

---

## BARIUM OXIDE, ANHYDROUS

---

### 1. Chemical Product And Company Identification

Company's Name: REAGENTS, INC.  
Company's P. O. Box: 240746  
Company's City: CHARLOTTE  
Company's State: NC  
Company's Country: US  
Company's Zip Code: 28224  
Company's Info Ph #: 704/554-7474, 800/732-8484  
Date MSDS Prepared: April 15, 2003  
**Synonyms:** Barium Monoxide; Barium Protoxide  
**CAS No.:** 1304-28-5  
**Molecular Weight:** 153.34  
**Chemical Formula:** BaO  
**Product Codes:** 2-14850

---

### 2. Composition/Information on Ingredients

<i>Ingredient</i>	<i>CAS No</i>	<i>Percent</i>	<i>Hazardous</i>
-----	-----	-----	-----
Barium Oxide	1304-28-5	90 - 100%	Yes

---

### 3. Hazards Identification

#### Emergency Overview

-----

**DANGER! MAY BE FATAL IF SWALLOWED. HARMFUL IF INHALED. AFFECTS MUSCLES (INCLUDING THE HEART), AND CENTRAL NERVOUS SYSTEM. CAUSES EYE BURNS. CAUSES IRRITATION TO SKIN AND RESPIRATORY TRACT.**

-----

Health Rating: 3 - Severe (Life)  
Flammability Rating: 0 - None  
Reactivity Rating: 2 - Moderate  
Contact Rating: 1 - Slight  
Lab Protective Equip: GOGGLES; LAB COAT; VENT HOOD; PROPER GLOVES  
Storage Color Code: Blue (Health)

-----

#### Potential Health Effects

-----

**Inhalation:** Causes irritation to the respiratory tract. Symptoms may include coughing, shortness of breath. May be absorbed into the bloodstream with symptoms similar to ingestion.

**Ingestion:** A systemic poison that competes with potassium in the nervous system. Causes severe irritation of the gastrointestinal tract, tightness in the muscles of the face and neck, vomiting, diarrhea, abdominal pain, muscular tremors, anxiety, weakness, labored breathing, cardiac irregularity, convulsions, and death from cardiac and respiratory failure. Death may occur within hours or up to a few days. May also damage kidneys, blood and blood forming organs and the brain.

**Skin Contact:** Causes irritation to skin. Symptoms include redness, itching, and pain. Solutions are strongly alkaline, highly irritating and may cause burns.

**Eye Contact:** Causes irritation, redness, pain, and burns.

**Chronic Exposure:** Chronic exposure may cause respiratory system effects.

**Aggravation of Pre-existing Conditions:** Persons with pre-existing skin and nervous system disorders or impaired respiratory or kidney function may be more susceptible to the effects of this substance.

---

#### **4. First Aid Measures**

**Inhalation:** Remove to fresh air. If not breathing, give artificial respiration. If breathing is difficult, give oxygen. Get medical attention.

**Ingestion:** Induce vomiting immediately as directed by medical personnel. Never give anything by mouth to an unconscious person. Get medical attention immediately.

**Skin Contact:** Wipe off excess material from skin then immediately flush skin with plenty of water for at least 15 minutes. Remove contaminated clothing and shoes. Get medical attention. Wash clothing before reuse. Thoroughly clean shoes before reuse.

**Eye Contact:** Immediately flush eyes with plenty of water for at least 15 minutes, lifting lower and upper eyelids occasionally. Get medical attention immediately.

**Note to Physician:** Treatment is symptomatic and supportive. Sodium sulfate can be given in case of ingestion to precipitate out the barium as barium sulfate.

---

#### **5. Fire Fighting Measures**

**Fire:** Not considered to be a fire hazard.

**Explosion:** Not considered to be an explosion hazard.

**Fire Extinguishing Media:** Use dry chemical or carbon dioxide. Do not use water or foam. Water may be used to cool containers.

**Special Information:** In the event of a fire, wear full protective clothing and NIOSH-approved self-contained breathing apparatus with full-facepiece operated in the pressure demand or other positive pressure mode.

