PMC WATER SYSTEMS SERVICES INC.
124 CONNIE CRES. UNIT 9 CONCORD, ONTARIO.
TEL 905 669 8262, FAX 905 669 8252, EMAIL pmcwater@aol.com, www.pmcwatersystems.com

MATERIAL SAFETY DATA SHEET
KBAC-1000

Protection Required

SECTION 1 - MATERIAL IDENTIFICATION AND USE

Manufacturer's Name	:	PMC Water Systems Services Inc.
Manufacturer's Address	:	124 Connie Crescent, Unit 9, Concord, ON L4K 1L7
Manufacture's Phone #	:	(905) 669-8262
24 Emergency Phone #	:	Canutec (613) 996-6666
Product Identifier	:	KBAC-1000
Product Use	:	Water Treatment

SECTION 2 – COMPOSITION/INGREDIENTS OF MATERIAL

Ingredients	Concentration	CAS #	LD_{50}	LC_{50}
2-Bromo-2-nitropropane-1,3-diol (BNPD)	60-95%	52-51-7	>300 - <2,000 mg/kg (oral - rat)	Not Available

SECTION 3 – HAZARDS IDENTIFICATION

Emergency overview

Irritating to eyes and skin.
Toxic if swallowed.
Avoid contact with the skin, eyes and clothing.
Avoid ingestion.
Avoid all sources of ignition: heat, sparks, open flame.
Eye wash fountains and safety showers must be easily accessible.
Wash thoroughly after handling.
Wear NIOSH-certified chemical goggles.
Wear chemical resistant protective gloves.

SECTION 4 – FIRST AID MEASURES

Eye Contact	Immediately irrigate with water for at least 15-20 minutes, remove contact lenses after the first 5 minutes and obtain medical attention.
Skin Contact	Remove contaminated clothing; wash clothing before reuse. Rinse for 15-20 minutes, wash affected skin with water or soap and water. If irritation develops, obtain medical attention.
Inhalation	Move person to fresh air. If issues arise, call 911, give artificial respiration. Obtain medical attention.
Ingestion	If swallowed, wash out mouth thoroughly with water; can sip water to drink. Do not induce vomiting unless advised to do so by medical staff. Obtain medical attention.
General advice	First aid personnel should pay attention to their own safety. If the patient is likely to become unconscious, place and transport in recovery position. Immediately remove contaminated clothing.

SECTION 5 - FIRE FIGHTING MEASURES

Flammability	Not highly flammable
Flash Point	Not Applicable
Autoignition	Not self-igniting
Extinguishing Media	Use dry powder or alcohol resistant foam, water spray or carbon dioxide for extinguishing media. Harmful vapors may be released during fire-fighting operations, wear self-contained breathing apparatus.
Special Procedures	Firefighters should wear full protective clothing including self-contained breathing equipment. Avoid whirling up the material/product because of the danger of dust explosion. Dusty conditions may ignite explosively in the presence of an ignition source causing flash fire.

Hazardous Combustion Products	When involved in a fire, this product may generate hydrogen chloride, nitrogen oxides, carbon monoxide, hydrogen bromide, or bromine, carbon dioxide, nitrogen and irritating/toxic fumes and gases.
BNPD Note	Stable at normal temperatures, but when heated above 140°C the solid decomposes exothermically liberating toxic hydrogen bromide and oxides of nitrogen and swelling up to give a sticky, tarry mass which burns readily in a fire. The decomposition temperature is significantly lowered in the presence of inorganic or organic bases to an extent proportional to the amount of base present.

SECTION 6 – ACCIDENTAL RELEASE MEASURES

Personal Precautions	Wear appropriate protective equipment. Forms slippery surfaces with water.
Environment Precautions	Ensure spilled product does not enter sewers or streams.
Spill Response/Cleanup	Contain spilled material. Sweep and scoop all spilled material, contaminated soil and other contaminated material and place into clean dry containers for disposal. Do not close containers containing wet or damp material; containers should be left open to disperse any hazardous gases that may form. Do not use floor sweeping compounds to clean up spills. Product is a solid stick can be picked up with hands while wearing gloves or if in broken pieces shovel or sweep up waste into approved container. Wear prescribed protective clothing and equipment. If spill is for treated fluids then isolate area. Protect the environment, this is a biocide; prevent fluids from entering soil, ditches and natural waterways. Follow label instructions on the containers and follow local, state, provincial and/or federal regulations for disposal.

SECTION 7 – HANDLING AND STORAGE

Handling	Use proper PPE. Work in well-ventilated area. Avoid open packaging. Avoid dust formation. Dust in sufficient concentration can result in an explosive mixture in air. Handle to minimize dusting and eliminate open flame and other sources of ignition. Dry powders can build static electricity charges when subjected to the friction of transfer and mixing operations. Provide adequate precautions, such as electrical grounding and bonding, or inert atmospheres. Routine housekeeping should be instituted to ensure that dusts do not accumulate on surfaces. Users should wash hands before eating, drinking, chewing gum, using tobacco or using the toilet.
Storage Requirements	Keep container tightly closed when not in use. Store in cool location and away from all foods and animal feeds. Avoid all sources of ignition: heat, sparks and open flame. This product is corrosive to mild steel.

