MATERIAL SAFETY DATA SHEET

Revised 08/02/06

1. PRODUCT & COMPANY INFORMATION

   Name...................... Halogen T-30
   .................................. BCDMH; Bromochloro-5, 5-dimethylhydantoin
   General use .............. Industrial water treatment
   Chemical Family ....... Halogenated hydantoin

   Manufacturer:.......... .
   Clearon Corp.
   95 MacCorkle Avenue, SW
   South Charleston, WV 25303
   Customer Service 304.746.3000

   24 hour Emergency Telephone numbers:
   Poison Control Center (medical)
   877.800.5553
   Chemtel (US Transportation)
   800.255-3924

2. COMPOSITION / INFORMATION ON INGREDIENTS

<table>
<thead>
<tr>
<th>Chemical Name</th>
<th>CAS #</th>
<th>Wt.%</th>
<th>ACGIH / OSHA</th>
</tr>
</thead>
<tbody>
<tr>
<td>Bromochloro-5,5-dimethylhydantoin</td>
<td>32718-18-6</td>
<td>98</td>
<td>Not Determined</td>
</tr>
<tr>
<td>(BCDMH)</td>
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</tbody>
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3. HAZARDS IDENTIFICATION

   EMERGENCY OVERVIEW:
   Physical appearance  White granular solid with halogen odor
   Corrosive
   Causes irreversible eye damage and skin burns
   Irritating to nose and throat
   May be fatal if inhaled
   Harmful if absorbed through skin or swallowed
   Oxidizer

   POTENTIAL HEALTH EFFECTS

   EYES: Corrosive-May cause temporary or permanent eye damage

   SKIN: Exposure to wet skin may cause severe irritation. May cause skin sensitization.

   INHALATION: Irritant to upper respiratory tract. May cause shortness of breath, headache &
   nausea

   NFPA Rating (Scale 0-4) Health = 3, Fire = 0, Reactivity = 1, Special hazard warning: OXIDIZER
   HMIS Rating (Scale 0-4) Health = 3, Fire = 0, Reactivity = 1
4. FIRST AID MEASURES

**EYES:** Hold eye open and rinse slowly and gently with water for 15-20 minutes. Remove contact lenses, if present, after the first 15 minutes, then continue rinsing eye. Call a poison control center or doctor for treatment advise.

**SKIN:** Take off contaminated clothing. Rinse skin immediately with plenty of water for 15-20 minutes. Call a poison control center or doctor for treatment advise.

**INGESTION:** Call poison control center, or doctor immediately for treatment advise. Have person sip a glass of water if able to swallow. Do not induce vomiting unless told to do so by the poison control center or doctor. Do not give anything by mouth to an unconscious person.

**INHALATION:** Move person to fresh air. If person is not breathing, call 911 or ambulance, then give artificial respiration, preferably by mouth-to-mouth, if possible. Call a poison control center or doctor for further treatment advise.

**NOTE TO PHYSICIAN:** Probable mucosal damage may contraindicate the use of gastric lavage.

5. FIRE FIGHTING MEASURES

**Flash point** None

**Flammable/Explosion limits** Not flammable

**Auto-ignition temperature** Not applicable

**Suitable extinguishing media** Dry powder, carbon dioxide or water spray. In case of exothermic decomposition and appearance of smoke, water should be used to suppress it.

**Fire fighting procedure** Cool containers with water spray. In closed stores, provide fire-fighters with self-contained breathing apparatus in positive pressure mode.

**Unusual fire/explosion hazards** Oxidizing agent. Forms explosive mixtures with combustible, organic or other easily oxidizable materials. When heated to decomposition, may release poisonous and corrosive fumes.

6. ACCIDENTAL RELEASE MEASURES

**Personal precautions** Evacuate area. Use dust respirator, rubber gloves and chemical safety goggles.

**Methods for clean-up** Sweep up, place in a suitable container and hold for waste disposal. Avoid raising dust. Ventilate area and wash spill site after material pickup is complete. Avoid access to streams, lakes or ponds.

7. HANDLING AND STORAGE

**HANDLING:** Keep containers tightly closed.

**STORAGE:** Keep away from all sources of ignition. Recommended storage temperature below 30°C.

Store in a dry, well-ventilated area away from incompatible materials.
8. **EXPOSURE CONTROLS / PERSONAL PROTECTION**

Manufacturer’s TLV-TWA ........ 0.1 mg/m³

Ventilation Requirements......... Use local exhaust as necessary, especially under dusty conditions. Ventilation must be sufficient to maintain atmospheric concentration below exposure limit

Personal protection equipment:
- **Respiratory protection** ........... Approved respirator
- **Hand protection** .................. PVC gloves
- **Eye protection** ................... Chemical safety goggles
- **Skin/Body protection** ............ Body covering clothes and boots
- **Hygiene measures** ............... Do not eat, smoke or drink where material is handled, processed or stored. Wash hands carefully before eating or smoking.

