bonding, or inert atmospheres. Refer to NFPA 654, Standard for the Prevention of Fire and Dust Explosions from the Manufacturing, Processing, and Handling of Combustible Particulate Solids, for safe handling.

8. Exposure controls/personal protection

Occupational exposure limits

US. OSHA Table Z-1 Limits for Air Contaminants (29 CFR 1910.1000)

<table>
<thead>
<tr>
<th>Components</th>
<th>Type</th>
<th>Value</th>
<th>Form</th>
</tr>
</thead>
<tbody>
<tr>
<td>Niclosamide ethanolamine salt (CAS 1420-04-8)</td>
<td>PEL</td>
<td>5 mg/m³</td>
<td>Respirable fraction.</td>
</tr>
<tr>
<td></td>
<td></td>
<td>15 mg/m³</td>
<td>Total dust.</td>
</tr>
</tbody>
</table>

US. OSHA Table Z-3 (29 CFR 1910.1000)

<table>
<thead>
<tr>
<th>Components</th>
<th>Type</th>
<th>Value</th>
<th>Form</th>
</tr>
</thead>
<tbody>
<tr>
<td>Niclosamide ethanolamine salt (CAS 1420-04-8)</td>
<td>TWA</td>
<td>5 mg/m³</td>
<td>Respirable fraction.</td>
</tr>
<tr>
<td></td>
<td></td>
<td>15 mg/m³</td>
<td>Total dust.</td>
</tr>
</tbody>
</table>
**US. OSHA Table Z-3 (29 CFR 1910.1000)**

<table>
<thead>
<tr>
<th>Components</th>
<th>Type</th>
<th>Value</th>
<th>Form</th>
</tr>
</thead>
<tbody>
<tr>
<td>50 millions of particle</td>
<td>Value</td>
<td>Total dust.</td>
<td></td>
</tr>
<tr>
<td>15 millions of particle</td>
<td>Form</td>
<td>Respirable fraction.</td>
<td></td>
</tr>
</tbody>
</table>

**US. ACGIH Threshold Limit Values**

<table>
<thead>
<tr>
<th>Components</th>
<th>Type</th>
<th>Value</th>
<th>Form</th>
</tr>
</thead>
<tbody>
<tr>
<td>Niclosamide ethanolamine salt (CAS 1420-04-8)</td>
<td>TWA</td>
<td>3 mg/m³</td>
<td>Respirable particles.</td>
</tr>
<tr>
<td></td>
<td></td>
<td>10 mg/m³</td>
<td>Inhalable particles.</td>
</tr>
</tbody>
</table>

**Biological limit values**

No biological exposure limits noted for the ingredient(s).

**Exposure guidelines**

Use personal protective equipment as required. Keep working clothes separately. No exposure standards allocated.

**Appropriate engineering controls**

Use process enclosures, local exhaust ventilation, or other engineering controls to control airborne levels below recommended exposure limits. It is recommended that all dust control equipment such as local exhaust ventilation and material transport systems involved in handling of this product contain explosion relief vents or an explosion suppression system or an oxygen deficient environment. Ensure that dust-handling systems (such as exhaust ducts, dust collectors, vessels, and processing equipment) are designed in a manner to prevent the escape of dust into the work area (i.e., there is no leakage from the equipment).

**Individual protection measures, such as personal protective equipment**

- **Eye/face protection**: Wear safety glasses with side shields.
- **Skin protection**
  - **Hand protection**: Wear protective gloves.
  - **Other**: Normal work clothing (long sleeved shirts and long pants) is recommended.
- **Respiratory protection**: Use a NIOSH–approved respirator if there is a potential for exposure to dust exceeding exposure limits (See 29 CRF 1910.134, respiratory protection standard). Use a positive-pressure air-supplied respirator if there is any potential for an uncontrolled release, exposure levels are not known, or any other circumstances where air-purifying respirators may not provide adequate protection.
- **Thermal hazards**: Not applicable.

**General hygiene considerations**

Wash hands before breaks and immediately after handling the product. Handle in accordance with good industrial hygiene and safety practice.

**9. Physical and chemical properties**

**Appearance**

Bright yellow (with faint green tint) solid.

- **Physical state**: Solid.
- **Form**: Solid.
- **Color**: Bright yellow (with faint green tint).
- **Odor**: Metallic.
- **Odor threshold**: 20 (on a scale of 1 to 100)
- **pH**: 9.27 (1% aqueous solution at 23°C/73°F)
- **Melting point/freezing point**: 408 - 419 °F (208.89 - 215 °C)
- **Initial boiling point and boiling range**: Not available.
- **Flash point**: Not available.
- **Evaporation rate**: Not available.
- **Flammability (solid, gas)**: Not available.
- **Upper/lower flammability or explosive limits**
  - **Flammability limit - lower (%)**: Not available.
  - **Flammability limit - upper (%)**: Not available.
  - **Explosive limit - lower (%)**: Not available.
Explosive limit - upper (%)  Not available.

