

PONY-BG186-2-012-1-2017A



Pony Testing International Group



Report No.: GRIDJEQ3062455U3a

MSDS Report

Sample Description

1-Bromo-3-chloro-5,5-dimethylhydantoin

Applicant

LONGKOU KEDA CHEMICAL CO., LTD.

Pony Testing International Group

www.ponytest.com



Code: zux9mh5

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Material Safety Data Sheet

According to: ST/SG/AC.10/30/Rev.9 (GHS)
1-Bromo-3-chloro-5,5-dimethylhydantoin

Section 1 - Identification

Product Identifier

Product name: 1-Bromo-3-chloro-5,5-dimethylhydantoin **Trade name:** BCDMH

Brand name: Hydria clear slow dissolving brominating tablets

Relevant identified uses of the substance or mixture and uses advised against

Identified uses: Water treatment Biocide.

Details of the supplier of the safety data sheet

Importer/ Distributor: LONGKOU KEDA CHEMICAL USA LLC
Address: 3104 Creekside Village Drive, Suite 507, Kennesaw, GA 30144
24 Hour Emergency Phone: 1-800-535-5053

Manufacturer: LONGKOU KEDA CHEMICAL CO., LTD.

Address: No.2001 Longgang Road, Longkou City, Shandong Province, China 265700

TEL: +86-535-3463778

FAX: +86-535-8830969

E-mail: liu@kadachem.com

Emergency Phone: +86-535-8830976

Section 2 - Hazards Identification

Classification of the substance or mixture

Classification according to GHS

Oxidising solids(Category 3) Acute toxicity, Oral (Category 4) Skin corrosion/irritation (Category 1B)

Skin sensitisation(Category 1) Serious eye damage / eye irritation (Category 1)

Hazardous to the aquatic environment - acute (Category 1)

GHS label elements:

Pictogram



Signal word

Danger

Hazard statement(s)

H272 May intensify fire; oxidiser.

H302 Harmful if swallowed.

H314 Causes severe skin burns and eye damage.

H317 May cause an allergic skin reaction.

H318 Causes serious eye damage.

H400 Very toxic to aquatic life.

Precautionary statement(s)

P210 Keep away from heat, hot surfaces, sparks, open flames and other ignition sources. No smoking.



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P220 Keep away from clothing and other combustible materials.
P260 Do not breathe dust or mists.
P264+P265 Wash face and hands thoroughly after handling. Do not touch eyes.
P270 Do not eat, drink or smoke when using this product.
P272 Contaminated work clothing should not be allowed out of the workplace.
P273 Avoid release to the environment.
P280 Wear protective gloves/ protective clothing/ eye protection/ face protection.
P301+ P317 IF SWALLOWED: Get medical help.
P301+P330+P331 IF SWALLOWED: Rinse mouth. Do NOT induce vomiting.
P302+ P352 IF ON SKIN: Wash with plenty of soap and water.
P302+P361+P354 IF ON SKIN: Take off immediately all contaminated clothing. Immediately rinse with water for several minutes.
P304 + P340 IF INHALED: Remove person to fresh air and keep comfortable for breathing.
P305 + P354 + P338 IF IN EYES: Immediately rinse with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing.
P316 Get emergency medical help immediately.
P330 Rinse mouth.
P333+P317 If skin irritation or rash occurs: Get medical help.
P362+P364 Take off contaminated clothing and wash it before reuse.
P363 Wash contaminated clothing before reuse.
P370 + P378 In case of fire: Use alcohol resistant foam or fine spray/water fog to extinguish.
P391 Collect spillage.
P405 Store locked up.
P501 Dispose of contents/container in accordance with local/regional/national/international regulations.

Other hazards

Physical and chemical hazards: See Section 10

Human health hazards: See Section 11

Environmental hazards: See Section 12

Section 3 – Composition/Information on Ingredient

Chemical composition

Component	CAS No.	Formula	Composition	EC No.	GHS CLASS
1-Bromo-3-chloro-5,5-dimethylhydantoin	16079-88-2	C ₅ H ₆ BrClN ₂ O ₂	≥98%	240-230-0	Ox. Sol. 3 Acute Tox. 4 Skin Corr. 1B Skin Sens. 1 Eye Dam. 1 Aquatic Acute 1 H272 H302 H314 H317 H318 H400

For the full text of H-Statements mentioned in this Section, see Section 16.



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Section 4-First Aid Measures

Description of first aid measures

Eye Contact: Check for and remove any contact lenses. Flush with copious amounts of water for at least 15 minutes. Assure adequate flushing by separating the eyelids with fingers. Get medical attention if irritation occurs.