9. **PHYSICAL AND CHEMICAL PROPERTIES**

- **Vapor pressure** .................. 9.35x10(-3) Pa(25 °C)
- **Evaporation rate** ............... Not applicable
- **Odor** ............................ Faint halogen odor
- **Vapor density** ................... Not applicable
- **Appearance** ..................... White to off white tablets
- **Boiling point** .................... Not determined
- **Melting point** .................... Decomposes
- **Solubility in water** ............. 0.22g/100g water @ 25 °C
- **Solubility in solvents** ......... Benzene: 2.5 g/100g @ 25 °C
- **Decomposition temp** ........... >160°C
- **Specific gravity** ................. 1.8-2.0

10. **STABILITY AND REACTIVITY**

- **Materials to Avoid** ........... Oxidizing agents, bases, combustible organic materials.
- **Stability** ....................... This product is stable under normal conditions.
- **Hazardous Polymerization** .... Will not occur
- **Hazardous Decomposition products** ....... CO, HBr, Cl₂, NOₓ, HCl, CO₂
- **Conditions to avoid** ........... Contact with combustible materials may initiate decomposition of the material and emission of smoke.

11. **TOXICOLOGICAL INFORMATION**

<table>
<thead>
<tr>
<th>MODE OF TOXICITY</th>
<th>EFFECTS</th>
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<tbody>
<tr>
<td>ACUTE</td>
<td>Rat oral LD₅₀</td>
</tr>
<tr>
<td></td>
<td>Rat inhalation LC₅₀</td>
</tr>
<tr>
<td></td>
<td>Dermal irritation (rabbit)</td>
</tr>
<tr>
<td></td>
<td>Dermal sensitization (guinea pig)</td>
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</table>

- **Chronic toxicity** .......................... Not available
- **Mutagenicity** ............................ Mutagenic by the Ames Test
  - L5178Y test system. Not genotoxic in micronucleous test in mice.
  - Non genotoxic in in-vivo liver unscheduled DNA synthesis (USD) assay
Carcinogenicity. Not classified by IARC
Not included in NTP 11th report on Carcinogens

12. ECOLOGICAL INFORMATION

Aquatic toxicity:

- 96 hour – LC50, Fish
  - Eastern oyster, Acute flow through: 1.2 mg/L
  - Mysis shrimp, Acute flow through: 1.9 mg/L
  - Rainbow trout, Static: 0.4 mg/L
  - Bluegill sunfish, Static: 0.46 mg/L
  - Sheepshead minnow, Acute flow through: 1.6 mg/L

- 48 hour – LC50, Daphnia magna: 0.75 mg/L (Static)

Avian toxicity:

- Oral LD50, Bobwhite quail: 1839 mg/kg
- Dietary LC50, Mallard duck: > 5620 ppm
- Dietary LC50, Bobwhite quail: > 5620 ppm

13. DISPOSAL CONSIDERATIONS

DISPOSAL METHODS:
Dispose of in approved landfill site or an approved incinerator. Crush and bury empty containers. Avoid access to streams, lakes or ponds. Observe all federal, state and local environmental regulations when disposing of this material.

EMPTY CONTAINER:
Crush and bury containers. Do not throw into public waste disposal site. Avoid contact with organic materials and moisture.

14. TRANSPORT INFORMATION

DOT
Proper shipping name: Oxidizing Solid, N.O.S. (Bromo,chloro-5,5-dimethylhydantoin)
Primary hazard Class/Division: 5.1
UN/NA Number: 1479
Packing Group: II

IMO
Proper shipping name: Oxidizing Solid, N.O.S. (Bromo,chloro-5,5-dimethylhydantoin)
Primary hazard Class/Division: 5.1 – Oxidizing substances
Label: Oxidizing agent (5.1)
Packing Group: II
Marking: Marine pollutant

ICAO/IATA
Label: Oxidizer (5.1)
Class: 5.1
Packing Group: II

15. REGULATORY INFORMATION

USA
This product is registered under FIFRA.
TSCA: EPA Number P-94-34
Subject reporting under SNUR (Significant New Use Rule)- any use, 60 FR 11037

15. REGULATORY INFORMATION - continued

SARA Title III (Superfund Amendments and Reauthorization Act)
This product does not contain a chemical listed at or above de minimis concentrations.

SARA (311, 312) HAZARD CLASS
This product is a hazardous chemical under 29CFR 1910.1200, and categorized as an immediate and delayed health, and reactivity physical hazard.

WASTE CLASSIFICATIONS
Not listed under CERCLA. If this product becomes a waste, it meets the criteria of a hazardous waste as defined under 40 CFR 261 and would have the following EPA hazardous waste number: D001

EEC No............... 251-171-5

Japanese METI . ENCS No. - 5-6368

China inventory ... listed

Philippines......... Listed in PICCS

16. OTHER INFORMATION

This data sheet contains changes from the previous version in sections:
2, 3, 5, 10, 13 & 15 (EU)

The information in this Material Safety Data Sheet should be provided to all who will use, handle, store, transport, or otherwise be exposed to this product. This information has been prepared for the guidance of plant engineering, operations and management and for persons working with or handling this product. Additionally, if this Material Safety Data Sheet is more than three years old, you should contact Clearon at the phone number listed (304) 746-3000 to make certain that this sheet is current.

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