## 1. CHEMICAL PRODUCT AND COMPANY IDENTIFICATION

<table>
<thead>
<tr>
<th>NFPA</th>
<th>HMIS</th>
<th>Personal Protective Equipment</th>
</tr>
</thead>
<tbody>
<tr>
<td><img src="image" alt="OXY" /></td>
<td><img src="image" alt="Health Hazard" /></td>
<td><img src="image" alt="Fire Hazard" /></td>
</tr>
</tbody>
</table>

**Product code:** D2473  
**Product Name:** 1,3-DIBROMO-5,5-DIMETHYLHYDANTOIN  
**Chemical Name:** No information available  
**Synonyms:**  
- 1,3-Dibromo-5,5-dimethyl-2,4-imidazolidinedione  
- 2,4-Imidazolidinedione, 1,3-dibromo-5,5-dimethyl-  
- Dibromantin  
- Dibromantine  
- N,N'-Dibromodimethylhydantoin  
**Recommended use:** Brominating agent.  
**CAS #:** 77-48-5  
**Formula:** C5-H6-Br2-N2-O2  
**RTECS #:** MU0686000  
**CI#:** Not available  
**Supplier:** Spectrum Chemicals and Laboratory Products, Inc.  
14422 South San Pedro St.  
Gardena, CA 90248  
(310) 516-8000  
Order Online At: [https://www.spectrumchemical.com](https://www.spectrumchemical.com)  
**Emergency Telephone Number:** CHEMTREC: 1-800-424-9300  
**Contact Person:** Regina Wachenheim (East Coast)  
**Contact Person:** Martin LaBenz (West Coast)  

---

## 2. HAZARDS IDENTIFICATION
### 2. HAZARDS IDENTIFICATION

#### EMERGENCY OVERVIEW
- **DANGER! OXIDIZER**
  - Contact with combustible material may cause fire
- **DANGER CORROSIVE!**
  - The product causes burns of eyes, skin and mucous membranes
  - Harmful if swallowed

<table>
<thead>
<tr>
<th>Odor:</th>
<th>Physical state:</th>
<th>Appearance:</th>
<th>Color:</th>
</tr>
</thead>
</table>

#### OSHA Regulatory Status
This material is considered hazardous by the OSHA Hazard Communication Standard (29 CFR 1910.1200)

#### POTENTIAL HEALTH EFFECTS

##### Principal Routes of Exposure:
- Ingestion.
- Inhalation.
- Skin.

##### Acute Potential Health Effects:

**Skin Contact:**
Causes skin burns. It may be absorbed through the skin. If absorbed through the skin it may affect behavior/central nervous system and cause central nervous system effects.

**Eye Contact:**
Causes eye burns.

**Inhalation:**
Irritating to respiratory system. May cause chemical burns to the respiratory tract.

**Ingestion:**
May cause gastrointestinal (digestive) tract burns. Harmful if swallowed. It may affect the thyroid.

##### Chronic Potential Health Effects:

<table>
<thead>
<tr>
<th>Component</th>
<th>Carcinogen Status:</th>
</tr>
</thead>
<tbody>
<tr>
<td>1,3-Dibromo-5,5-dimethylhydantoin 77-48-5 (100)</td>
<td>No information available</td>
</tr>
</tbody>
</table>

**Target Organs:**
Eyes. Skin.

**Mutagenic Effects:**
No information available

**Teratogenic Effects:**
No information available

**Aggravated Medical Conditions:**
No information available

See Section 11 for additional Toxicological Information

#### POTENTIAL ENVIRONMENTAL EFFECTS
No information available
3. COMPOSITION/INFORMATION ON INGREDIENTS

<table>
<thead>
<tr>
<th>Components</th>
<th>CAS-No.</th>
<th>Weight %</th>
</tr>
</thead>
<tbody>
<tr>
<td>1,3-Dibromo-5,5-dimethylhydantoin</td>
<td>77-48-5</td>
<td>100</td>
</tr>
</tbody>
</table>

4. FIRST AID MEASURES

General Advice: Poison information centres in each State capital city can provide additional assistance for scheduled poisons (13 1126). Ensure that medical personnel are aware of the material(s) involved and take precautions to protect themselves. First aider needs to protect himself.