Skin Contact: Immediately wash skin with soap and copious amounts of water while removing contaminated clothing and shoes. Be particularly careful to clean folds, crevices, creases and groin. Cover the irritated skin with an emollient. Wash clothing before reuse. Thoroughly clean shoes before reuse. If irritation develops and persists, seek medical attention.

Ingestion: Do not induce vomiting unless directed to do so by medical personnel. Never give anything by mouth to an unconscious person. Loosen tight clothing such as a collar, tie, belt or waistband. Get medical attention immediately. Examine the lips and mouth to ascertain whether the tissues are damaged, a possible indication that the toxic material was ingested; the absence of such signs, however, is not conclusive.

Inhalation: Remove from exposure and move to fresh air immediately. Loosen tight clothing such as a collar, tie, belt or waistband. If not breathing, give artificial respiration. If breathing is difficult, give oxygen. Seek medical attention if irritation develops or persists. **WARNING:** It may be hazardous to the person providing aid to give mouth-to-mouth resuscitation when the inhaled material is toxic, infectious or corrosive. Seek immediate medical attention.

Personal protective equipment for first-aid responders:

No further relevant information available.

Most important symptoms/effects, acute and delayed:

No further relevant information available.

Indication of immediate medical attention and special treatment needed:

Treat symptomatically.

Section 5 – Fire-Fighting Measures

Extinguishing media

Suitable Extinguishing Media:

USE FLOODING QUANTITIES OF WATER. DO NOT use dry chemical, CO₂, foam or halogenated-type extinguishers. Do NOT use ammonium phosphate extinguishers. Use water spray to cool unopened containers.

Special hazards arising from the substance or mixture:

Contact with other material may cause fire. May accelerate combustion. May form explosive mixtures with air. Containers may explode on heating. Avoid generating dust, particularly clouds of dust in a confined or unventilated space as dusts may form an explosive mixture with air. Dust clouds generated by the fine grinding of the solid are a particular hazard; accumulations of fine dust may burn rapidly and fiercely if ignited. Thermal decomposition can lead to release of irritating gases and vapors. Keep product and empty container away from heat and sources of ignition.

Special Protective Equipment and Precautions for Firefighters:



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Alert Fire Brigade and tell them location and nature of hazard. Wear full body protective clothing with breathing apparatus. Prevent, by any means available, spillage from entering drains or water course. Use fire fighting procedures suitable for surrounding area. Do not approach containers suspected to be hot. Cool fire exposed containers with water spray from a protected location. If safe to do so, remove containers from path of fire. Equipment should be thoroughly decontaminated after use.

Section 6 - Accidental Release Measures

Personal precautions, protective equipment and emergency procedures

If packages rupture. Ensure adequate ventilation. Use personal protective equipment. Keep people away from and upwind of spill/leak. Evacuate personnel to safe areas. Eliminate all ignition sources (no smoking, flares, sparks or flames in immediate area). Avoid all contact with any organic matter including fuel, solvents, sawdust, paper or cloth and other incompatible materials, as ignition may result. DO NOT use sawdust as fire may result. Do not touch damaged containers or spilled material unless wearing appropriate protective clothing. Keep substance wet using water spray. Avoid dust formation. Avoid breathing dust, vapor, mist, or gas. Shut off source of the leak only if it is easy to do so. Do not get water inside containers.

Environmental precautions

Take precautions to ensure product does not contaminate the ground or enter the drainage system, surface water, sanitary sewer or ground water system. Discharge into the environment must be avoided.

Methods and materials for containment and cleaning up

Sweep up and place in suitable containers for recycle or disposal according to local / national regulations (see section 13). Keep in suitable, closed containers for disposal.

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 disposal information.

Section 7 - Handling and Storage

Precautions for safe handling

Dust generated in handling of this product can be explosive if sufficient quantities are mixed in air. In accordance with good industrial practice, handle with care and avoid unnecessary personal contact. Wash thoroughly after handling. Use with adequate ventilation. Minimize dust generation and accumulation. Avoid contact with eyes, skin, and clothing. Avoid breathing dust, vapor, mist, or gas. Avoid physical damage to the container. Empty containers retain product residue, (dust and/or solids), and can be dangerous. Keep away from open flames, hot surfaces and sources of ignition. Keep away from heat and direct sunlight. Use only non-sparking tools. Use explosion-proof equipment. Ground and bond containers when transferring material. Take necessary action to avoid static electricity discharge. Do not eat, drink or smoke while handling the product. Keep away from heat. Keep away from sources of ignition. Do not allow water to get into the container. Keep away from incompatibles such as reducing agents, combustible materials, organic materials, acids.