---

#### **6. Accidental Release Measures**

Ventilate area of leak or spill. Wear appropriate personal protective equipment as specified in Section 8. Spills: Pick up and place in a suitable container for reclamation or disposal, using a method that does not generate dust. **DO NOT USE WATER.**

---

#### **7. Handling and Storage**

*Keep in a tightly closed container, stored in a cool, dry, ventilated area. Protect against physical damage. Isolate from incompatible substances. Keep away from water. Containers of this material may be hazardous when empty since they retain product residues (dust, solids); observe all warnings and precautions listed for the product.*

---

## **8. Exposure Controls/Personal Protection**

### **Airborne Exposure Limits:**

*For Soluble Barium Compounds:*

*OSHA Permissible Exposure Limit (PEL):*

*0.5 mg (Ba)/m<sup>3</sup>*

*ACGIH Threshold Limit Value (TLV):*

*0.5 mg (Ba)/m<sup>3</sup> A4 - not classifiable as a human carcinogen*

*A4 - Not classifiable as a human carcinogen.*

**Ventilation System:** *A system of local and/or general exhaust is recommended to keep employee exposures below the Airborne Exposure Limits. Local exhaust ventilation is generally preferred because it can control the emissions of the contaminant at its source, preventing dispersion of it into the general work area. Please refer to the ACGIH document, Industrial Ventilation, A Manual of Recommended Practices, most recent edition, for details.*

**Personal Respirators (NIOSH Approved):** *If the exposure limit is exceeded, a half-face dust/mist respirator may be worn for up to ten times the exposure limit or the maximum use concentration specified by the appropriate regulatory agency or respirator supplier, whichever is lowest. A full-face piece dust/mist respirator may be worn up to 50 times the exposure limit, or the maximum use concentration specified by the appropriate regulatory agency, or respirator supplier, whichever is lowest. For emergencies or instances where the exposure levels are not known, use a full-facepiece positive-pressure, air-supplied respirator. WARNING: Air-purifying respirators do not protect workers in oxygen-deficient atmospheres.*

**Skin Protection:** *Wear impervious protective clothing, including boots, gloves, lab coat, apron or coveralls, as appropriate, to prevent skin contact.*

**Eye Protection:** *Use chemical safety goggles and/or full face shield where dusting or splashing of solutions is possible. Maintain eye wash fountain and quick-drench facilities in work area.*

---

## **9. Physical and Chemical Properties**

**Appearance:** *White to slightly yellowish powder.*

**Odor:** *Odorless.*

**Solubility:** *Reacts with water, liberating much heat.*

**Specific Gravity:** *5.72*

**pH:** *No information found.*

**% Volatiles by volume @ 21°C (70°F):** *0*

**Boiling Point:** *No information found.*

**Melting Point:** *1923°C (3493°F)*

**Vapor Density (Air=1):** *Not applicable.*

**Vapor Pressure (mm Hg):** Not applicable.

**Evaporation Rate (BuAc=1):** No information found.

## 10. Stability and Reactivity

**Stability:** Stable under ordinary conditions of use and storage. Very Alkaline. Absorbs carbon dioxide and water from air.

**Hazardous Decomposition Products:** Reacts with water forming barium hydroxide and liberating much heat.

**Hazardous Polymerization:** Will not occur.

**Incompatibilities:** Hydrogen sulfide, carbon dioxide, water, hydroxylamine, nitrogen tetroxide, sulfur trioxide, triuranium.

**Conditions to Avoid:** Air, moisture, and incompatibles.

## 11. Toxicological Information

No LD<sub>50</sub>/LC<sub>50</sub> information found relating to normal routes of occupational exposure.

-----\Cancer Lists\-----

Ingredient	---NTP Carcinogen---		IARC Category
	Known	Anticipated	
Barium Oxide (1304-28-5)	No	No	None

## 12. Ecological Information

**Environmental Fate:** No information found.

**Environmental Toxicity:** No information found.

## 13. Disposal Considerations

Whatever cannot be saved for recovery or recycling should be handled as hazardous waste and sent to a RCRA-approved waste facility. Processing, use or contamination of this product may change the waste management options. State and local disposal regulations may differ from federal disposal regulations. Dispose of container and unused contents in accordance with federal, state and local requirements.