Skin Contact: Wash off immediately with soap and plenty of water. Continue flushing with plenty of water for at least 15 minutes. Remove all contaminated clothes and shoes. Immediate medical attention is required. Call a physician immediately.

Eye Contact: Flush eye with water for 15 minutes. Immediate medical attention is required. Call a physician immediately.

Inhalation: Move to fresh air. If breathing is difficult, give oxygen. If not breathing, give artificial respiration. WARNING! It may be hazardous to the person providing aid to give mouth-to-mouth resuscitation when the inhaled or ingested material is toxic, infectious or corrosive. Do not use mouth-to-mouth resuscitation if victim ingested or inhaled the substance; induce artificial respiration with the aid of a pocket mask equipped with a one-way valve or other proper respiratory medical device. Immediate medical attention is required. Call a physician immediately.

Ingestion: Do not induce vomiting without medical advice. Never give anything by mouth to an unconscious person. Immediate medical attention is required. Call a physician or Poison Control Centre immediately.

Notes to Physician: Treat symptomatically

5. FIRE-FIGHTING MEASURES

Flammable Properties

Flashpoint (°C/°F): >93 °C/>200 °F

Flash Point Tested according to: Not available

Lower Explosion Limit (%): No information available

Upper Explosion Limit (%): No information available

Autoignition Temperature (°C/°F): No information available

Suitable Extinguishing Media: Water. CO2 may be of no value in extinguishing fires involving oxidizers and may only provide limited control.


Hazardous Combustion Products: Carbon oxide, Bromine, Nitrogen oxides, Hydrogen bromide
Specific hazards:  
May be combustible at high temperatures  
Oxidizer. Keep away from combustible materials (wood, paper, oil, clothing, etc.)  
Contact with combustible or organic materials may cause fire  
Will accelerate burning when involved in a fire

Special Protective Equipment for Firefighters:  
As in any fire, wear self-contained breathing apparatus pressure-demand, MSHA/NIOSH (approved or equivalent) and full protective gear

Specific Methods:  
Water mist may be used to cool closed containers. For large fires, flood fire area with water from a distance. For larger fires, use water spray or fog. Cool containers with flooding quantities of water until well after fire is out. DO NOT use combustible materials such as sawdust.

6. ACCIDENTAL RELEASE MEASURES

Personal Precautions:  
Keep people away from and upwind of spill/leak. Ensure adequate ventilation. Do not touch damaged containers or spilled material unless wearing appropriate protective clothing. Use personal protective equipment. Avoid contact with skin, eyes and clothing.

Environmental Precautions:  
Prevent further leakage or spillage if safe to do so. Should not be released into the environment. Do not let product enter drains. Do not flush into surface water or sanitary sewer system. Prevent entry into waterways, sewers, basements or confined areas.

Methods for Cleaning Up:  
Use appropriate tools to put the spilled material in a suitable chemical waste disposal container. Shovel into suitable container for disposal. Use a suitable vacuum cleaner. Do not use combustible materials such as paper towels, sawdust, clothing, etc. to clean up spill. Clean contaminated surface thoroughly.

7. HANDLING AND STORAGE

Handling

Technical Measures/Precautions:  
Use only in area provided with appropriate exhaust ventilation. Avoid dust formation. Keep away from incompatible materials.

Safe Handling Advice:  
Wear personal protective equipment. Avoid contact with skin, eyes and clothing. Do not ingest. Do not breathe vapours/dust. Keep away from combustible material. Handle in accordance with good industrial hygiene and safety practice.

Storage

Technical Measures/Storage Conditions:  
Keep containers tightly closed in a dry, cool and well-ventilated place. Keep refrigerated. Keep at temperatures between 2 and 8 °C. Moisture sensitive. Protect from moisture. Do not store near combustible materials. Store in a segregated and approved area. Store away from incompatible materials.
Incompatible Materials:

8. EXPOSURE CONTROLS / PERSONAL PROTECTION

Engineering measures to reduce exposure: Ensure adequate ventilation. Use process enclosures, local exhaust ventilation, or other engineering controls to keep airborne levels below recommended exposure limits. If user operations generate dust, fume or mist, use ventilation to keep exposure to airborne contaminants below the exposure limit.

