1. IDENTIFICATION

Product Name: Barium Chloride Solution

SYNONYMS: Aqueous Barium chloride; Hydrochloric acid, barium salt.

Recommended for industrial use in the treatment of wastewater for removal of radium by coprecipitation with barium as insoluble sulfate.

Uses advised against: None.

MANUFACTURER: Chemical Products Corporation (CPC)
P.O. Box 2470
102 Old Mill Road
Cartersville, Georgia 30120
Telephone: Day, 770-382-2144; Night, 770-382-2212

EMERGENCY: CHEMTREC, 800-424-9300 (24 Hours every day)

2. HAZARD IDENTIFICATION

WARNING

HARMFUL IF SWALLOWED
HARMFUL IF INHALED
WILL CAUSE EYE IRRITATION.

Do not eat, drink or smoke when using this product.
Wear protective gloves and eye protection.
Use with adequate ventilation or wear a dust mask if excessive dust is present.
Wash hands and face thoroughly after handling.
Dispose of contents/container in accordance with local, state and federal regulations.

Acute overexposure will cause severe abdominal pain, violent purging with watery and bloody stools, vomiting, muscle twitching, hypertension, and confusion, followed by transient muscle paralysis, including potentially fatal paralysis of the respiratory muscles. Barium is eliminated from the body over several days.

Hypokalemia is usually present in cases of ingestion; potassium should be administered - high doses may be required.

Chronic Ingestion: Kidney effects were observed in rats and mice after prolonged exposure to relatively high levels.

Carcinogenicity: NTP.....: No evidence of carcinogenicity.
IARC.....: Not listed.
OSHA.....: Not regulated as a carcinogen.

Medical Conditions Aggravated by Exposure: None are known.

3. COMPOSITION / INFORMATION ON INGREDIENTS

C0MPONENT	CAS #	EXPOSURE LIMITS	% BY WT
Barium Chloride	10361-37-2	OSHA PEL: 0.5 mg/cu m as Ba; 0.89 mg/cu m as this prod; ACGIH TLV-TWA: Same	ca 14% to 26%
Water	7732-18-5	N/A	ca 74% to 86%

4. FIRST AID MEASURES

If swallowed, induce vomiting immediately, as directed by medical personnel.
Give Epsom salts (magnesium sulfate) or Glauber's Salt (sodium sulfate) dissolved in water.
Never give anything by mouth to an unconscious person.

If inhaled, remove to fresh air. Get medical attention immediately and contact a poison control center.

Physician: Administer potassium intravenously to counteract the effect of barium.

For eye contact, flush eyes with large amounts of water for at least 15 minutes and get medical attention if irritation persists.

For skin contact, wash with soap and water. Wash contaminated clothing before reuse.

5. FIRE FIGHTING MEASURES

Flashpoint: Non-Flammable.

Flammability: Non-Flammable.

Autoignition: Non-Flammable.

General Hazard: No fire hazard. Will release water vapor with popping when heated. This product is soluble in water and is harmful if swallowed or inhaled.

Fire Fighting Instructions: Limit water runoff if it is likely to contain this material, then add a soluble sulfate such as sodium sulfate to the water to form harmless barium sulfate.

Fire Fighting Equipment: No special equipment is required. Wash away any barium chloride solution which may contact the body, clothing, or equipment.

Hazardous Combustion Products: None.

6. ACCIDENTAL RELEASE MEASURES

General: Avoid generating a mist of this solution. Use appropriate Personal Protective Equipment (PPE). Spilled product could be a RCRA hazardous waste because of its soluble barium content.

Small Spill: Carefully isolate spilled material, absorb in suitable solid absorbant material, and place in suitable container.

Large Spill: Prevent material from entering storm sewers or ditches leading to natural waterways. Mix with excess sulfate to make the material non-hazardous, or dispose of large amounts of this material in an approved hazardous waste landfill.

7. HANDLING AND STORAGE

Storage Temperature: Ambient.

Storage Pressure: Ambient.

General: Keep containers closed. Emptied containers may still contain harmful amounts of this material; wash out containers with a solution of soluble sulfate (such as Epsom salts - Magnesium sulfate) to precipitate soluble barium as harmless barium sulfate. Dispose of emptied containers appropriately so as to eliminate the possibility of inadvertent exposure to the residue inside the container.

8. EXPOSURE CONTROLS / PERSONAL PROTECTION

Engineering Controls: Control airborne concentrations below the exposure limits by eliminating mist generation. Use only with adequate ventilation if a mist is present.

Respiratory Protection: Use a NIOSH-approved dust mask if excessive dust is present.

Skin Protection: Cover exposed skin areas and wear general-purpose gloves.

Eye Protection: Wear safety glasses. Use chemical goggles if excessive dust is present.

9. PHYSICAL AND CHEMICAL PROPERTIES

Physical State: Liquid

Vapor Pressure: Same as water.

.

Specific Gravity: Approximately 1.2

Solubility in Water: Infinite

pH: Approximately 7.

.

Boiling Point: Approximately 100 degrees C.

Melting Point: Not applicable.

.