Vapor pressure  <0.00001 Pa (25°C/77°F)

Vapor density  Not available.

Relative density  Not available.

Solubility(ies)  0.0283 g/l (20°C/68°F) in water.

Partition coefficient (n-octanol/water)  5.33 LogKow

Auto-ignition temperature  Not available.

Decomposition temperature  Not available.

Viscosity  Not available.

Other information

Bulk density  0.45 g/ml (23°C/73°F)

10. Stability and reactivity

Reactivity  The product is stable and non-reactive under normal conditions of use, storage and transport.

Chemical stability  Stable at normal conditions.

Possibility of hazardous reactions  Hazardous polymerization does not occur.

Conditions to avoid  Heat.

Incompatible materials  Strong acids. Strong oxidizing agents.


11. Toxicological information

Information on likely routes of exposure

Ingestion  Ingestion may cause irritation and malaise.

Inhalation  Harmful if inhaled.

Skin contact  Dust may irritate skin.

Eye contact  Causes serious eye irritation.

Symptoms related to the physical, chemical and toxicological characteristics  Irritation of eyes and mucous membranes. Irritation of nose and throat. Cough. Skin irritation.

Information on toxicological effects

Acute toxicity  Harmful if inhaled.

<table>
<thead>
<tr>
<th>Components</th>
<th>Species</th>
<th>Test Results</th>
</tr>
</thead>
<tbody>
<tr>
<td>2-chloro-4-nitroaniline (CAS 121-87-9)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Acute</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Oral</td>
<td>Mouse</td>
<td>1250 mg/kg</td>
</tr>
<tr>
<td></td>
<td>Rat</td>
<td>6430 mg/kg</td>
</tr>
<tr>
<td>Niclosamide ethanolamine salt (CAS 1420-04-8)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Acute</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Oral</td>
<td>Rat</td>
<td>&gt; 5000 mg/kg</td>
</tr>
</tbody>
</table>

Skin corrosion/irritation  Not classified.

Serious eye damage/eye irritation  Causes serious eye irritation.

Respiratory sensitization  No data available.

Skin sensitization  Not a skin sensitizer.

Germ cell mutagenicity  Niclosamide ethanolamine salt: Ames test: Negative.

Carcinogenicity  Not classifiable as to carcinogenicity to humans.

Reproductive toxicity  Knowledge about reproductive effects is incomplete.

Specific target organ toxicity - single exposure  No data available.
Specific target organ toxicity - repeated exposure
No data available.

Aspiration hazard
Not classified.

Chronic effects
Frequent inhalation of dust over a long period of time increases the risk of developing lung diseases.

Further information
Contains 2-chloro-4-nitroaniline: may cause transformation of hemoglobin to methemoglobin, nitrosulfhemoglobin, sulfhemoglobin and a decrease in oxyhemoglobin in animal studies.

12. Ecological information

Ecotoxicity
Very toxic to aquatic life.

<table>
<thead>
<tr>
<th>Components</th>
<th>Aquatic</th>
<th>Test Results</th>
</tr>
</thead>
<tbody>
<tr>
<td>2-chloro-4-nitroaniline (CAS 121-87-9)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Crustacea</td>
<td>EC50</td>
<td>Water flea (Daphnia magna)</td>
</tr>
<tr>
<td>Fish</td>
<td>LC50</td>
<td>Fathead minnow (Pimephales promelas)</td>
</tr>
<tr>
<td>Niclosamide ethanolamine salt (CAS 1420-04-8)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Crustacea</td>
<td>EC50</td>
<td>Water flea (Daphnia magna)</td>
</tr>
<tr>
<td>Fish</td>
<td>LC50</td>
<td>Fathead minnow (Pimephales promelas)</td>
</tr>
<tr>
<td>Channel catfish (Ictalurus punctatus)</td>
<td>LC50</td>
<td>Rainbow Trout</td>
</tr>
<tr>
<td>Rainbow Trout</td>
<td>LC50</td>
<td></td>
</tr>
</tbody>
</table>

Persistence and degradability
No data is available on the degradability of this product.

Bioaccumulative potential
Has moderate potential to bioaccumulate. BCF: 45.

Partition coefficient n-octanol / water (log Kow)
Bayluscide Technical; Bay 73 Technical (CAS Mixture): 5.33, LogKow

Mobility in soil

Other adverse effects
An environmental hazard cannot be excluded in the event of unprofessional handling or disposal.

13. Disposal considerations

Disposal instructions
This material and its container must be disposed of as hazardous waste. Dispose of contents/container in accordance with local/regional/national/international regulations.

Hazardous waste code
Not regulated.

Waste from residues / unused products
Dispose in accordance with all applicable regulations.

Contaminated packaging
Since emptied containers may retain product residue, follow label warnings even after container is emptied.