Personal Protective Equipment

Eye protection: Face-shield

Skin and body protection: Chemical resistant protective suit. Gloves. boots.

Respiratory protection: Wear respirator with dust filter.

Hygiene measures: Avoid contact with skin, eyes and clothing. When using, do not eat, drink or smoke. Wash hands before breaks and immediately after handling the product.

National occupational exposure limits

United States

<table>
<thead>
<tr>
<th>Components</th>
<th>OSHA</th>
<th>NIOSH</th>
<th>ACGIH</th>
<th>AIHA WHEEL</th>
</tr>
</thead>
<tbody>
<tr>
<td>1,3-Dibromo-5,5-dimethylhydantoin - 77-48-5</td>
<td>None</td>
<td>None</td>
<td>None</td>
<td>None</td>
</tr>
</tbody>
</table>

Canada

<table>
<thead>
<tr>
<th>Components</th>
<th>Alberta</th>
<th>British Columbia</th>
<th>Ontario</th>
<th>Quebec</th>
</tr>
</thead>
<tbody>
<tr>
<td>1,3-Dibromo-5,5-dimethylhydantoin - 77-48-5</td>
<td>None</td>
<td>None</td>
<td>None</td>
<td>None</td>
</tr>
</tbody>
</table>

Australia and Mexico

<table>
<thead>
<tr>
<th>Components</th>
<th>Australia</th>
<th>Mexico</th>
</tr>
</thead>
<tbody>
<tr>
<td>1,3-Dibromo-5,5-dimethylhydantoin - 77-48-5</td>
<td>None</td>
<td>None</td>
</tr>
</tbody>
</table>

9. PHYSICAL AND CHEMICAL PROPERTIES
9. PHYSICAL AND CHEMICAL PROPERTIES

<table>
<thead>
<tr>
<th>Property</th>
<th>Value</th>
</tr>
</thead>
<tbody>
<tr>
<td>Physical state</td>
<td>Solid</td>
</tr>
<tr>
<td>Appearance</td>
<td>Powder</td>
</tr>
<tr>
<td>Color</td>
<td>White. Cream. Light yellow.</td>
</tr>
<tr>
<td>Odor</td>
<td>Odorless</td>
</tr>
<tr>
<td>Molecular/Formula weight</td>
<td>285.93</td>
</tr>
<tr>
<td>Taste</td>
<td>No information available</td>
</tr>
<tr>
<td>Flash point (°C)</td>
<td>&gt;93</td>
</tr>
<tr>
<td>Lower Explosion Limit (%)</td>
<td>No information available</td>
</tr>
<tr>
<td>Upper Explosion Limit (%)</td>
<td>No information available</td>
</tr>
<tr>
<td>Autoignition Temperature (°C/°F)</td>
<td>No information available</td>
</tr>
<tr>
<td>Melting point/range(°C/°F)</td>
<td>No information available</td>
</tr>
<tr>
<td>Boiling point/range(°C/°F)</td>
<td>No information available</td>
</tr>
<tr>
<td>pH</td>
<td>No information available</td>
</tr>
<tr>
<td>Decomposition temperature(°C/°F)</td>
<td>197-199 °C/387-390 °F</td>
</tr>
<tr>
<td>Density (g/cm3)</td>
<td>No information available</td>
</tr>
<tr>
<td>Bulk density</td>
<td>No information available</td>
</tr>
<tr>
<td>Specific gravity</td>
<td>No information available</td>
</tr>
<tr>
<td>Evaporation rate</td>
<td>No information available</td>
</tr>
<tr>
<td>Vapor density</td>
<td>No information available</td>
</tr>
<tr>
<td>VOC content (g/L)</td>
<td>No information available</td>
</tr>
<tr>
<td>Odor threshold (ppm)</td>
<td>No information available</td>
</tr>
<tr>
<td>Partition coefficient</td>
<td>No information available</td>
</tr>
<tr>
<td>(n-octanol/water)</td>
<td>No information available</td>
</tr>
<tr>
<td>Miscibility</td>
<td>No information available</td>
</tr>
<tr>
<td>Solubility</td>
<td>No information available</td>
</tr>
</tbody>
</table>

