



FOR ANY EMERGENCY, 24 HOURS / 7 DAYS, CALL:	1-800-654-6911 (OUTSIDE USA: 1-423-780-2970)
FOR ALL TRANSPORTATION ACCIDENTS, CALL CHEMTREC®:	1-800-424-9300 (OUTSIDE USA: 1-703-527-3887)
FOR ALL MSDS QUESTIONS & REQUESTS, CALL:	1-800-511-MSDS (OUTSIDE USA: 1-423-780-2347)

PRODUCT NAME: HTH® SPA BROMINATING TABLETS

EPA Registration Number: 6836-116-1258

1. PRODUCT AND COMPANY IDENTIFICATION

Arch Chemicals, Inc. 501 Merritt 7 PO Box 5204 Norwalk, CT 06856-5204	REVISION DATE:	05/08/2009
	SUPERCEDES:	08/30/2007
	MSDS Number:	000000004608
	SYNONYMS:	None
	CHEMICAL FAMILY:	Mixture of halogenated hydantoins
	DESCRIPTION / USE:	Spa & Hot Tub Sanitizer
	FORMULA:	NOT APPLICABLE/MIXTURE

2. HAZARDS IDENTIFICATION

OSHA Hazard Classification:	Toxic by ingestion, Corrosive to eyes., Skin and respiratory irritant, Possible skin sensitizer, Oxidizer
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Routes of Entry:	Inhalation, skin, eyes, ingestion
Chemical Interactions:	No known or reported interactions.
Medical Conditions Aggravated:	Respiratory diseases including asthma and bronchitis, Skin diseases including eczema and sensitization

Human Threshold Response Data

Odor Threshold	Not established for product.
Irritation Threshold	Not established for product.

Hazardous Materials Identification System / National Fire Protection Association Classifications

<u>Hazard Ratings :</u>	<u>Health</u>	<u>Flammability</u>	<u>Physical / Instability</u>	<u>PPI / Special hazard.</u>
HMIS	3	1	1	
NFPA	3	1	1	OX



Immediate (Acute) Health Effects

Inhalation Toxicity: Inhalation of dust may cause mucous membrane and lung irritation with symptoms of coughing and choking.

Skin Toxicity: Skin contact may cause mild to moderate irritation consisting of transient redness and swelling. This irritant effect would not be expected to result in permanent damage. Prolonged or repeated exposure may cause severe irritation.

Eye Toxicity: Severe irritation and/or burns can occur following exposure. Direct contact may cause impairment of vision and corneal damage. Rinsing of the eye should take place immediately.

Ingestion Toxicity: Toxic if swallowed. Irritation and/or burns can occur to the entire gastrointestinal tract, including the stomach and intestines, characterized by nausea, vomiting, diarrhea, abdominal pain, bleeding, and/or tissue ulceration.

Acute Target Organ Toxicity: Corrosive to the eyes and mildly to moderately irritating to the skin and respiratory tract.

Prolonged (Chronic) Health Effects

Carcinogenicity: This product is not known or reported to be carcinogenic by any reference source including IARC, OSHA, NTP or EPA.

Reproductive and Developmental Toxicity: Not known or reported to cause reproductive or developmental toxicity.

Inhalation: There are no known or reported effects from chronic exposure except for effects similar to those experienced from acute exposure.

Skin Contact: There are no known or reported effects from chronic exposure except for effects (if any) similar to those experienced from acute exposure. Prolonged or repeated exposure may cause severe irritation.

Ingestion: Chronic ingestion of this product may cause severe irritation and possible corrosive effects.

Eye Contact: Prolonged contact may result in permanent damage. Corneal involvement or visual impairment is expected.

Sensitization: May cause allergic skin sensitization in some individuals.

Chronic Target Organ Toxicity: This product has not been tested. However based on similar structured products, this product may cause allergic skin sensitization.

Supplemental Health Hazard Information : No additional health information available.

3. COMPOSITION / INFORMATION ON INGREDIENTS

<u>CAS OR CHEMICAL NAME</u>	<u>CAS #</u>	<u>% RANGE</u>
2,4-IMIDAZOLIDINEDIONE, 1-BROMO-3-CHLORO-5,5-DIMETHYL	16079-88-2	60 - 65



2,4-IMIDAZOLIDINEDIONE, 1,3-DICHLORO- 118-52-5 25 - 30
5,5-DIMETHYL

2,4-IMIDAZOLIDINEDIONE, 1,3-DICHLORO-5- 89415-87-2 10 - 15
ETHYL-5-METHYL

SODIUM CHLORIDE 7647-14-5 1 - 5

Product (HTH® Spa Brominating Tablets) >=

4. FIRST AID MEASURES

General Advice: Call a poison control center or doctor for treatment advice. For 24-hour emergency medical assistance, call Arch Chemical Emergency Action Network at 1-800-654-6911. Have the product container or label with you when calling a poison control center or doctor, or going for treatment.