## 14. Transport Information

**Domestic (Land, D.O.T.)**

**Proper Shipping Name:** BARIUM OXIDE

**Hazard Class:** 6.1

**UN/NA:** UN1884

Packing Group: III

**International (Water, I.M.O.)**

-----  
**Proper Shipping Name: BARIUM OXIDE**

**Hazard Class: 6.1**

**UN/NA: UN1884**

**Packing Group: III**

**International (Air, I.C.A.O.)**

-----  
**Proper Shipping Name: BARIUM OXIDE**

**Hazard Class: 6.1**

**UN/NA: UN1884**

**Packing Group: III**

## 15. Regulatory Information

-----\Chemical Inventory Status - Part 1\-----

Ingredient	TSCA	EC	Japan	Australia
-----	---	---	---	-----
Barium Oxide (1304-28-5)	Yes	Yes	Yes	Yes

-----\Chemical Inventory Status - Part 2\-----

Ingredient	--Canada--			
	Korea	DSL	NDSL	Phil.
-----	---	---	---	-----
Barium Oxide (1304-28-5)	Yes	Yes	No	Yes

-----\Federal, State & International Regulations - Part 1\-----

Ingredient	-SARA 302-		-----SARA 313-----	
	RQ	TPQ	List	Chemical Catg.
-----	---	---	---	-----
Barium Oxide (1304-28-5)	No	No	No	Barium compo

-----\Federal, State & International Regulations - Part 2\-----

Ingredient	-RCRA-		-TSCA-
	CERCLA	261.33	8(d)
-----	---	---	-----
Barium Oxide (1304-28-5)	No	No	No

Chemical Weapons Convention: No TSCA 12(b): No CDTA: No  
 SARA 311/312: Acute: Yes Chronic: Yes Fire: No Pressure: No  
 Reactivity: Yes (Pure / Solid)

**WHMIS:** This MSDS has been prepared according to the hazard criteria of the Controlled Products Regulations (CPR) and the MSDS contains all of the information required by the CPR.

## 16. Other Information

**NFPA Ratings:** Health: 3 Flammability: 0 Reactivity: 2

**Label Hazard Warning:** DANGER! MAY BE FATAL IF SWALLOWED. HARMFUL IF INHALED. AFFECTS MUSCLES (INCLUDING THE HEART), AND CENTRAL NERVOUS SYSTEM. CAUSES EYE BURNS. CAUSES IRRITATION TO SKIN AND RESPIRATORY TRACT.

**Label Precautions:**

Do not get in eyes, on skin, or on clothing.

Do not breathe dust.

Keep container closed.

Use only with adequate ventilation.

Wash thoroughly after handling.

Do not contact with water.

**Label First Aid:** If swallowed, induce vomiting immediately as directed by medical personnel. Never give anything by mouth to an unconscious person. If inhaled, remove to fresh air. If not breathing, give artificial respiration. If breathing is difficult, give oxygen. In case of contact, wipe off excess material from skin then immediately flush eyes or skin with plenty of water for at least 15 minutes. Remove contaminated clothing and shoes. Wash clothing before reuse. In all cases get medical attention immediately.

**Product Use:** Laboratory Reagent.

**Disclaimer:**

\*\*\*\*\*

**Reagents, Inc. provides the information contained herein in good faith but makes no representation as to its comprehensiveness or accuracy. This document is intended only as a guide to the appropriate precautionary handling of the material by a properly trained person using this product. Individuals receiving the information must exercise their independent judgment in determining its appropriateness for a particular purpose. REAGENTS, INC. MAKES NO REPRESENTATIONS OR WARRANTIES, EITHER EXPRESS OR IMPLIED, INCLUDING WITHOUT LIMITATION ANY WARRANTIES OF MERCHANTABILITY, FITNESS FOR A PARTICULAR PURPOSE WITH RESPECT TO THE INFORMATION SET FORTH HEREIN OR THE PRODUCT TO WHICH THE INFORMATION REFERS. ACCORDINGLY, REAGENTS, INC. WILL NOT BE RESPONSIBLE FOR DAMAGES RESULTING FROM USE OF OR RELIANCE UPON THIS INFORMATION.**

\*\*\*\*\*