SECTION 8 – EXPOSURE CONTROLS/PERSONAL PROTECTION

Ventilation	Use only in well ventilated areas. Use local exhaust if mist or spray is generated.
Respiratory Protection	Wear a NIOSH-certified (or equivalent) organic vapour/particulate respirator.
Skin Protection	Chemical resistant gloves; chemical resistant clothing to prevent prolonged skin contact
Eye/Face Protection	Safety eye wear (face shield, glasses or goggles)
Other Comments	An eyewash station and safety shower should be available
General Hygiene	Wash hands thoroughly with soap and water after handling this product and before eating, drinking or using tobacco. Discard clothing or other absorbent material that may have been heavily contaminated with the product's concentrate. Remove lightly contaminated clothing and wash separately from other laundry using detergent and hot water before re-use. Wash contaminated clothing before reuse.

SECTION 9 PHYSICAL AND CHEMICAL PROPERTIES

Physical State	:	Solid crystalline
Odour and Appearance	:	Odourless; white or yellow, solid stick
Odour Threshold	:	No Data Available
Specific Gravity (Water = 1)	:	No Data Available
Vapour Pressure (mmHg)	:	0.000051 hPa (20°C)
Vapour Density (Air = 1)	:	1.905 g/cm3 (20°C)
Evaporation Rate	:	Not Applicable
Boiling Point/Melting Point	:	128-132°C; 262-270°F (melting point)
Freezing Point	:	Not Applicable
pH	:	5 - 7 (10 g/l, 20°C)
Coefficient Water/Oil Distribution	:	Not Determined
Solubility in Water	:	28% (m/v) @ 23°C, 73°F fresh water

SECTION 10 – STABILITY AND REACTIVITY

Stability/Reactivity	Stable under normal conditions and recommended use. Will react with oxidizing materials.
Incompatible Materials	Avoid contact with bases, amines and oxidizing material. Corrosive to some metals including mild steel. Avoid all sources of ignition, heat sparks and open flame. Avoid dust formation.

Conditions of Reactivity	Avoid maximum temperature of 90°C to prevent self-heating and rapid decomposition. May violently decompose at 140°C.
Hazardous Decomposition Products	Nitrogen oxides, bromine compounds, oxides of carbon, oxides of sulfur, oxides of phosphorus, halogenated compounds and metal oxides.

SECTION 11 – TOXICOLOGICAL INFORMATION

Effects of Acute Exposure		
Skin Contact	:	Of moderate toxicity after short-term skin contact. Corrosive. Cause skin burns.
Eye Contact	:	Corrosive. Causes serious eye damage
Ingestion	:	Of moderate toxicity after single ingestion.
Inhalation	:	Virtually nontoxic by inhalation.
Chronic Exposure Effects	:	Causes respiratory irritation
Exposure Limit	:	None know.
Irritancy	:	May cause severe damage to the eyes. Irritating to respiratory system and skin.
Carcinogenicity	:	No component of this product present at levels greater than 0.1% is identified as probable, possible or confirmed human carcinogen by IARC and OSHA.
Teratogenicity	:	No indications of a developmental toxic / teratogenic effect were seen in animal studies.
Mutagenicity	:	The substance was mutagenic in a mammalian cell culture test system. No mutagenic effect was found in various tests with bacteria and mammals.
Reproductive Effects	:	The results of animal studies gave no indication of a fertility impairing effect.

SECTION 12 – ECOLOGICAL INFORMATION

General Comments	Very toxic (acute effect) to aquatic organisms. Toxic to aquatic life with long lasting effects. Do not allow product or runoff from fire control to enter storm or sanitary sewers, lakes, rivers, streams or public waterways.
Degradability/Persistence	Moderately/partially eliminated from water. Readily biodegradable
Bioaccumulation	Due to the n-octanol/water distribution coefficient (log Pow) accumulation in organisms is not to be expected.
Mobility in soil	The substance will not evaporate into the atmosphere from the water surface. Adsorption to solid soil phase is not expected.

SECTION 13 – DISPOSAL CONSIDERATIONS

Waste Disposal	Dispose in accordance with federal, provincial or local government requirements.

SECTION 14 – TRANSPORT INFORMATION

Shipping Regulations	UN 3241, 2-Bromo-2-Nitropropane-1,3-diol), Class 4.1, PG III
Domestic Substances List	All ingredients are listed on the DSL or are not required to be listed.

SECTION 15 – REGULATORY INFORMATION

WHMIS Classification	Class B4: Flammable Solid Class D1B: Toxic Material

SECTION 16 – OTHER INFORMATION

Prepared by	Lab Services PMC Water Systems Services Inc. 124 Connie Crescent, Unit 9 Concord, ON L4K 1L7
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