Inhalation: IF INHALED: Move person to fresh air. If person is not breathing, call 911 or an ambulance, then give artificial respiration, preferably mouth-to-mouth if possible. Call a poison control center or doctor for further treatment advice.

Skin Contact: IF ON SKIN OR CLOTHING: Take off contaminated clothing. Rinse skin immediately with plenty of water for 15-20 minutes. Call a poison control center or doctor for treatment advice.

Eye Contact: IF IN EYES: Hold eye open and rinse slowly and gently with water for 15-20 minutes. Remove contact lenses, if present, after the first 5 minutes, then continue rinsing eye. Call a poison control center or doctor for treatment advice.

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

Notes to Physician: Probable mucosal damage may contraindicate the use of gastric lavage.

5. FIRE FIGHTING MEASURES

Flammability Summary (OSHA): Combustible above 93 deg. C / 200 deg. F.

Flammable Properties

Flash Point: 141 DEG°C / 287 DEG°F
Autoignition Temperature: No data
Fire / Explosion Hazards: Strong oxidizer Dust in air can be an explosion hazard. If the product is involved in a fire, toxic smokes could develop.



Extinguishing Media: Water in flooding quantities Foam Dry chemical
Fire Fighting Instructions: In case of fire, use normal fire-fighting equipment and the personal protective equipment recommended in Section 8 to include a NIOSH approved self-contained breathing apparatus.
Hazardous Combustion Products: During a fire, irritating and highly toxic gases may be generated by thermal decomposition or combustion.
Upper Flammable / Explosive Limit, % in air: Not applicable
Lower Flammable / Explosive Limit, % in air: Not applicable

6. ACCIDENTAL RELEASE MEASURES

Personal Protection for Emergency Situations: Additional protective clothing must be worn to prevent personal contact with this material. Those items include but are not limited to boots, impervious gloves, hard hat, splash-proof goggles, impervious clothing, i.e., chemically impermeable suit, self-contained breathing apparatus.

Spill Mitigation Procedures

Air Release: Hazardous concentrations in air may be found in local spill area and immediately downwind. Dusting from this product could occur. Contain all solids for treatment and/or disposal as a potential hazardous waste.

Water Release: This material is heavier than water. This material is soluble in water. Notify all downstream users of possible contamination. Divert water flow around spill if possible and safe to do so. Contain all solids for treatment and/or disposal as a potential hazardous waste.

Land Release: Sweep up and place in suitable clean, dry containers for reclamation or later disposal. Do not place spill materials back in their original containers. Neutralize any residue with dilute, alkaline sodium bisulfite or thiosulfate solution; absorb with sand or vermiculite and place in a compatible container for disposal. If spilled material is wet, neutralize and proceed as stated above. Contain all solids for treatment and/or disposal as a potential hazardous waste.

Additional Spill Information : Remove all sources of ignition. Stop source of spill as soon as possible and notify appropriate personnel. Utilize emergency response personal protection equipment prior to the start of any response. Evacuate all non-essential personnel. Dispose of spill residues per guidelines under Section 13, Disposal Consideration.

7. HANDLING AND STORAGE

Handling: Do not take internally. Avoid contact with skin, eyes and clothing. Upon contact with skin or eyes, wash off with water. Avoid inhalation of dust and fumes.



Storage: Store in a cool dry ventilated location, away from sources of ignition or other incompatible conditions and chemicals. Keep container(s) closed. Avoid direct exposure to sunlight. Avoid creating dusts.

Incompatible Materials for Storage: Refer to Section 10, "Incompatible Materials."

Do Not Store At temperatures Above: 37 DEG°C / 100 DEG°F

Empty Container Warning: Empty containers retain hazardous residue, dispose of accordingly.

8. EXPOSURE CONTROLS / PERSONAL PROTECTION

Ventilation: Local exhaust ventilation or other engineering controls are normally required when handling or using this product to keep airborne exposures below the TLV, PEL or other recommended exposure limit.

Protective Equipment for Routine Use of Product

Respiratory Protection : Wear a NIOSH approved respirator if levels above the exposure limits are possible.

