

BARIUM SULPHATE

GHS Safety Data Sheet

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Section 1 - CHEMICAL PRODUCT AND COMPANY IDENTIFICATION

PRODUCT NAME

BARIUM SULPHATE

OTHER NAMES

Ba-O4-S, BaSO₄, BaO₄S, "barium sulphate", "precipitated barium sulfate 1:1", barytes, barite, sulfuric, "sulphuric acid barium salt 1:1", "precipitated barytes", "heavy spar",

PRODUCT USE

Occurs naturally as mineral barite, barytes.

Wide use as inert filler pigment extender in paints, primers, inks, plastics, floor tiles, paper coatings, polymer fibres and rubber.

Used as the semi transparent base (lake) for organic pigments.

Used as a thixotropic weighting mud in oil well drilling.

Barium sulfate is radio-opaque and is used as barium meal in medical X ray diagnosis. CARE: in dispensing, barium sulfate must be named in full to avoid confusion with poisonous barium sulfide, sulfite or carbonate.

The raw material for manufacture of lithopone, a white pigment;

In the manufacture of photographic paper, wallpaper and glassmaking.

In battery plate expanders; in heavy concrete for radiation shield.

SUPPLIER

Company: S D FINE- CHEM LIMITED

Address:

315- 317, T.V. INDUSTRIAL ESTATE,
248, WORLI,

MUMBAI- 400030.INDIA.

technical@sdfine.com

Telephone: 91- 22- 24959898

Telephone: 91- 22- 24959899

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HAZARD RATINGS

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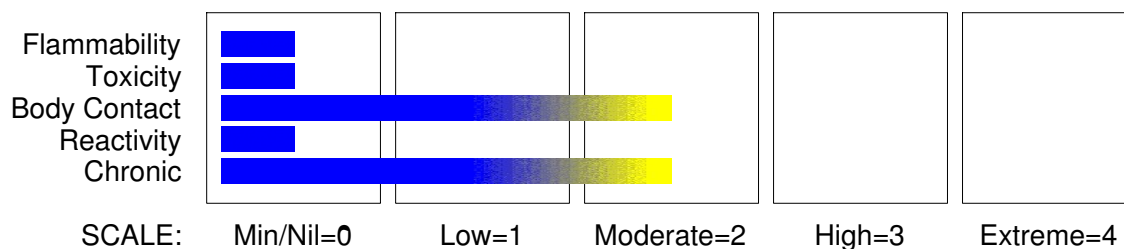
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Section 1 - CHEMICAL PRODUCT AND COMPANY IDENTIFICATION



Section 2 - HAZARDS IDENTIFICATION

GHS Classification

Respiratory Irritation Category 3



EMERGENCY OVERVIEW

HAZARD

WARNING

Determined by using GHS criteria:

H335

May cause respiratory irritation

PRECAUTIONARY STATEMENTS

Section 3 - COMPOSITION / INFORMATION ON INGREDIENTS

NAME	CAS RN	%
barium sulfate	7727-43-7	99.95

Section 4 - FIRST AID MEASURES

SWALLOWED

- Immediately give a glass of water.
- First aid is not generally required. If in doubt, contact a Poisons Information Centre or a doctor.

EYE

If this product comes in contact with eyes:

- Wash out immediately with water.
- If irritation continues, seek medical attention.

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Section 4 - FIRST AID MEASURES

- Removal of contact lenses after an eye injury should only be undertaken by skilled personnel.

SKIN

Brush off dust.

If skin or hair contact occurs:

- Flush skin and hair with running water (and soap if available).
- Seek medical attention in event of irritation.

INHALED

- If dust is inhaled, remove from contaminated area.
- Encourage patient to blow nose to ensure clear passage of breathing.
- If irritation or discomfort persists seek medical attention.

NOTES TO PHYSICIAN

Treat symptomatically.

Section 5 - FIRE FIGHTING MEASURES

EXTINGUISHING MEDIA

There is no restriction on the type of extinguisher which may be used.