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Conditions for safe storage, including any incompatibilities

Store in a cool, dry, well-ventilated away from incompatible substances. Store in a tightly closed container. Do not store at elevated temperatures. Keep away from sources of ignition. Keep away from moisture and water. Avoid storing product in direct sunlight for extended periods of time. Store away from flammable or combustible materials, debris and waste. DO NOT stack on wooden floors or pallets. Keep out of reach of children.

Specific end uses

No data available

Section 8 - Exposure Controls/Personal Protection

Control parameters

Exposure limits No data available

Exposure controls

Appropriate engineering controls

Ensure adequate ventilation, especially in confined areas. Ensure that eyewash stations and safety showers are close to the workstation location. Wherever possible, engineering control measures such as the isolation or enclosure of the process, the introduction of process or equipment changes to minimise release or contact, and the use of properly designed ventilation systems, should be adopted to control hazardous materials at source.

Personal Protective Equipment

Eyes Protection: Use chemical safety goggles and/or a full face shield.

Skin Protection: Wear appropriate protective gloves.

Body Protection: Choose body protection according to the amount and concentration of the dangerous substance at the work place.

Respirators Protection: When workers are facing concentrations above the exposure limit they must use appropriate certified respirators. To protect the wearer, respiratory protective equipment must be the correct fit and be used and maintained properly. Large scale/emergency use: Use a NIOSH/MSHA or European Standard EN 136 approved respirator if exposure limits are exceeded or if irritation or other symptoms are experienced. Small scale/Laboratory use: Use a NIOSH/MSHA or European Standard EN 149:2001 approved respirator if exposure limits are exceeded or if irritation or other symptoms are experienced.

Other Protection: Do not eat, smoke or drink when material is handled, processed or stored. Wash hands carefully before eating or smoking. To maintain good health habits.

Section 9 - Physical and Chemical Properties

Physical State

Colour

Odour

pH

Melting point/freezing point

Powder / granule / tablet

White or off-white

Slightly halogen odor

No data available

161-164°C

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Boiling point or initial boiling point and boiling range	No data available
Flash point	Not applicable
Flammability (solid, gas)	No data available
Lower and upper explosion limit/ flammability limit	No data available
Vapour pressure	No data available
Relative vapour density	No data available
Density/Relative density	Approximately 1.8-2.0
Solubility	Slightly soluble
Partition coefficient: n-octanol/water	No data available
Auto-ignition temperature	No data available
Decomposition temperature	No data available
Kinematic viscosity	No data available
Particle characteristics	No data available

Section 10 - Stability and Reactivity

Reactivity	No data available
Chemical stability	Stable under normal conditions.
Possibility of hazardous reactions	
Hazardous Polymerization	Will not occur.
Hazardous Reactions	None under normal processing.
Conditions to avoid	Incompatible materials. Excess heat. Direct sunlight, dust generation, ignition sources, exposure to air, combustible materials, exposure to moist air or water.
Incompatible materials	Strong oxidizer, Strong reducing agents, Strong acids, Strong bases, Organic materials.
Hazardous decomposition products	May produce irritating and toxic fumes and gases. Carbon monoxide (CO). Carbon dioxide (CO ₂). Nitrogen oxides (NO _x). Hydrogen bromide (HBr). Hydrogen chloride (HCl). Bromine. Chlorine.

Section 11 - Toxicological Information

Information on toxicological effects

Acute toxicity:

CAS# 16079-88-2:

Oral, rat: LD50 = 1390 mg/kg;

Skin, rabbit: LD50 > 2000 mg/kg;

Skin corrosion/irritation	No data available
Serious eye damage/eye irritation	No data available
Respiratory or skin sensitization	May cause an allergic skin reaction.

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Germ cell mutagenicity

No data available

Carcinogenicity

1-Bromo-3-chloro-5,5-dimethylimidazolidine-2,4-dione - IARC: No component of this product present at levels greater than or equal to 0.1% is identified as probable, possible or confirmed human carcinogen by IARC.

