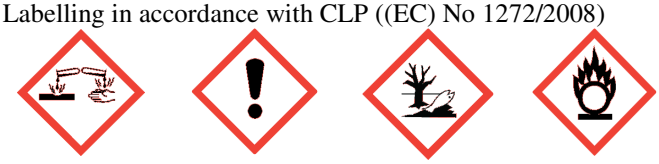
SAFETY DATA SHEET – Bromine Tablets

SECTION 1 IDENTIFICATION OF THE SUBSTANCE/MIXTURE AND OF THE COMPANY/UNDERTAKING

1.1 Product identifier	**Bromine Tablets** 1-bromo-3-chloro-5,5-dimethylimidazolidine-2,4-dione EC No. 240-230-0 CAS No. 16079-88-2
1.2 Relevant identified uses of the substance or mixture and uses advised against	Intended use: sanitising spas and hot tubs
1.3 Details of the supplier of the SDS	A & R Products (South East) Ltd Europa House Pivington Mill Pluckley Kent TN27 0PG SDS compiler: mail@arproducts.co.uk
1.4 Emergency telephone number:	01233 841855 (Monday – Friday 9.00 – 17.00 hrs GMT)
SDS Issue 2: 20/06/2013 Replaces SDS dated 18/08/2012	

SECTION 2 HAZARDS IDENTIFICATION

2.1 Classification of the substance or mixture *see section 16 for full text of H-and R- phrases*	Classification to CLP ((EC) No 1272/2008): Ox. Sol. 2; H272 Acute Tox. 4; H302 Skin Corr. 1B; H314 Aquatic Acute 1; H400 --- Classification to DPD (1999/45/EC) and CHIP: Oxidising O;R8 Harmful Xn;R22 R31 Corrosive C;R34 Dangerous for the environment N;R50
2.2 Label elements *Note: only the text is required on the label (not the statement codes)*	Labelling in accordance with CLP ((EC) No 1272/2008)  **DANGER** *H272* May intensify fire; oxidiser *H302* Harmful if swallowed *H314* Causes severe skin burns and eye damage *H400* Very toxic to aquatic life *P260* Do not breath dust *P280* Wear protective gloves/ protective clothing/eye protection/ face protection *P270* Do not eat, drink or smoke when using the product *P273* Avoid release to the environment. *P221* Take any precautions to avoid mixing with combustibles. *P220* Keep away from acids *P305+P351+P338* IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses if present and easy to do so. Continue rinsing. *EUH031* Contact with acids liberates toxic gas. *P102* Keep out of reach of children. *P101* If medical advice is needed, have product container or label at hand. 1-Bromo-3-chloro-5,5-dimethylimidazolidine-2,4-dione
2.3 Other hazards	No other information is available.

SECTION 3 COMPOSITION / INFORMATION ON INGREDIENTS

3.2 Substances

Hazardous Ingredients:

see section 16 for full text of classification phrases

Name	EC No.	CAS No.	DSD Classn.	CLP Classification	%
1-Bromo-3-chloro-5,5-dimethylimidazolidine-2,4-dione	240-230-0	16079-88-2	O;R8 Xn;R22 R31 C;R34 N;R50	Ox. Sol.2; H272 Acute Tox 4; H302 Skin Corr. 1B; H314 Aquatic Acute 1; H400	>96

SECTION 4 FIRST AID MEASURES

4.1 Description of first aid measures	**Skin contact:** In case of contact, immediately flush skin with plenty of water. Remove contaminated clothing and shoes. Wash clothing before reuse. Clean shoes thoroughly before reuse. Obtain medical attention.. **Eye contact:** In case of contact, immediately flush eyes with plenty of water, also under the eyelids, for at least 15 minutes. Obtain medical attention. **Ingestion:** Do NOT induce vomiting unless directed to do so by medical personnel. Never give anything by mouth to an unconscious person. If large quantities of this material are swallowed, call a physician immediately. Loosen tight clothing such as a collar, tie, belt or waistband **Inhalation:** Remove to fresh air. If not breathing, give artificial respiration.. Obtain medical attention.
4.2 Most important symptoms and effects, both acute and delayed	**Eye contact:** Hazardous in case of eye contact (irritant). **Ingestion:** If ingested, severe burns of the mouth and throat as well as a danger of perforation of the oesophagus and the stomach **Inhalation:** Hazardous in case of inhalation (lung irritant). Overexposure by inhalation may cause respiratory irritation. **Delayed / immediate effects:** Delayed effects can be expected after short-term exposure.
4.3 Indication of immediate medical attention and special treatment needed, if necessary	Eye wash equipment should be available on the premises.