FIRE FIGHTING

- Alert Fire Brigade and tell them location and nature of hazard.
- Wear breathing apparatus plus protective gloves for fire only.
- Prevent, by any means available, spillage from entering drains or water courses.
- Use fire fighting procedures suitable for surrounding area.
- DO NOT approach containers suspected to be hot.
- Cool fire exposed containers with water spray from a protected location.
- If safe to do so, remove containers from path of fire.
- Equipment should be thoroughly decontaminated after use.

FIRE/EXPLOSION HAZARD

- Non combustible.
 - Not considered a significant fire risk, however containers may burn.
- Decomposes on heating and produces toxic fumes of:
sulfur oxides (SOx).

FIRE INCOMPATIBILITY

No known incompatibility with normal range of industrial materials.

Section 6 - ACCIDENTAL RELEASE MEASURES

EMERGENCY PROCEDURES

MINOR SPILLS

- Clean up all spills immediately.
- Avoid contact with skin and eyes.
- Wear impervious gloves and safety glasses.
- Use dry clean up procedures and avoid generating dust.
- Sweep up or

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Section 6 - ACCIDENTAL RELEASE MEASURES

- Vacuum up (consider explosion-proof machines designed to be grounded during storage and use).
- Place spilled material in clean, dry, sealable, labelled container.

MAJOR SPILLS

- Clear area of personnel and move upwind.
- Alert Fire Brigade and tell them location and nature of hazard.
- Control personal contact by using protective equipment and dust respirator.
- Prevent spillage from entering drains, sewers or water courses.
- Recover product wherever possible. Avoid generating dust.
- Sweep / shovel up.
- If required, wet with water to prevent dusting.
- Put residues in labelled plastic bags or other containers for disposal.
- Wash area down with large quantity of water and prevent runoff into drains.
- If contamination of drains or waterways occurs, advise emergency services.

EMERGENCY RESPONSE PLANNING GUIDELINES (ERPG)

The maximum airborne concentration below which it is believed that nearly all individuals could be exposed for up to one hour WITHOUT experiencing or developing

life-threatening health effects is:

barium sulfate 250 mg/m³

irreversible or other serious effects or symptoms which could impair an individual's ability to take protective action is:

barium sulfate 50 mg/m³

other than mild, transient adverse effects without perceiving a clearly defined odour is:

barium sulfate 30 mg/m³

The threshold concentration below which most people will experience no appreciable risk of health effects:

barium sulfate 15 mg/m³

American Industrial Hygiene Association (AIHA)

Ingredients considered according to the following cutoffs

Very Toxic (T+)	>= 0.1%	Toxic (T)	>= 3.0%
R50	>= 0.25%	Corrosive (C)	>= 5.0%
R51	>= 2.5%		
else	>= 10%		

where percentage is percentage of ingredient found in the mixture

SAFE STORAGE WITH OTHER CLASSIFIED CHEMICALS



+ + + + + +

+: May be stored together

O: May be stored together with specific preventions

X: Must not be stored together

Personal Protective Equipment advice is contained in Section 8 of the MSDS.

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Section 7 - HANDLING AND STORAGE

PROCEDURE FOR HANDLING

Avoid generating and breathing dust.
Avoid contact with eyes.
Avoid physical damage to containers.
When handling, DO NOT eat, drink or smoke.
Keep containers securely sealed when not in use.
Wash hands with soap and water after handling.

SUITABLE CONTAINER

Glass container.
Multi-ply paper bag with sealed plastic liner or heavy gauge plastic bag.
NOTE: Bags should be stacked, blocked, interlocked, and limited in height so that they are stable and secure against sliding or collapse. Check that all containers are clearly labelled and free from leaks. Packing as recommended by manufacturer.

STORAGE INCOMPATIBILITY

Violently explosive with powdered aluminium; ignites in the presence of phosphorus (primed with nitrate-calcium silicide).

STORAGE REQUIREMENTS

- Store in original containers.
- Keep containers securely sealed.
- Store in a cool, dry, well-ventilated area.
- Store away from incompatible materials and foodstuff containers.
- Protect containers against physical damage and check regularly for leaks.
- Observe manufacturer's storing and handling recommendations.