10. STABILITY AND REACTIVITY

<table>
<thead>
<tr>
<th>Property</th>
<th>Value</th>
</tr>
</thead>
<tbody>
<tr>
<td>Stability</td>
<td>Stable at normal conditions</td>
</tr>
<tr>
<td>Conditions to avoid</td>
<td>Heat. Avoid dust formation. Contact with combustible materials (wood, paper, oil, clothing, etc.). Moisture sensitive. Exposure to moisture. Exposure to water. Incompatible materials.</td>
</tr>
<tr>
<td>Possibility of Hazardous Reactions</td>
<td>Contact with combustible materials (wood, paper, oil, clothing, etc.) may cause fire Reaction with water may generate heat</td>
</tr>
<tr>
<td>Polymerization</td>
<td>Hazardous polymerisation does not occur</td>
</tr>
<tr>
<td>Corrosivity</td>
<td>No information available</td>
</tr>
<tr>
<td>Special Remarks on Corrosivity</td>
<td>No information available</td>
</tr>
</tbody>
</table>

11. TOXICOLOGICAL INFORMATION

Acute Toxicity

Component Information
1,3-Dibromo-5,5-dimethylhydantoin - 77-48-5

**Product Information**

- **LC50/inhalation/rat**: No information available
- **LC50/inhalation/mouse**: No information available
- **LD50/dermal/rabbit**: No information available
- **LD50/dermal/rat**: No information available
- **LD50/oral/mouse**: No information available
- **LD50/oral/rat**: 250 mg/kg

**Local Effects**

- **Skin irritation**: Corrosive. Causes burns.
- **Eye irritation**: Corrosive. Causes burns.
- **Inhalation**: Irritating to respiratory system. May cause chemical burns to the respiratory tract.
- **Ingestion**: Corrosive. Causes digestive or gastrointestinal tract burns. Harmful if swallowed.
- **Sensitization**: No information available

**Chronic Toxicity**

- **Chronic Toxicity**: Prolonged or repeated ingestion may affect the thyroid (thyroid hypofunction).
- **Carcinogenic effects**: Not considered carcinogenic

<table>
<thead>
<tr>
<th>Components</th>
<th>NTP</th>
<th>IARC</th>
<th>OSHA HCS - Carcinogens</th>
<th>ACGIH - Carcinogens</th>
<th>Australia - Prohibited Carcinogenic Substances</th>
<th>Australia - Notifiable Carcinogenic Substances</th>
</tr>
</thead>
<tbody>
<tr>
<td>1,3-Dibromo-5,5-dimethylhydantoin</td>
<td>Not listed</td>
<td>Not listed</td>
<td>Not listed</td>
<td>Not listed</td>
<td>Not listed</td>
<td>Not listed</td>
</tr>
</tbody>
</table>

- **Mutagenic Effects**: No information available
- **Reproductive Effects**: No information available
- **Teratogenic Effects**: No information available
- **Target Organs**: Eyes. Skin.

**12. ECOLOGICAL INFORMATION**

**ECOTOXICITY**

**Toxicity to terrestrial and aquatic plants and animals**: Information given is based on data on the components and the ecotoxicology of similar products

**Product code**: D2473  **Product name**: 1,3-DIBROMO-5,5-DIMETHYLHYDANTOIN
Ecotoxicity effects: Aquatic environment. Very toxic to aquatic organisms, may cause long-term adverse effects in the aquatic environment.