SECTION 5 FIREFIGHTING MEASURES

5.1 Extinguishing media	Do not use water jet. Use flooding quantities of water. Avoid contact with organic materials.
5.2 Specific hazards arising from the substance or mixture	Oxidizing Material Contact with water liberates toxic gas (chlorine). Exposure to fire may cause evolution of toxic pyrolysis products
5.3 Advice for fire-fighters	May intensify fire; oxidiser In the event of fire, wear self-contained breathing apparatus. Wear appropriate body protection (full protective suit) Further information : Cool closed containers exposed to fire with water spray. Heating will cause a pressure rise - with risk of bursting. Collect contaminated fire extinguishing water separately. This must not be discharged into drains.

SECTION 6	ACCIDENTAL RELEASE MEASURES
6.1 Personal precautions, protective equipment and emergency procedures	Splash goggles. Protective overalls/suit. Dust respirator. Boots. Gloves. If there is a significant airborne concentration then suitable breathing apparatus should be used to avoid inhalation of the product. Select appropriate protective clothing for the size of the spillage. Provide adequate ventilation. Avoid contact with skin and eyes. Do not breathe dust or vapour.
6.2 Environmental precautions	Do not flush into surface water or sanitary sewer system. Avoid subsoil penetration. If the product contaminates rivers and lakes or drains, inform respective authorities. If material reaches soil inform authorities responsible for such cases.
6.3 Methods and material for containment and cleaning up	Oxidizing Material Stop leak if without risk. Avoid contact with a combustible material (wood, paper, oil, clothing, etc.). Keep substance damp using water spray. Do not touch spilled material. Eliminate all ignition sources. Dispose of according to all federal, state and local applicable regulations. Keep in suitable, closed containers for disposal. Further information: Treat recovered material as described in the section "Disposal considerations".
6.4 Reference to other sections	Personal protective equipment: See section 8

SECTION 7	HANDLING AND STORAGE
7.1 Precautions for safe handling	Keep away from heat. Keep away from sources of ignition. Keep away from combustible material. Empty containers may still contain significant residual amounts of the product. Earth all equipment containing material. Do not ingest. Do not breathe dust. Wear suitable protective clothing. If ingested, seek medical advice immediately and show the container or the label. Keep away from incompatibles such as reducing agents, metals, acids, alkalis, moisture.
7.2 Conditions for safe storage, including any incompatibilities	Keep container tightly closed. Keep container in a cool, well-ventilated area. Store separately from acids, alkalis, reducing agents and combustibles. Do not store above 40°C
7.3 Specific end use(s)	For sanitising spas and hot tubs

SECTION 8	EXPOSURE CONTROLS / PERSONAL PROTECTION
8.1 Control parameters	No Workplace Exposure Limits (WEL) have been allocated
8.2 Exposure controls	Refer to protective measures listed in sections 7 and 8. Dust respirator - be sure to use an approved/certified respirator or equivalent. Wear appropriate respirator when ventilation is inadequate. Wear protective gloves and replace at first signs of wear. Chemical resistant gloves – suitable materials: PVC or nitrile rubber. Eye protection: Tightly fitting safety goggles Skin and body protection: overalls Environmental exposure controls: Do not flush into surface water or sanitary sewer system. Avoid subsoil penetration. If the product contaminates rivers and lakes or drains, inform respective authorities. If material reaches soil inform authorities responsible for such cases.

SECTION 9 PHYSICAL AND CHEMICAL PROPERTIES

9.1 Information on basic physical and chemical properties – does not constitute a specification

Appearance	white solid (tablets)
Odour	Chlorine-like
Odour threshold	no data available
pH	No data available
Melting Point/Freezing point (°C)	159
Initial boiling point/boiling range (°C)	no data available
Flash Point (°C)(closed cup)	not applicable (non-flammable)
Evaporation rate	no data available
Flammability	not applicable (non-flammable)
Upper/lower flammability limits	not applicable (non-flammable)
Vapour pressure (mbar @ 20°C)	0.0000935 hPa (25°C)
Vapour density	not applicable
Relative Density (@15.5°C)	0.96
Solubility in water	soluble (2.2g/litre @ 25°C)
Solubility in fat / solvent	not miscible
Partition coefficient (log Pow)	no data available
Autoignition temperature (°C)	not applicable (non-flammable)
Decomposition temperature	no data available
Viscosity (mPa.s @ 20°C)	not applicable
Explosive properties	not explosive
Oxidising properties	Oxidiser, may intensify fire

9.2 Other information	None

SECTION 10 STABILITY AND REACTIVITY

10.1 Reactivity	see section 10.5
10.2 Chemical stability	Stable under normal conditions
10.3 Possibility of hazardous reactions	see section 10.5
10.4 Conditions to avoid	Avoid high temperatures (thermal decomposition temperature >160 ºC) and high humidity. Avoid contact with combustible materials (paper, wool, oil)
10.5 Incompatible materials	Oxidising agents, bases, combustible materials
10.6 Hazardous decomposition products	Nitrogen oxides, carbon oxides, chlorine oxides, hydrochloric acid, hydrobromic acid