Section 8 - EXPOSURE CONTROLS / PERSONAL PROTECTION

EXPOSURE CONTROLS

The following materials had no OELs on our records

- barium sulfate: CAS:7727- 43- 7 CAS:8054- 35- 1 CAS:12751- 32- 5

MATERIAL DATA

Barium sulfate has been identified as a nontoxic dust. However high dust levels have caused benign pneumoconiosis (baritosis). The TLV-TWA is thought to be protective against the risk of eye, nose and upper respiratory tract irritation and perhaps, pneumoconiosis.

PERSONAL PROTECTION

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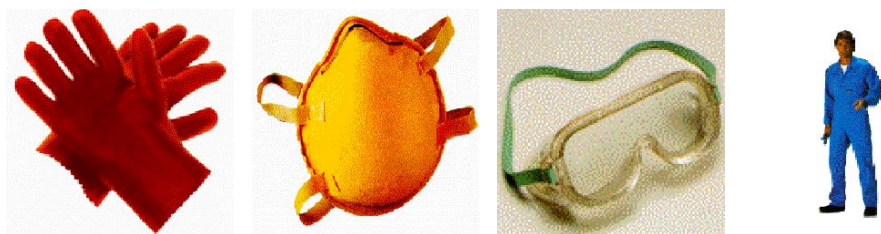
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Section 8 - EXPOSURE CONTROLS / PERSONAL PROTECTION



EYE

- Safety glasses with side shields; or as required,
- Chemical goggles.
- Contact lenses may pose a special hazard; soft contact lenses may absorb and concentrate irritants. A written policy document, describing the wearing of lens or restrictions on use, should be created for each workplace or task. This should include a review of lens absorption and adsorption for the class of chemicals in use and an account of injury experience. Medical and first-aid personnel should be trained in their removal and suitable equipment should be readily available. In the event of chemical exposure, begin eye irrigation immediately and remove contact lens as soon as practicable. Lens should be removed at the first signs of eye redness or irritation - lens should be removed in a clean environment only after workers have washed hands thoroughly. [CDC NIOSH Current Intelligence Bulletin 59].

HANDS/FEET

Wear general protective gloves: i.e. Disposable polythene gloves or Cotton gloves or Light weight rubber gloves, with Barrier cream preferably Safety footwear.

OTHER

- Overalls.
- Eyewash unit.

RESPIRATOR

Protection Factor	Half- Face Respirator	Full- Face Respirator	Powered Air Respirator
10 x ES	P1 Air- line*	- -	PAPR- P1 -
50 x ES	Air- line**	P2	PAPR- P2
100 x ES	-	P3	-
		Air- line*	-
100+ x ES	-	Air- line**	PAPR- P3

* - Negative pressure demand ** - Continuous flow.

The local concentration of material, quantity and conditions of use determine the type of personal protective equipment required.

For further information consult your Occupational Health and Safety Advisor.

ENGINEERING CONTROLS

None required when handling small quantities.

OTHERWISE:.

Use in a well-ventilated area.

- Local exhaust ventilation is required where solids are handled as powders or crystals; even when particulates are relatively large, a certain proportion will be powdered by mutual friction.

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Section 8 - EXPOSURE CONTROLS / PERSONAL PROTECTION

- Exhaust ventilation should be designed to prevent accumulation and recirculation of particulates in the workplace.
- If in spite of local exhaust an adverse concentration of the substance in air could occur, respiratory protection should be considered. Such protection might consist of:
 - (a): particle dust respirators, if necessary, combined with an absorption cartridge;
 - (b): filter respirators with absorption cartridge or canister of the right type;
 - (c): fresh-air hoods or masks
- Build-up of electrostatic charge on the dust particle, may be prevented by bonding and grounding.
- Powder handling equipment such as dust collectors, dryers and mills may require additional protection measures such as explosion venting.

Air contaminants generated in the workplace possess varying "escape" velocities which, in turn, determine the "capture velocities" of fresh circulating air required to efficiently remove the contaminant.