Aquatic toxicity:

1,3-Dibromo-5,5-dimethylhydantoin - 77-48-5

Freshwater Fish Species Data: LC50 - Oncorhynchus mykiss (Rainbow trout) - 0.16 ppm - 96 h
LC50 - Oncorhynchus mykiss (Rainbow trout) - 0.58 ppm - 96 h
LC50 - Lepomis macrochirus (Bluegill) - 0.75 ppm - 96 h
LC50 - Lepomis macrochirus (Bluegill) - 0.27 ppm - 96 h

Water Flea Data: EC50 - Daphnia magna - 0.63 ppm - 48 h
EC50 - Daphnia magna - 0.84 ppm - 48 h

Mobility: No information available

Persistence and degradability: No information available

Bioaccumulative potential: No information available

13. DISPOSAL CONSIDERATIONS

Waste from residues / unused products: Waste must be disposed of in accordance with Federal, State and Local regulation.

Contaminated packaging: Empty containers should be taken for local recycling, recovery or waste disposal

<table>
<thead>
<tr>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>1,3-Dibromo-5,5-dimethylhydantoin</td>
<td>None</td>
<td>None</td>
<td>None</td>
<td>None</td>
</tr>
</tbody>
</table>

14. TRANSPORT INFORMATION

DOT

UN-No: UN3085
Proper Shipping Name: Oxidizing solid, corrosive, n.o.s. (1,3-Dibromo-5,5-dimethylhydantoin)
Hazard Class: 5.1
Packing Group: III
Subsidiary Risk: 8
Marine Pollutant: No data available
ERG No: 140
DOT RQ (lbs): No information available
Symbol(s): G

TDG (Canada)

UN-No: UN3085
Proper Shipping Name: Oxidizing solid, corrosive, n.o.s.
Hazard Class: 5.1
Packing Group: III
Subsidiary Risk: 8
Description: No information available

ADR

UN-No: UN3085
Proper Shipping Name: Oxidizing solid, corrosive, n.o.s.
Hazard Class: 5.1
Packing Group: III
Subsidiary Risk: 8
Classification Code: No information available
Description: No information available
CEFIC Tremcard No: No information available

IMO / IMDG
UN-No: UN3085
Proper Shipping Name: Oxidizing solid, corrosive, n.o.s.
Hazard Class: 5.1
Packing Group: III
Subsidiary Risk: 8
Description: No information available
IMDG Page: No information available
Marine Pollutant: No information available
EMS: F-A
MFAG: No information available
Maximum Quantity: No information available

RID
UN-No: UN3085
Proper Shipping Name: Oxidizing solid, corrosive, n.o.s.
Hazard Class: 5.1
Packing Group: III
Subsidiary Risk: 5.1 + 8
Classification Code: No information available
Description: No information available

ICAO
UN-No: UN3085
Proper Shipping Name: Oxidizing solid, corrosive, n.o.s.
Hazard Class: 5.1
Packing Group: III
Subsidiary Risk: 8
Description: No information available

IATA
UN-No: UN3085
Proper Shipping Name: Oxidizing solid, corrosive, n.o.s.
Hazard Class: 5.1
Packing Group: III
Subsidiary Risk: 8
ERG Code: 5C
Description: No information available

15. REGULATORY INFORMATION

International Inventories

<table>
<thead>
<tr>
<th>Components</th>
<th>U.S. TSCA</th>
<th>Philippines (PICCS)</th>
<th>KOREA KECL</th>
<th>Japan ENCS</th>
<th>CHINA</th>
<th>Australia (AICS)</th>
<th>EINECS-No.</th>
</tr>
</thead>
<tbody>
<tr>
<td>1,3-Dibromo-5,5-dimethylhydantoin</td>
<td>Present</td>
<td>Present</td>
<td>Present 97-3-8</td>
<td>9-627</td>
<td>Present</td>
<td>Present</td>
<td>Present 201-030-9</td>
</tr>
</tbody>
</table>

U.S. Regulations

Chemicals Known to the State of California to Cause Cancer:
This product does not contain a chemical requiring a warning under California Prop. 65. (See table below)

Chemicals Known to the State of California to Cause Reproductive Toxicity:
This product does not contain a chemical requiring a warning under California Prop. 65. (See table below)

<table>
<thead>
<tr>
<th>Components</th>
<th>Carcinogen</th>
<th>Developmental Toxicity</th>
<th>Male Reproductive Toxicity</th>
<th>Female Reproductive Toxicity</th>
</tr>
</thead>
<tbody>
<tr>
<td>1,3-Dibromo-5,5-dimethylhydantoin</td>
<td>Not Listed</td>
<td>Not Listed</td>
<td>Not Listed</td>
<td>Not Listed</td>
</tr>
</tbody>
</table>