Reproductive toxicity

No data available

Specific target organ toxicity - single exposure

No data available

Specific target organ toxicity - repeated exposure

No data available

Aspiration hazard

No data available

Potential Health Effects

Eye: The material can produce chemical burns to the eye following direct contact. Vapours or mists may be extremely irritating. If it enters the eyes, the substance will cause serious eye damage. Direct eye contact with acid corrosives may produce pain, lachrymation, photophobia and burns. Mild burns of the epithelia generally recover rapidly and completely. Severe burns produce long-lasting and possible irreversible damage. The appearance of the burn may not be apparent for several weeks after the initial contact. The cornea may ultimately become deeply vascularised and opaque resulting in blindness.

Skin: The material can produce chemical burns following direct contact with the skin. Open cuts, abraded or irritated skin should not be exposed to this material. Skin contact with acidic corrosives may result in pain and burns; these may be deep with distinct edges and may heal slowly with the formation of scar tissue. Solution of material in moisture on the skin, or perspiration, may markedly increase skin corrosion and accelerate tissue destruction. Entry into the blood-stream through, for example, cuts, abrasions, puncture wounds or lesions, may produce systemic injury with harmful effects.

Ingestion: Accidental ingestion of the material may be harmful; animal experiments indicate that ingestion of less than 150 gram may be fatal or may produce serious damage to the health of the individual. The material can produce chemical burns within the oral cavity and gastrointestinal tract following ingestion. Ingestion of acidic corrosives may produce circumoral burns with a distinct discolouration of the mucous membranes of the mouth, throat and oesophagus. Immediate pain and difficulties in swallowing and speaking may also be evident. Oedema of the epiglottis may produce respiratory distress and possibly, asphyxia. Nausea, vomiting, diarrhoea and a pronounced thirst may occur. More severe exposures may produce a vomitus containing fresh or dark blood and large shreds of mucosa. Shock, with marked hypotension, weak and rapid pulse, shallow respiration and clammy skin may be symptomatic of the exposure. Circulatory collapse may, if left untreated, result in renal failure. Severe cases may show gastric and oesophageal perforation with peritonitis, fever and abdominal rigidity. Stricture of the oesophageal, gastric and pyloric sphincter may occur as within several weeks or may be delayed for years. Death may be rapid and often results from asphyxia, circulatory collapse or aspiration of even minute amounts. Delayed deaths may be due to peritonitis, severe nephritis or pneumonia. Coma and convulsions may be terminal.

Inhalation: Toxic and highly irritating vapours containing bromine and chlorine compounds are released if the substance come into contact with moisture or organic matter. Inhalation of dusts, generated by the material, during the course of normal handling, may be harmful. Persons with impaired respiratory function, airway diseases and

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conditions such as emphysema or chronic bronchitis, may incur further disability if excessive concentrations of particulate are inhaled. If prior damage to the circulatory or nervous systems has occurred or if kidney damage has been sustained, proper screenings should be conducted on individuals who may be exposed to further risk if handling and use of the material result in excessive exposures. Chlorine vapour is extremely irritating to the upper respiratory tract and lungs. Symptoms of exposure to chlorine include coughing, choking, breathing difficulty, chest pain, headache, vomiting, pulmonary oedema. Inhalation may cause lung congestion, bronchitis and loss of consciousness. Effects may be delayed. Delayed effects of exposure to chlorine vapour can include shortness of breath, violent headaches, pulmonary oedema and pneumonia. Acidic corrosives produce respiratory tract irritation with coughing, choking and mucous membrane damage. Symptoms of exposure may include dizziness, headache, nausea and weakness. In more severe exposures, pulmonary oedema may be evident either immediately or after a latent period of 5-72 hours. Symptoms of pulmonary oedema include a tightness in the chest, dyspnoea, frothy sputum and cyanosis. Examination may reveal hypotension, a weak and rapid pulse and moist rates. Death, due to anoxia, may occur several hours after onset of the pulmonary oedema.

Signs and Symptoms of Exposure

Practical experience shows that skin contact with the material is capable either of inducing a sensitisation reaction in a substantial number of individuals, and/or of producing a positive response in experimental animals. Limited evidence suggests that repeated or long-term occupational exposure may produce cumulative health effects involving organs or biochemical systems. There is some evidence that human exposure to the material may result in developmental toxicity. This evidence is based on animal studies where effects have been observed in the absence of marked maternal toxicity, or at around the same dose levels as other toxic effects but which are not secondary non-specific consequences of the other toxic effects. Long term exposure to high dust concentrations may cause changes in lung function (i.e. pneumoconiosis). Repeated or prolonged exposure to acids may result in the erosion of teeth, inflammatory and ulcerative changes in the mouth and necrosis (rarely) of the jaw. Bronchial irritation, with cough, and frequent attacks of bronchial pneumonia may ensue. Gastrointestinal disturbances may also occur. Chronic exposures may result in dermatitis and/or conjunctivitis. To the best of our knowledge, the chemical, physical, and toxicological properties have not been thoroughly investigated.