Type of Contaminant:

direct spray, spray painting in shallow booths, drum filling, conveyer loading, crusher dusts, gas discharge (active generation into zone of rapid air motion)
grinding, abrasive blasting, tumbling, high speed wheel generated dusts (released at high initial velocity into zone of very high rapid air motion).

Air Speed:

1- 2.5 m/s (200- 500 f/min.)

2.5- 10 m/s (500- 2000 f/min.)

Within each range the appropriate value depends on:

Lower end of the range

- 1: Room air currents minimal or favourable to capture
- 2: Contaminants of low toxicity or of nuisance value only
- 3: Intermittent, low production.
- 4: Large hood or large air mass in motion

Upper end of the range

- 1: Disturbing room air currents
- 2: Contaminants of high toxicity
- 3: High production, heavy use
- 4: Small hood- local control only

Simple theory shows that air velocity falls rapidly with distance away from the opening of a simple extraction pipe. Velocity generally decreases with the square of distance from the extraction point (in simple cases). Therefore the air speed at the extraction point should be adjusted, accordingly, after reference to distance from the contaminating source. The air velocity at the extraction fan, for example, should be a minimum of 4-10 m/s (800-2000 f/min) for extraction of crusher dusts generated 2 metres distant from the extraction point. Other mechanical considerations, producing performance deficits within the extraction apparatus, make it essential that theoretical air velocities are multiplied by factors of 10 or more when extraction systems are installed or used.

Section 9 - PHYSICAL AND CHEMICAL PROPERTIES

APPEARANCE

Dense fine odourless white powder or polymorphous crystals.
Solubility in water 0.00025% i.e. practically insoluble.

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Section 9 - PHYSICAL AND CHEMICAL PROPERTIES

Only 0.6% solubility in 3% hydrochloric acid solution.
Slightly soluble in concentrated sulfuric acid and soluble in hot concentrated sulfuric acid.
Particle size 2-25 microns. Rhombic crystals with a transition point at 1149 deg C to monoclinic. Finer grades, are precipitated.

PHYSICAL PROPERTIES

Solid.
Does not mix with water.
Sinks in water.

Molecular Weight: 233.39
Melting Range (°C): 1580
Solubility in water (g/L): Insoluble
pH (1% solution): Not applicable.
Volatile Component (%vol): Nil
Relative Vapour Density (air=1): Not applicable.
Lower Explosive Limit (%): Not applicable
Autoignition Temp (°C): Not applicable
State: Divided solid

Boiling Range (°C): Not available.
Specific Gravity (water=1): 4.5 @ 15 C
pH (as supplied): Not applicable
Vapour Pressure (kPa): Negligible
Evaporation Rate: Non Volatile
Flash Point (°C): Non combustible
Upper Explosive Limit (%): Not applicable
Decomposition Temp (°C): > 1600
Viscosity: Not Applicable

Section 10 - CHEMICAL STABILITY AND REACTIVITY INFORMATION

CONDITIONS CONTRIBUTING TO INSTABILITY

Product is considered stable and hazardous polymerisation will not occur.

Section 11 - TOXICOLOGICAL INFORMATION

POTENTIAL HEALTH EFFECTS

ACUTE HEALTH EFFECTS

SWALLOWED

Although ingestion is not thought to produce harmful effects (as classified under EC Directives), the material may still be damaging to the health of the individual, following ingestion, especially where pre-existing organ (e.g liver, kidney) damage is evident. Present definitions of harmful or toxic substances are generally based on doses producing mortality rather than those producing morbidity (disease, ill-health). Gastrointestinal tract discomfort may produce nausea and vomiting. In an occupational setting however, ingestion of insignificant quantities is not thought to be cause for concern.
Considered to be non toxic.
Considered an unlikely route of entry in commercial/industrial environments.

EYE

Although the material is not thought to be an irritant (as classified by EC Directives), direct contact with the eye may produce transient discomfort characterised by tearing or conjunctival redness (as with windburn).

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Section 11 - TOXICOLOGICAL INFORMATION

SKIN

The material is not thought to produce adverse health effects or skin irritation following contact (as classified by EC Directives using animal models). Nevertheless, good hygiene practice requires that exposure be kept to a minimum and that suitable gloves be used in an occupational setting.