SECTION 11 TOXICOLOGICAL INFORMATION

11.1 Information on toxicological effects

Acute Toxicity		
	-oral	Acute oral toxicity: LD50: 485 mg/kg (rat)
	-inhalation	Acute inhalation toxicity: LC50: 1.1 mg/l (rat 4 hr)
	-dermal	Acute dermal toxicity: LD50 >2000 mg/kg (rabbit)
Corrosivity/Irritation		
	-eye	Severe eye irritant
	-skin	Corrosive effects
	-respiratory system	May cause respiratory irritation
Sensitisation	-skin	No information available
Other relevant toxicity information		Not classified as human carcinogen Experiments showed mutagenic effects in cultured bacterial cells If ingested, severe burns of the mouth and throat as well as a danger of perforation of the oesophagus and the stomach

SECTION 12 ECOLOGICAL INFORMATION	
12.1 Toxicity	Classified as very toxic to aquatic organisms. LC50 0.4 mg/l (Rainbow Trout) 96 hr static test LC50 0.46 mg/l (Bluegill Sunfish) 96 hr static test LC50 0.75 mg/l (Daphnia Magna) 48 hr test
12.2 Persistence and degradability	Not readily biodegradable
12.3 Bioaccumulative potential	Low bioaccumulation potential
12.4 Mobility in soil	No information available
12.5 Results of PBT and vPvB assessment	No known PBT or vPvB chemicals present
12.6 Other adverse effects	Do not flush into surface water or sanitary sewer system. Avoid subsoil penetration Harmful effects to aquatic organisms due to pH-shift

SECTION 13 DISPOSAL CONSIDERATIONS		
13.1 Waste treatment methods		
	Waste Residue:	Disposal together with normal waste is not allowed. Special disposal required according to local regulations. Do not let product enter drains. Contact waste disposal services. European Waste Code: No waste code according to the European Waste Catalogue assigned for this product. The waste code is established in consultation with the regional waste disposer.
	Packaging:	Contaminated packaging : Empty contaminated packagings thoroughly. They can be recycled after thorough and proper cleaning. Packagings that cannot be cleaned are to be disposed of in the same manner as the product

SECTION 14 TRANSPORT INFORMATION	
Classified as dangerous goods for carriage under ADR/RID/ADN/IMDG/ICAO/IATA regulations	
14.1 UN Number	UN 3085
14.2 UN Proper shipping name	OXIDISING SOLID, CORROSIVE, N.O.S. (1-Bromo-3-chloro-5,5-dimethyl imidazolidine-2,4-dione)
14.3 Transport hazard class(es)	5.1 (8)
14.4 Packing group	III
14.5 Environmental hazards	Classified as Environmentally Hazardous Substance / Marine Pollutant
14.6 Special precautions for user	See section 8 for safe handling
14.7 Transport in bulk according to Annex II of MARPOL 73/78 and the IBC Code	Not applicable to packaged goods

SECTION 15 REGULATORY INFORMATION

15.1 Safety, health and environmental regulations/legislation specific for the substance or mixture	Supply regulations: Classified as hazardous under DPD/GHS/CLP criteria (DPD: Dangerous Preparations Directive; GHS: Globally Harmonised system of classification and labelling of chemicals; CLP: Classification, Labelling and Packaging regulations) Transport regulations: Classified as Dangerous Goods for Carriage under ADR/RID/IMDG/ICAO/IATA regulations Occupational restrictions: take note of legislation concerning the Safety and health of pregnant mothers at work and of the Protection of young people at work
15.2 Chemical Safety Assessment	No formal chemical safety assessment has been carried out

SECTION 16 OTHER INFORMATION

Full text of classification data in sections 2 and 3

Ox. Sol.2; H272	May intensify fire; oxidiser
Acute Tox. 4; H302	Acute toxic, category 4; Harmful if swallowed
Skin Corr. 1B; H314	Corrosive to skin category 1B; Causes severe skin burns and eye damage
Aquatic Acute 1; H400	Aquatic acute toxicity, category 1; Very toxic to aquatic life

O; R8	Contact with combustible material may cause fire
Xn;R22	Harmful; Harmful if swallowed
C;R34	Corrosive; Cause burns
N;R50	Dangerous for the Environment; Very toxic to aquatic organisms
R31	Contact with acids liberates toxic gas.

The information provided in this Safety Data Sheet is correct to our knowledge at the date of its revision. The information given only describes the products with regard to safety arrangements and is not to be considered as a warranty or quality specification and does not constitute a legal relationship. The information contained in this Safety Data Sheet relates only to the specific material designated and may not be valid for such material used in combination with any other material or in any process, unless specified in the text