Additional Information

RTECS#: CAS# 16079-88-2; Unlisted

Section 12 - Ecological Information

Toxicity	No data available
Persistence and degradability	No data available
Bioaccumulative potential	No data available
Mobility in soil	No data available
Results of PBT and vPvB assessment	No data available
Other adverse effects	Do not empty into drains. Very toxic to aquatic life.



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Section 13 - Disposal Considerations

Waste treatment methods

Waste from Residues / Unused Products: Chemical waste generators must determine whether a discarded chemical is classified as a hazardous waste. Additionally, waste generators must consult state and local hazardous waste regulations to ensure complete and accurate classification.

Contaminated packaging: Contaminated packaging material should be treated equivalent to residual chemical. Clean packaging material should be subjected to waste management schemes (recovery recycling, reuse) according to local legislation.

Section 14 - Transport Information

	IATA/DGR	IMDG/IMO	ADR/RID
Proper shipping name	Oxidizing solid, corrosive, n.o.s. (1-Bromo-3-chloro-5,5-di methylhydantoin)	OXIDIZING SOLID, CORROSIVE, N.O.S. (1-Bromo-3-chloro-5,5-di methylhydantoin)	OXIDIZING SOLID, CORROSIVE, N.O.S. (1-Bromo-3-chloro-5,5-di methylhydantoin)
Hazard class	5.1 (8)	5.1 (8)	5.1 (8)
Un number	UN3085	UN3085	UN3085
Packing group	III	III	III

Section 15 - Regulatory Information

Safety, health and environmental regulations/legislation specific for the substance or mixture

Regulatory information: Reference to the local, national, US, EU, CA and international

Canada

CAS# 16079-88-2 is listed on Canada's DSL List

US Federal

Toxic Substance Control Act (TSCA)

CAS# 16079-88-2 is listed on the TSCA Inventory.

China

Inventory of Existing Chemical Substances Produced or Imported in China (IECSC)

CAS# 16079-88-2 is listed on the IECSC Inventory.



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Section 16 - Additional Information

MSDS Creation Date: Aug 03, 2023

To the best of our knowledge, the information contained herein is accurate. However, neither the above named supplier nor any of its subsidiaries assumes any liability whatsoever for the accuracy or completeness of the information contained herein.

Final determination of suitability of any material is the sole responsibility of the user. All materials may present unknown hazards and should be used with caution. Although certain hazards are described herein, we cannot guarantee that these are the only hazards that exist.

Text of H-code(s) mentioned in Section 3

Ox. Sol. 3: Oxidising solids(Category 3)

Acute Tox. 4: Acute toxicity, Oral(Category 4)

Skin Corr. 1B: Skin corrosion(Category 1B)

Skin Sens. 1: Skin sensitisation(Category 1)

Eye Dam. 1: Serious eye damage (Category 1)

Aquatic Acute 1: Acute aquatic toxicity (Category 1)

H272 May intensify fire; oxidiser.

H302 Harmful if swallowed.

H314 Causes severe skin burns and eye damage.

H317 May cause an allergic skin reaction.

H318 Causes serious eye damage.

H400 Very toxic to aquatic life.

Other Information:

ACGIH: (American Conference of Governmental Industrial Hygienists); CAS: (Chemical Abstracts Service); DSL: (the Domestic Substances List of Canada); EC: (European Commission); IARC: (International Agency for Research on Cancer); IATA: (International Air Transport Association); IMDG: (International Maritime Dangerous Goods); ADR: (European Agreement Concerning the International Carriage of Dangerous Goods by Road); RID: (Regulations Concerning the International Carriage of Dangerous Goods by Rail); LD50: (Lethal dose, 50 percent kill); NDSL: (the Non-domestic Substances List of Canada); NIOSH: (US National Institute for Occupational Safety and Health); NTP: (US National Toxicology Program); OSHA: (US Occupational Safety and Health); PEL: (Permissible Exposure Level); REL: (Recommended Exposure Limit); RTECS: (Registry of Toxic Effects of Chemical Substances); STEL: (Short Term Exposure Limit); TDG: (Recommendations on the TRANSPORT OF DANGEROUS GOODS Model Regulations); TSCA: (Toxic Substances Control Act of USA); IECSC: (Inventory of Existing Chemical Substances Produced or Imported in China); TWA: (Time Weighted Average); TLV: (Threshold Limit Value)



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