Respirator Type : A NIOSH approved air purifying respirator with organic vapor cartridge and N95 particulate filter. Air purifying respirators should not be used in oxygen deficient or IDLH atmospheres or if exposure concentrations exceed ten (10) times the published limit.

Skin Protection : Wear impervious gloves to avoid skin contact. When exposure to high concentrations are prolonged or repeated use protective boots and apron in addition to gloves.

Eye Protection: Use chemical goggles.

Protective Clothing Type: Impervious, Neoprene

General Protective Measures: An eye wash and safety shower should be provided in the immediate work area.

Exposure Limit Data

<u>CHEMICAL NAME</u>	<u>CAS #</u>	<u>Name of Limit</u>	<u>Exposure</u>
2,4-IMIDAZOLIDINEDIONE, 1,3-DICHLORO-5,5-DIMETHYL	118-52-5	ZUS_ACGIH	0.2 mg/m3 TWA
2,4-IMIDAZOLIDINEDIONE, 1,3-DICHLORO-5,5-DIMETHYL	118-52-5	ZUS_ACGIH	0.4 mg/m3 STEL
2,4-IMIDAZOLIDINEDIONE, 1,3-DICHLORO-5,5-DIMETHYL	118-52-5	ZUS_OSHAPO	0.2 mg/m3 TWA
2,4-IMIDAZOLIDINEDIONE, 1,3-DICHLORO-5,5-DIMETHYL	118-52-5	ZUS_OSHAPO	0.4 mg/m3 STEL
2,4-IMIDAZOLIDINEDIONE, 1,3-DICHLORO-5,5-DIMETHYL	118-52-5	ZUS_OSHAP1	0.2 mg/m3 TWA
2,4-IMIDAZOLIDINEDIONE, 1,3-DICHLORO-5,5-DIMETHYL	118-52-5	NIOSH-IDLH	5 mg/m3

9. PHYSICAL AND CHEMICAL PROPERTIES

Physical State: solid



Form	Tablet
Color:	off-white
Odor:	Slightly pungent
Molecular Weight:	Not Applicable/Mixture
Specific Gravity :	No data
pH :	3.6 1% slurry (@ 25 Deg. C)
Boiling Point:	Not applicable
Freezing Point:	Not applicable
Melting Point:	120 - 148 DEG°C / 248 - 298 DEG°F
Density:	1.6000g/cc
Vapor Pressure:	Not applicable (@ 25 Deg. C)
Vapor Density:	No data
Viscosity:	Not applicable
Fat Solubility:	No data
Solubility in Water:	5.00000 gm/l (@ 25 Deg. C)
Partition coefficient n-octanol/water:	Not applicable
Evaporation Rate:	<1.00
Oxidizing:	Oxidizer
Volatiles, % by vol.:	< 0.500
VOC Content	No data
HAP Content	No data

10. STABILITY AND REACTIVITY

Stability and Reactivity Summary:	Stable under normal conditions. Not sensitive to mechanical shock. Not sensitive to static discharge. Product is an oxidizer. Corrosive. Product will not undergo hazardous polymerization.
Conditions to Avoid:	Sparks, open flame, other ignition sources, and elevated temperatures., Exposure to moist air or water, Contact with incompatible substances
Chemical Incompatibility:	strong acids, strong bases, oxidizers, moisture
Hazardous Decomposition Products:	Carbon monoxide, Carbon dioxide, Chlorine, Bromine, Nitrogen, organic materials
Decomposition Temperature:	165 DEG°C - , 329 DEG°F-

11. TOXICOLOGICAL INFORMATION

Component Animal Toxicology

Oral LD50 value:

2,4- IMIDAZOLIDINEDIONE, 1-BROMO-3-CHLORO- 5,5-DIMETHYL	LD50 = 1,390 mg/kg Rat
2,4- IMIDAZOLIDINEDIONE, 1,3-DICHLORO-5,5-	LD50 = 542 mg/kg Rat



DIMETHYL
2,4-
IMIDAZOLIDINEDIONE,
1,3-DICHLORO-5-ETHYL-
5-METHYL
SODIUM CHLORIDE No data
LD50 = 3,000 mg/kg Rat

Dermal LD50 value:

2,4-
IMIDAZOLIDINEDIONE,
1-BROMO-3-CHLORO-
5,5-DIMEMETHYL LD50 > 2,000 mg/kg Rabbit
2,4-
IMIDAZOLIDINEDIONE,
1,3-DICHLORO-5,5-
DIMETHYL LD50 > 20,000 mg/kg Rabbit
2,4-
IMIDAZOLIDINEDIONE,
1,3-DICHLORO-5-ETHYL-
5-METHYL No data
SODIUM CHLORIDE LD50 > 10,000 mg/kg Rabbit