Not considered to cause discomfort through normal use.

INHALED

Limited evidence exists, or practical experience predicts, that the material produces irritation of the respiratory system in a significant number of individuals following inhalation.

Although inhalation is not thought to produce harmful effects (as classified under EC Directives), the material may still produce health damage, especially where pre-existing organ (e.g liver, kidney) damage is evident. Present definitions of harmful or toxic substances are generally confined to doses producing mortality rather than those producing morbidity (disease, ill-health).

Not normally a hazard due to non-volatile nature of product.

Barium fumes are respiratory irritants. Over-exposure to barium dusts and fume may result in rhinitis, frontal headache, wheezing, laryngeal spasm, salivation and anorexia. Long term effects include nervous disorders and adverse effects on the heart, circulatory system and musculature. Heavy exposures may result in a benign pneumoconiosis.

CHRONIC HEALTH EFFECTS

Primary route of exposure is usually by inhalation of generated dust.

Prolonged or repeated skin contact may cause drying with cracking, irritation and possible dermatitis following.

Long term exposure to high dust concentrations may cause changes in lung function (i.e. pneumoconiosis) caused by particles less than 0.5 micron penetrating and remaining in the lung. A prime symptom is breathlessness. Lung shadows show on X-ray.

Workers exposed to barium compounds have been reported to show an increased incidence of hypertension, irritation of the respiratory system, and damage to the spleen, liver and bone marrow. Long term exposure to some barium compounds (especially inorganic species) may produce a condition known as baritosis, a form of benign pneumoconiosis. X-ray may show this when no other abnormal signs are present.

Symptoms of pneumoconiosis may include a progressive dry cough, shortness of breath on exertion, increased chest expansion, weakness and weight loss. As the disease progresses the cough produces a stringy mucous, vital capacity decreases further and shortness of breath becomes more severe. Pneumoconiosis is the accumulation of dusts in the lungs and the tissue reaction in its presence. Barium sulfate produces noncollagenous pneumoconiosis identified by minimal stromal reaction, consisting mainly of reticulin fibres, an intact alveolar architecture and is potentially reversible. Miners of ores containing barium sulfate do not show symptoms, abnormal physical signs, an incapacity to work, diminished lung function, an increased likelihood of developing pulmonary or other bronchial infections or other thoracic disease despite the fact that particulate matter may have been retained in the lungs for many years.

TOXICITY AND IRRITATION

Not available. Refer to individual constituents.

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Section 12 - ECOLOGICAL INFORMATION

No data

Section 13 - DISPOSAL CONSIDERATIONS

Recycle if possible, otherwise dispose in a chemically secure landfill.

Section 14 - TRANSPORTATION INFORMATION

HAZCHEM: None

Air Transport IATA:

ICAO/IATA Class: None

ICAO/IATA Subrisk: None

UN/ID Number: None

Packing Group: -

ERG Code: -

Shipping name:None

NOT REGULATED FOR TRANSPORT OF DANGEROUS GOODS:UN, IMDG

Section 15 - REGULATORY INFORMATION

REGULATIONS

barium sulfate (CAS: 7727-43-7) is found on the following regulatory lists;
International Air Transport Association (IATA) Dangerous Goods Regulations
International Council of Chemical Associations (ICCA) - High Production Volume List
OECD Representative List of High Production Volume (HPV) Chemicals
United Nations Convention Against Illicit Traffic in Narcotic Drugs and Psychotropic
Substances - Table II

No data available for barium sulfate as CAS: 8054-35-1, CAS: 12751-32-5.

Section 16 - OTHER INFORMATION

INGREDIENTS WITH MULTIPLE CAS NUMBERS

Ingredient Name	CAS
barium sulfate	7727- 43- 7, 8054- 35- 1, 12751 - 32- 5

The above information is believed to be accurate and represent the best information currently available to us, but does not represent any warranty expressed or implied of the properties of the product. User should make their own investigation to

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Section 16 - OTHER INFORMATION

determine the suitability of the information for their particular purpose

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