CHEMICAL PRODUCTS CORPORATION

MATERIAL SAFETY DATA SHEET

1. PRODUCT IDENTIFIER

NAME: **Barium Chloride, Anhydrous**

SYNONYMS: Barium chloride; Hydrochloric acid, barium salt.

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. INFORMATION ON INGREDIENTS

COMPONENT	CAS #	EXPOSURE LIMITS	% BY WT
Barium Chloride	10361-37-2	OSHA PEL: 0.5 mg/cu m as Ba; 0.76 mg/cu m as This Prod; ACGIH TLV-TWA: Same	ca 98

3. HAZARDS IDENTIFICATION

WARNING! TOXIC IF SWALLOWED. [R 25]
HARMFUL BY INHALATION. [R 20]
When using do not eat or drink. [S 20]
In case of accident or if you feel unwell, seek medical advice immediately (show the label where possible). [S 45]
Avoid breathing dust. Use only with adequate ventilation.
Wash thoroughly after handling.

POTENTIAL HEALTH EFFECTS: Causes muscle stimulation followed by transient paralysis. Swallowing causes stomach pain, vomiting, and diarrhea.

Routes of Entry: **Ingestion,** possibly inhalation.

Human Effects: 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. Chronic overexposure may lead to varying degrees of paralysis of the extremities; hypertension might also be present. Hypokalemia is usually present in cases of overexposure; potassium should be administered - high doses may be required. Barium is eliminated from the body over several days.

Acute Inhalation: See Human Effects on page 1.

Chronic Inhalation: Cleared from lungs into bloodstream. Kidney effects were observed in rats and mice after prolonged exposure to relatively high levels.

Acute Skin Contact: Barium ion is not likely to penetrate intact skin; penetration through cuts and burns may produce symptoms of overexposure.

Chronic Skin Contact: Barium ion is not likely to penetrate intact skin. A slight irritation of the skin may result.

Acute Eye Contact: Particles in the eye will cause pain, tearing, and irritation.

Chronic Eye Contact: Particles in the eye will cause tearing and irritation.

Acute Ingestion: See Human Effects on page 1.

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.

4. FIRST AID MEASURES

If swallowed, induce vomiting immediately as directed by medical personnel.

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

Give Epsom salts (magnesium sulfate) or Glauber's Salt (sodium sulfate) dissolved in water. Never give anything by mouth to an unconscious person.

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.

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

5. FIRE FIGHTING MEASURES

Flashpoint: Nonflammable.

Flammability: Nonflammable.

Autoignition: Nonflammable.

General Hazard: No fire hazard. 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 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 which may contact the body, clothing, or equipment.

Hazardous Combustion Products: None.

6. ACCIDENTAL RELEASE MEASURES

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

Small Spill: Carefully shovel up or sweep up spilled material and place in suitable container.

Large Spill: Try to keep material dry and prevent material from entering storm sewers or ditches leading to natural waterways. Mix with excess sulfate to make the material nonhazardous, 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: This material is water-soluble. Keep it dry. Keep containers closed. Emptied containers may still contain harmful amounts of this material; treat or dispose of appropriately

8. EXPOSURE CONTROLS / PERSONAL PROTECTION

Engineering Controls: Control airborne concentrations below the exposure limits. Use only with adequate ventilation.

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: Solid.

Vapor Pressure: Not applicable.

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Specific Gravity: 3.9

Solubility in Water: 36 g per 100 ml at 30 Degrees C.

pH: (1% solution in water) - pH of 7.

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Boiling Point: 1560 Degrees C.

Melting Point: 963 Degrees C.

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Vapor Density: Not applicable.

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Evaporation Rate: Not applicable.

Odor: None.

Appearance: White powder.

10. STABILITY AND REACTIVITY

Chemical Stability: Stable, however this product is hygroscopic.

Incompatibility: None.

Hazardous Decomposition Products: None.

Hazardous Polymerization: None.

11. TOXICOLOGICAL INFORMATION

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

Eye: The dust is expected to be moderately irritating.

Ingestion: The Oral LD_{50} for rats is about 340 mg/kg. A National Toxicology Program study found no decrease in two-year survival for rats consuming 94 mg/kg/day for the entire two year period (lifetime exposure).

Inhalation: No studies. Inhaled dust is expected to exhibit the same systemic toxicity as ingestion, because barium chloride is cleared from the lungs and moves 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 (National Toxicology Program, 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 typhimurium strains TA 100, TA 1535, TA 1537, TA 97, or TA 98, with or without exogenous metabolic activation (S9). See NIH Pub. No. 94-3163.

12. ECOLOGICAL INFORMATION

TOXICITY: In turbid water at 20 Deg. C, the 96 hour TLM is 1930 mg/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 nontoxic.

13. WASTE MANAGEMENT INFORMATION

Waste containing more than 0.2% soluble barium is hazardous under the RCRA criteria. Soluble barium can be rendered nonhazardous 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

D.O.T. Shipping Name..... : This product is not regulated as a hazardous material in the United States.

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, Anhydrous.

15. REGULATORY INFORMATION

OSHA Status.....: This product is hazardous under the criteria of the Federal OSHA Hazard Communication Standard, 29 CFR 1910.1200. It is classified as toxic based on the oral rat LD_{50}.

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

NFPA Rating (National Fire Protection Association):

Health - 2 (Materials which on intense or continued exposure could cause temporary incapacitation or possible residual injury unless prompt medical attention is given).

Fire - 0 (Materials that are nonflammable).

Reactivity - 0 (Materials which in themselves are normally stable even under fire exposure conditions, and which are not reactive with water).

Special - NA

Prepared by..... : Jerry A. Cook.

Title.....: Technical Director.

Approval Date..... : July 2011

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MSDS Number..... : 46.