Inhalation LC50 value:

2,4-
IMIDAZOLIDINEDIONE,
1-BROMO-3-CHLORO-
5,5-DIMEMETHYL Inhalation LC50 No data
2,4-
IMIDAZOLIDINEDIONE,
1,3-DICHLORO-5,5-
DIMETHYL Inhalation LCLo 1 h = 20 MG/L Rat
2,4-
IMIDAZOLIDINEDIONE,
1,3-DICHLORO-5-ETHYL-
5-METHYL No data
SODIUM CHLORIDE Inhalation LC50 1 h > 42 MG/L Rat

Product Animal Toxicity

Oral LD50 value: LD50 468 - 477 mg/kg Rat
Dermal LD50 value: LD50 Believed to be > 2,000 mg/kg Rabbit
Inhalation LC50
value: Inhalation LC50 No data

Skin Irritation: This material is expected to be mildly to moderately irritating., Draize score, Rabbit = 3.84/8.0

Eye Irritation: This material is expected to be corrosive.

Skin Sensitization: May cause allergic skin sensitization in some individuals.

Acute Toxicity: Corrosive to the eyes and mildly to moderately irritating to the skin and respiratory tract.

Subchronic / Chronic
Toxicity: Not known or reported to cause subchronic or chronic toxicity.

Reproductive and Not known or reported to cause reproductive or developmental toxicity.



Developmental Toxicity:

Mutagenicity:	Not known or reported to be mutagenic.
2,4-IMIDAZOLIDINEDIONE, 1,3-DICHLORO-5,5-DIMETHYL	This product was determined to be non-mutagenic in the Ames assay.
2,4-IMIDAZOLIDINEDIONE, 1,3-DICHLORO-5-ETHYL-5-METHYL	Not known or reported to be mutagenic.

Carcinogenicity:	This product is not known or reported to be carcinogenic by any reference source including IARC, OSHA, NTP or EPA.
2,4-IMIDAZOLIDINEDIONE, 1,3-DICHLORO-5,5-DIMETHYL	This chemical is not known or reported to be carcinogenic by any reference source including IARC, OSHA, NTP, or EPA.
2,4-IMIDAZOLIDINEDIONE, 1,3-DICHLORO-5-ETHYL-5-METHYL	This chemical is not known or reported to be carcinogenic by any reference source including IARC, OSHA, NTP, or EPA.

12. ECOLOGICAL INFORMATION

Overview: Highly toxic to fish and other aquatic organisms.

Ecological Toxicity Values for: Product (HTH® Spa Brominating Tablets)

Rainbow trout (Oncorhynchus mykiss)	-	96 h LC50 = 0.5 mg/l
Bluegill sunfish	-	96 h LC50 = 1.2 mg/l (as Br2)
Sheepshead minnow	-	96 h LC50 = 1.4 mg/l
Daphnia magna,	-	48 h LC50= 0.4 mg/l
Mysid shrimp	-	96 h LC50= 0.93 mg/l

13. DISPOSAL CONSIDERATIONS

CARE MUST BE TAKEN TO PREVENT ENVIRONMENTAL CONTAMINATION FROM THE USE OF THE MATERIAL. THE USER OF THE MATERIAL HAS THE RESPONSIBILITY TO DISPOSE OF UNUSED MATERIAL, RESIDUES AND CONTAINERS IN COMPLIANCE WITH ALL RELEVANT LOCAL, STATE AND FEDERAL LAWS AND REGULATIONS REGARDING TREATMENT, STORAGE AND DISPOSAL FOR HAZARDOUS AND NONHAZARDOUS WASTES.

Waste Disposal Summary : 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.

Disposal Methods : As a hazardous solid waste it should be disposed of in accordance with local, state and federal regulations.



Potential US EPA Waste Codes : D001

14. TRANSPORT INFORMATION

Land (US DOT): UN1479 OXIDIZING SOLID, NOS (HALOGENATED HYDANTOINS) 5.1 II
Yes

Water (IMDG): UN1479 OXIDIZING SOLID, NOS, (HALOGENATED HYDANTOINS) 5.1 II

Flash Point: 141.67 DEG°C

Air (IATA): UN1479 OXIDIZING SOLID, NOS, (HALOGENATED HYDANTOINS) 5.1 II

Emergency Response Guide Number: ERG # 140

Transportation Notes: Owing to package capacity, product may be packaged, described and marked to ship under Consumer Commodity Exception as outlined in 49 CFR. REPORTABLE QUANTITY: 10 lbs. (Per 49 CFR 172.101, Appendix)

15. REGULATORY INFORMATION

UNITED STATES:

Toxic Substances Control Act (TSCA): This is an EPA registered pesticide.

