

## MATERIAL SAFETY DATA SHEET

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**1. PRODUCT IDENTIFIER**

NAME: **Barium Carbonate - All Grades.**

Includes: **Type FF, Type CFF, Type S, Type H, Type HA, AQUA-FLO<sup>®</sup>, MICRO-FLO<sup>®</sup>, and Photo Grade.**

SYNONYMS: Carbonic Acid, Barium Salt.

MANUFACTURER: Chemical Products Corporation (CPC)

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Telephone: Day, 770-382-2144; Night, 770-382-2212

24-hour Emergency Phone Number: CHEMTREC 800-424-9300

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**2. INFORMATION ON INGREDIENTS**

<u>COMPONENT</u>	<u>CAS #</u>	<u>EXPOSURE LIMITS</u>	<u>% BY WT</u>
Barium Carbonate	513-77-9	OSHA PEL: 0.5 mg/cu m as Ba 0.74 mg/cu m as This Product ACGIH TLV-TWA: Same	ca 97.0

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**3. HAZARDS IDENTIFICATION**

EMERGENCY OVERVIEW: **WARNING! HARMFUL IF SWALLOWED; HARMFUL IF INHALED.** Do not taste or swallow. Avoid breathing dust. Use only with adequate ventilation. Wash thoroughly after handling.

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

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

**Human Effects:** Acute over-exposure 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. Chronic over-exposure may lead to varying degrees of paralysis of the extremities; hypertension may also be present. Symptoms of over-exposure will disappear over several days as the body eliminates barium, primarily in the feces. Hypokalemia is usually present in cases of overexposure; potassium should be administered - large doses may be required.

**Acute Inhalation:** See Human Effects on Page 1

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

**Acute Skin Contact:** Barium ion is not expected to penetrate intact skin; penetration through cuts and burns may produce symptoms of over-exposure.

**Chronic Skin Contact:** Barium ion is not likely to penetrate intact skin. Irritation of the skin may result from the alkaline nature of this product.

**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

**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.

**Medical Conditions Aggravated by Exposure:** None are known.

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#### **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.

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## 5. FIRE FIGHTING MEASURES

**Flashpoint:** Non-Flammable.

**Flammability:** Non-Flammable.

**Autoignition:** Non-Flammable.

**General Hazard:** No fire hazard. Will decompose releasing carbon dioxide gas at extremely high temperatures. This product is toxic if ingested.

**Fire Fighting Instructions:** Limit water runoff if it is likely to contain suspended barium carbonate. Add soluble sulfate such as sodium sulfate to the water to make it non-hazardous.

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

**Hazardous Combustion Products:** None.

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## 6. ACCIDENTAL RELEASE MEASURES

**General:** Avoid generating dust. Use appropriate Personnel 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 non-hazardous, or dispose of material in an approved hazardous waste landfill.

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## 7. HANDLING AND STORAGE

**Storage Temperature:** Ambient.

**Storage Pressure:** Ambient.

**General:** This product is not water-soluble, but is soluble in most acids. Keep this material dry. Keep containers closed. Emptied containers may present a toxic hazard; treat or dispose of appropriately.

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## 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.

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## 9. PHYSICAL AND CHEMICAL PROPERTIES

**Physical State:** Solid.

**Vapor Pressure:** Not applicable.

**Specific Gravity:** 3.1

**Solubility in Water:** Insoluble.

**pH:** 1% suspension in water has a pH of 9

**Boiling Point:** Decomposes to barium oxide and carbon dioxide at about 1000 Deg. C.

**Melting Point:** About 1000 Deg. C. - Near decomposition temperature.

**Vapor Density:** Not applicable.

**Evaporation Rate:** Not applicable.

**Odor:** Usually odorless; possibly a very slight rotten-egg odor.

**Appearance:** White powder or granules.

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## 10. STABILITY AND REACTIVITY

**Chemical Stability:** Keep away from intense heat which may cause decomposition. Keep away from acids which will cause decomposition and generate carbon dioxide gas.

**Incompatibility:** Acids will decompose barium carbonate with the liberation of carbon dioxide.

**Hazardous Decomposition Products:** Barium carbonate may be decomposed to release carbon dioxide gas which is hazardous in confined spaces. Soluble barium compounds which may be produced by dissolution of barium carbonate in acid are toxic if ingested.

**Hazardous Polymerization:** Does not occur.

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## 11. TOXICOLOGICAL INFORMATION

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

**Eye:** The dust is expected to be slightly to moderately irritating.

**Ingestion:** Barium carbonate is converted to barium chloride in the stomach. The Oral LD<sub>50</sub> for rats is about 400 mg/kg of barium chloride (equal to about 379 mg/kg of barium carbonate). 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 dust is expected to exhibit the same systemic toxicity as ingestion because barium carbonate 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.

**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.

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## 12. ECOLOGICAL INFORMATION

**TOXICITY:** In turbid water at 20 Deg. C, the 96 hour TLM has been reported as 10,000 mg/l for Mosquito Fish (*Gambusia Affinis*). This would have been suspended rather than dissolved barium carbonate.

**DISTRIBUTION:** Barium carbonate is not water soluble and occurs in nature as the mineral witherite. It reacts with sulfate ions in the environment to form barium sulfate. No appreciable bioconcentration is expected in the environment because barium sulfate is naturally present in almost all rocks and soils.

**CHEMICAL FATE:** Barium carbonate is expected to react with sulfate in the environment to form inert and non-toxic barium sulfate which is insoluble in both water and acids.

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### 13. WASTE MANAGEMENT INFORMATION

Waste containing more than 0.2% soluble barium is hazardous under the RCRA criteria. If disposed of in its purchased form, this product would be a hazardous waste based on barium solubility in the RCRA TCLP test. Barium compounds 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.

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### 14. TRANSPORT INFORMATION

**D.O.T. Shipping Name**..... : Not Regulated.

**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**..... : Inorganic Chemical.

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

**Product Label**..... : Barium Carbonate, Precipitated:  
Type FF, Type CFF, Type S, Type HA,  
Type H, AQUA-FLO®, MICRO-FLO®,  
or Photo Grade.

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### 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 LD50.

**TSCA Status**..... Listed 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.

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

**Reason for Issue.....** : Revision of hazard information to conform to ANSI Z129.1 - 2000

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

**Title.....** : Technical Director.

**Approval Date.....** : October, 2000.

**Supersedes Date.....** : July, 2000.

**MSDS Number.....** : 44.

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