Vapor Density: Not applicable. Vapor is water.

.

Evaporation Rate: Not applicable.

Odor: None.

Appearance: Clear liquid, possible slight cloudiness.

10. STABILITY AND REACTIVITY

Chemical Stability: Keep away from intense heat as steam will be generated. Product will boil to dryness and then lose remaining water of crystallization at 113 Deg. C (235 Deg. F) and may "pop" and "spit" when doing so.

Incompatibility: None.

Hazardous Decomposition Products: None.

Hazardous Polymerization: Does not occur.

11. TOXICOLOGICAL INFORMATION

Skin: Contact may be slightly irritating. Barium ion is not expected to pass through intact skin

Eye: The splashing or mist in eye is expected to be slightly to moderately irritating.

Ingestion: The Oral LD50 for rats is about 400 mg/kg of Barium Chloride. A National Toxicology Program study found no decrease in two-year survival for rats consuming 110 mg/kg/day of Barium Chloride for the entire two year period (lifetime exposure).

Inhalation: No studies. Inhaled mist is expected to exhibit the same systemic toxicity as ingestion, as barium chloride is cleared from the lungs into the bloodstream.

Sub-chronic: Rats and mice exposed to 1,250 ppm of barium chloride dihydrate in their drinking water continuously for two years showed no adverse effects (NIH Pub. No. 94-3163).

Chronic/Carcinogenic: Rats and mice exposed to 2500 ppm of barium chloride dihydrate in drinking water for two years showed no evidence of carcinogenic response

Teratogenic: Rats exposed to 2000 ppm of barium chloride dihydrate in their drinking water for thirty days exhibited no teratogenic effects, and no fetotoxicity was noted.

Reproductive: No effects were seen on reproductive indices in a mating trial after male rats were exposed to 2000 ppm of barium chloride dihydrate in their drinking water for sixty days and female rats were exposed to 2000 ppm in their drinking water for thirty days..

Mutagenic: Barium chloride dihydrate was not mutagenic in Salmonella typhimerium strains TA 100, TA 1535, TA 1537, TA 97, or TA 98, with or without exogenous metabolic activation (S9). See NTP Technical Report No. 432.

12. ECOLOGICAL INFORMATION

TOXICITY: In turbid water at 20 Deg. C, the 96 hour TLM is 1930 mg Barium Chloride/l for Mosquito Fish (Gambusia Affinis).

DISTRIBUTION: Soluble barium chloride is expected to be precipitated from ground and surface waters by sulfate ions in the environment, to form insoluble barium sulfate. No appreciable bioconcentration is expected in the environment because barium sulfate is naturally present in rocks and soils.

CHEMICAL FATE: Soluble barium chloride is expected to be precipitated by sulfate in the environment as barium sulfate which is insoluble, inert, and non-toxic.

13. WASTE MANAGEMENT INFORMATION - DISPOSAL

Waste containing more than 0.2% soluble barium is hazardous under the RCRA criteria. Soluble barium can be rendered non-hazardous by reaction with excess sulfate to form insoluble barium sulfate. Any disposal practice must be in compliance with local, state, and federal laws and regulations. (Contact local or state environmental agency for specific rules). Do not dump into sewers, on the ground, or into any body of water.

14. TRANSPORT INFORMATION

U.S. D.O.T.: This product is not regulated as a hazardous material.

Technical Shipping Name..... : Barium Compound.

D.O.T. Hazard Class..... : None.

U.N./N.A. Number..... : None.

Product R.Q. (lbs)..... : None.

D.O.T. Label..... : None.

D.O.T. Placard..... : None.

Freight Class Bulk..... : Not Applicable.

Freight Class Package..... : Inorganic Chemical.

Product Label..... : Barium Chloride Solution.

15. REGULATORY INFORMATION

OSHA Status...... : This product is hazardous under the criteria of the Federal OSHA Hazard Communication Standard, 29 CFR 1910.1200. See Section

TSCA Status..... : On TSCA Inventory.

CERCLA Reportable Quantity...... : None.

SARA Title III:

Section 302, Extremely Hazardous Substances.... : None.
Section 311/312, Hazard Categories..... : Category 1 (Acute Hazard).
Section 313, Toxics Release Inventory: Barium Compounds, Code N040.

RCRA Status...... : If discarded in its purchased form, this product would be a hazardous waste by characteristic. Under RCRA, it is the responsibility of the product user to determine at the time of disposal, whether a material containing the product or derived from the product should be classified as a hazardous waste under 40 CFR 261.20-24.

16. OTHER INFORMATION

National Fire Protection Association (NFPA) Ratings: This information is intended solely for the use of individuals trained in the NFPA system.

Health: 2
Flammability: 0
Reactivity: 0

Revision Indicator: This GHS Safety Data Sheet replaces Safety Data Sheet dated October 2014; it contains only minor format changes from the previous Safety Data Sheet.

Disclaimer: The information contained herein is accurate to the best knowledge of Chemical Products Corporation. Chemical Products Corporation makes no warranty of any kind, express or implied, concerning the safe use of this material in your process or in combination with other substances.