EPA Pesticide Registration Number: 6836-116-1258

FIFRA Listing of Pesticide Chemicals (40 CFR 180): This product is regulated under the Federal Insecticide, Fungicide and Rodenticide Act. It must be used for purposes consistent with its labeling.

Superfund Amendments and Reauthorization Act (SARA) Title III:

Hazard Categories Sections 311 / 312 (40 CFR 370.2):

Health Immediate (Acute) Health Hazard

Physical Fire Hazard

Emergency Planning & Community Right to Know (40 CFR 355, App. A):

Extremely Hazardous Substance Section 302 - Threshold Planning Quantity:

ZUS_SAR302	TPQ (threshold planning quantity)	None established
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Reportable Quantity (49 CFR 172.101, Appendix):

ZUS_CERCLA	Reportable quantity	None established
ZUS_SAR302	Reportable quantity	None established

Supplier Notification Requirements (40 CFR 372.45), 313 Reportable Components

ZUS_SAR313	De minimis concentration	None established
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Clean Air Act Toxic ARP Section 112r:

HTH® SPA BROMINATING TABLETS

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CAA 112R None established

Clean Air Act Socmi:

HON SOC None established

Clean Air Act VOC Section 111:

CAA 111 None established

Clean Air Act Haz. Air Pollutants Section 112:

ZUS_CAAHAP None established

ZUS_CAAHRP None established

CAA AP None established

State Right-to-Know Regulations Status of Ingredients

Pennsylvania:

CAS #	COMPONENT NAME
118-52-5	2,4-IMIDAZOLIDINEDIONE, 1,3-DICHLORO-5,5-DIMETHYL

ZUSPA_RTK

US. Commonwealth of Pennsylvania - Department of Labor and Industry; Pennsylvania Code Title 34, Labor and Industry Chapter 323
1990-01-01
2,4-IMIDAZOLIDINEDIONE, 1,3-DICHLORO-5,5-DIMETHYL-
hazardous substance

New Jersey:

CAS #	COMPONENT NAME
118-52-5	2,4-IMIDAZOLIDINEDIONE, 1,3-DICHLORO-5,5-DIMETHYL

ZUSNJ_RTK

US. New Jersey Department of Environmental Protection -; Bureau of Hazardous Substances New Jersey Right to Know Law, Hazardous Substance List [P.L. 1983, C. 315, NJSA 34:5A-1 et seq]
1989-12-01
1,3-DICHLORO-5,5-DIMETHYL HYDANTOIN
hazardous substance

Massachusetts:

CAS #	COMPONENT NAME
118-52-5	2,4-IMIDAZOLIDINEDIONE, 1,3-DICHLORO-5,5-DIMETHYL

ZUSMA_RTK

US. The Commonwealth of Massachusetts Department of Public Health; Massachusetts Right-to-know law, The Massachusetts Substance List, 105 CMR 670.000
1991-07-01
1,3-DICHLORO-5,5-DIMETHYL HYDANTOIN
massachusetts hazardous substance



California Proposition 65:

CAS #	COMPONENT NAME
ZUSCA_P65	None established

WHMIS Hazard Classification:

Canada. Canada Hazardous Products Act SOR/88-64
1988-01-20
Concentration by Weight: 1 percent by weight
532
1,3-DICHLORO-5,5-DIMETHYLHYDANTOIN

16. OTHER INFORMATION

MSDS REVISION STATUS : Revised to meet the ANSI standard of 16 sections
SECTIONS REVISED: 3
Major References : Available upon request.

THIS MATERIAL SAFETY DATA SHEET (MSDS) HAS BEEN PREPARED IN COMPLIANCE WITH THE FEDERAL OSHA HAZARD COMMUNICATION STANDARD, 29 CFR 1910.1200. THE INFORMATION IN THIS MSDS 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. ARCH CHEMICALS BELIEVES THIS INFORMATION TO BE RELIABLE AND UP TO DATE AS OF THE DATE OF PUBLICATION BUT, MAKES NO WARRANTY THAT IT IS. ADDITIONALLY, IF THIS MSDS IS MORE THAN THREE YEARS OLD, YOU SHOULD CONTACT ARCH CHEMICALS MSDS CONTROL AT THE PHONE NUMBER ON THE FRONT PAGE TO MAKE CERTAIN THAT THIS DOCUMENT IS CURRENT. .