14. Transport information

DOT
UN number
UN3077
UN proper shipping name
Environmentally hazardous substances, solid, n.o.s.
Transport hazard class(es)
9
Subsidiary class(es)
-
Packing group
III
Environmental hazards
Yes
Marine pollutant
Special precautions for user
Read safety instructions, SDS and emergency procedures before handling.
Special provisions
8, 146, 335, A112, B54, IB8, IP3, N20, T1, TP33
Packaging exceptions
155
Packaging non bulk
213
Packaging bulk
240

IATA
UN number
UN3077
UN proper shipping name
Environmentally hazardous substance, solid, n.o.s.
Transport hazard class(es)
9
Subsidiary class(es)
-
Packing group
III
Environmental hazards
No
Labels required: Not available.
ERG Code: 9L
Special precautions for user: Read safety instructions, SDS and emergency procedures before handling.

IMDG
UN number: UN3077
UN proper shipping name: ENVIRONMENTALLY HAZARDOUS SUBSTANCE, SOLID, N.O.S.
Transport hazard class(es): 9
Subsidiary class(es): -
Packaging group: III
Environmental hazards:
Marine pollutant: Yes
Labels required: Not available.
EmS: F-A, S-F
Special precautions for user: Read safety instructions, SDS and emergency procedures before handling.

Transport in bulk according to Annex II of MARPOL 73/78 and the IBC Code
This substance/mixture is not intended to be transported in bulk.

15. Regulatory information

US federal regulations
This product is hazardous according to OSHA 29 CFR 1910.1200. This material is not listed on the US TSCA 8(b) Inventory, and is exempt because it is FIFRA regulated.

TSCA Section 12(b) Export Notification (40 CFR 707, Subpt. D)
Not regulated.

US. OSHA Specifically Regulated Substances (29 CFR 1910.1001-1050)
Not listed.

CERCLA Hazardous Substance List (40 CFR 302.4)
Not listed.

Superfund Amendments and Reauthorization Act of 1986 (SARA)
Hazard categories:
Immediate Hazard - Yes
Delayed Hazard - Yes
Fire Hazard - No
Pressure Hazard - No
Reactivity Hazard - No

SARA 302 Extremely hazardous substance
No

SARA 311/312 Hazardous chemical
Yes

SARA 313 (TRI reporting)
Not regulated.

Other federal regulations
Clean Air Act (CAA) Section 112 Hazardous Air Pollutants (HAPs) List
Not regulated.

Clean Air Act (CAA) Section 112(r) Accidental Release Prevention (40 CFR 68.130)
Not regulated.

Safe Drinking Water Act (SDWA)
Not regulated.

Food and Drug Administration (FDA)
Not regulated.

US state regulations
This product does not contain a chemical known to the State of California to cause cancer, birth defects or other reproductive harm.

US. Massachusetts RTK - Substance List
Niclosamide ethanolamine salt (CAS 1420-04-8)

US. New Jersey Worker and Community Right-to-Know Act
Not regulated.

US. Pennsylvania RTK - Hazardous Substances
Niclosamide ethanolamine salt (CAS 1420-04-8)

US. Rhode Island RTK
Not regulated.
### US. California Proposition 65  
**US - California Proposition 65 - Carcinogens & Reproductive Toxicity (CRT): Listed substance**  
Not listed.

### International Inventories

<table>
<thead>
<tr>
<th>Country(s) or region</th>
<th>Inventory name</th>
<th>On inventory (yes/no)*</th>
</tr>
</thead>
<tbody>
<tr>
<td>United States &amp; Puerto Rico</td>
<td>Toxic Substances Control Act (TSCA) Inventory</td>
<td>No</td>
</tr>
</tbody>
</table>

*A "Yes" indicates this product complies with the inventory requirements administered by the governing country(s).  
A "No" indicates that one or more components of the product are not listed or exempt from listing on the inventory administered by the governing country(s).

### 16. Other information, including date of preparation or last revision

- **Issue date**: 28-October-2013
- **Revision date**: -
- **Version #**: 01

### NFPA Ratings

![NFPA Ratings Diagram]

<table>
<thead>
<tr>
<th>NFPA Rating</th>
</tr>
</thead>
<tbody>
<tr>
<td>0</td>
</tr>
<tr>
<td>1</td>
</tr>
<tr>
<td>2</td>
</tr>
</tbody>
</table>

### References

- EPA: AQUIRE database
- NLM: Hazardous Substances Data Base
- US. IARC Monographs on Occupational Exposures to Chemical Agents
- HSDB® - Hazardous Substances Data Bank
- IARC Monographs. Overall Evaluation of Carcinogenicity
- National Toxicology Program (NTP) Report on Carcinogens
- ACGIH Documentation of the Threshold Limit Values and Biological Exposure Indices

### Disclaimer

The information in the sheet was written based on the best knowledge and experience currently available.