CERCLA/SARA

<table>
<thead>
<tr>
<th>Components</th>
<th>CERCLA - Hazardous Substances and their Reportable Quantities</th>
<th>Section 302 Extremely Hazardous Substances and TPQs</th>
<th>Section 302 Extremely Hazardous Substances and RQs</th>
<th>Section 313 - Chemical Category</th>
<th>Section 313 - Reporting de minimis</th>
</tr>
</thead>
<tbody>
<tr>
<td>1,3-Dibromo-5,5-dimethylhydantoin</td>
<td>None</td>
<td>None</td>
<td>None</td>
<td>None</td>
<td>None</td>
</tr>
</tbody>
</table>

U.S. TSCA

<table>
<thead>
<tr>
<th>Components</th>
<th>TSCA Section 5(a)2 - Chemicals With Significant New Use Rules (SNURS)</th>
<th>TSCA 8(d) - Health and Safety Reporting</th>
</tr>
</thead>
<tbody>
<tr>
<td>1,3-Dibromo-5,5-dimethylhydantoin</td>
<td>Not Applicable</td>
<td>Not Applicable</td>
</tr>
</tbody>
</table>

Canada

WHMIS hazard class:
C  Oxidizing materials
E  Corrosive material
D1B  Toxic materials

Canada Controlled Products Regulation:
This product has been classified according to the hazard criteria of the CPR (Controlled Products Regulation) and the MSDS contains all of the information required by the CPR.

Inventory

<table>
<thead>
<tr>
<th>Components</th>
<th>Canada (DSL)</th>
<th>Canada (NDSL)</th>
</tr>
</thead>
<tbody>
<tr>
<td>1,3-Dibromo-5,5-dimethylhydantoin</td>
<td>Present</td>
<td>Not Listed</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Components</th>
<th>CEPA Schedule I - Toxic Substances</th>
<th>CEPA - 2010 Greenhouse Gases Subject to Mandatory Reporting</th>
</tr>
</thead>
<tbody>
<tr>
<td>1,3-Dibromo-5,5-dimethylhydantoin</td>
<td>Not listed</td>
<td>Not listed</td>
</tr>
</tbody>
</table>

EU Classification

R-phrase(s)
R 8 - Contact with combustible material may cause fire.
R34 - Causes burns.
R22 - Harmful if swallowed.

S -phrase(s)
S45 - In case of accident or if you feel unwell, seek medical advice immediately (show the label where possible).
S36/37/39 - Wear suitable protective clothing, gloves and eye/face protection.

The product is classified in accordance with Annex VI to Directive 67/548/EEC

**Indication of danger:**
O - Oxidising.
C - Corrosive.
Xn - Harmful.

### 16. OTHER INFORMATION

The MSDS format complies with ANSI Z400.1/Z129.1-2010 standards.

**Preparation Date:** 04-Sep-2013

**Reason for revision:** Not applicable

**Prepared by:** Sonia Owen

**Literature reference:** No information available

All chemicals may pose unknown hazards and should be used with caution. This Material Safety Data Sheet (MSDS) applies only to the material as packaged. If this product is combined with other materials, deteriorates, or becomes contaminated, it may pose hazards not mentioned in this MSDS. The physical properties reported in this MSDS are obtained from the literature and do not constitute product specifications. Information contained herein does not constitute a warranty, whether expressed or implied, as to the safety, merchantability or fitness of the goods for a particular purpose. Spectrum Chemicals & Laboratory Products, Inc. assumes no responsibility for results obtained or for incidental or consequential damages, including lost profits, arising from the use of these data. No warranty against infringement of any patent, copyright or trademark is made or implied. It shall be the user's responsibility to develop proper methods of handling and personal protection based on the actual conditions of use. While this MSDS is based on technical data judged to be reliable, Spectrum assumes no responsibility for the completeness or accuracy of the information contained herein.