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|  | **vietnam national coal AND mineral industries HOLDING CORPORATION LIMITED**  **\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_** |

**Material Safety Data Sheet**

**Material Name: ALUMINUM HYDROXIDE**

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**1. Product Identification**

**Chemical name:** ALUMINUM HYDROXIDE

**Chemical Formula:** Al(OH)3

**2. Composition/Information on Ingredients**

Aluminum Oxide (Al2O3): 64% minimum

Silicon oxide (SiO2): 0.02% maximum

Iron oxide (Fe2O3): 0.02% maximum

Sodium oxide (Na2O): 0.4% maximum

Loss on ignition (L.O.I): 35 % maximum

Moisture: 8% maximum

**3. Hazards Identification**

**Emergency Overview**

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**CAUTION! MAY CAUSE IRRITATION TO SKIN, EYES, AND RESPIRATORY TRACT.**

**J.T. Baker SAF-T-DATA(tm)** Ratings (Provided here for your convenience)

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Health Rating: 1 - Slight

Flammability Rating: 0 - None

Reactivity Rating: 0 - None

Contact Rating: 1 - Slight

Lab Protective Equip: GOGGLES; LAB COAT

Storage Color Code: Orange (General Storage)

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**Potential Health Effects**

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**Inhalation:**

Hazard is principally that of a nuisance dust. Coughing or shortness of breath may occur in cases of excessive

inhalation.

**Ingestion:**

No adverse effects expected.

**Skin Contact:**

May cause irritation with redness and pain.

**Eye Contact:**

No adverse effects expected but dust may cause mechanical irritation.

**Chronic Exposure:**

No adverse effects expected.

**Aggravation of Pre-existing Conditions:**

Not expected to be a health hazard.

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**4. First Aid Measures**

**Inhalation:**

Remove to fresh air. Get medical attention for any breathing difficulty.

**Ingestion:**

Give several glasses of water to drink to dilute. If large amounts were swallowed, get medical advice.

**Skin Contact:**

Immediately flush skin with plenty of water for at least 15 minutes. Remove contaminated clothing and shoes. Wash

clothing before reuse. Thoroughly clean shoes before reuse. Get medical attention if irritation develops.

**Eye Contact:**

Immediately flush eyes with plenty of water for at least 15 minutes, lifting upper and lower eyelids occasionally. Get

medical attention if irritation persists.

**5. Fire Fighting Measures**

**Fire:**

Not considered to be a fire hazard.

**Explosion:**

Not considered to be an explosion hazard.

**Fire Extinguishing Media:**

Use any means suitable for extinguishing surrounding fire.

**Special Information:**

Use protective clothing and breathing equipment appropriate for the surrounding fire and to protect against the

aluminum oxide dust that may be dispersed in the air.

**6. Accidental Release Measures**

Ventilate area of leak or spill. Wear appropriate personal protective equipment as specified in Section 8. Spills:

Sweep up and containerize for reclamation or disposal. Vacuuming or wet sweeping may be used to avoid dust

dispersal.

**7. Handling and Storage**

Keep in a tightly closed container, stored in a cool, dry, ventilated area. Protect against physical damage. 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:**

Alumina (Aluminum Oxide):

-OSHA Permissible Exposure Limit (PEL):

alpha alumina, 15 mg/m3 total dust, 5 mg/m3 respirable fraction

-ACGIH Threshold Limit Value (TLV):

aluminum oxide, 10 mg/m3 (TWA) inhalable (total) particulate matter containing no asbestos and < 1% crystalline

silica, A4

**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):**

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**Personal Respirators (NIOSH Approved):**

If the exposure limit is exceeded and engineering controls are not feasible, a half facepiece particulate respirator

(NIOSH type N95 or better filters) 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 particulate respirator (NIOSH type N100 filters) 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. If oil particles (e.g. lubricants, cutting fluids, glycerine, etc.) are present, use a NIOSH type R or P filter. 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 protective gloves and clean body-covering clothing.

**Eye Protection:**

Use chemical safety goggles. Maintain eye wash fountain and quick-drench facilities in work area.

**9. Physical and Chemical Properties**

**Appearance:**

White powder.

**Odor:**

Odorless.

**Solubility:**

Insoluble in water.

**Density:**

4.0 @ 20C/4C

**pH:**

No information found.

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

0

**Boiling Point:**

2980C (5396F)

**Melting Point:**

ca. 2000C (ca. 3632F)

**Vapor Density (Air=1):**

No information found.

**Vapor Pressure (mm Hg):**

No information found.

**Evaporation Rate (BuAc=1):**

No information found.

**10. Stability and Reactivity**

**Stability:**

Stable under ordinary conditions of use and storage.

**Hazardous Decomposition Products:**

No information found.

**Hazardous Polymerization:**

Will not occur.

**Incompatibilities:**

Chlorine trifluoride, Ethylene oxide.

**Conditions to Avoid:**

Incompatibles.

**11. Toxicological Information**

No LD50/LC50 information found relating to normal routes of occupational exposure. Investigated as a tumorigen.

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No LD50/LC50 information found relating to normal routes of occupational exposure. Investigated as a tumorigen.

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

---NTP Carcinogen---

Ingredient Known Anticipated IARC Category

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Aluminum Oxide (1344-28-1) 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 managed in an appropriate and approved waste

disposal 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**

Not regulated.

**15. Regulatory Information**

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

Ingredient TSCA EC Japan Australia

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Aluminum Oxide (1344-28-1) Yes Yes Yes Yes

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

--Canada--

Ingredient Korea DSL NDSL Phil.

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Aluminum Oxide (1344-28-1) Yes Yes No Yes

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

-SARA 302- ------SARA 313------

Ingredient RQ TPQ List Chemical Catg.

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Aluminum Oxide (1344-28-1) No No Yes No

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

-RCRA- -TSCAIngredient

CERCLA 261.33 8(d)

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Aluminum Oxide (1344-28-1) No No No

Chemical Weapons Convention: No TSCA 12(b): No CDTA: No

SARA 311/312: Acute: Yes Chronic: No Fire: No Pressure: No

Reactivity: No (Pure / Solid)

**Australian Hazchem Code:** None allocated.

**Poison Schedule:** None allocated.

**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.

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**16. Other Information**

**NFPA Ratings:** Health: **1** Flammability: **0** Reactivity: **0**

**Label Hazard Warning:**

CAUTION! MAY CAUSE IRRITATION TO SKIN, EYES, AND RESPIRATORY TRACT.

**Label Precautions:**

Use with adequate ventilation.

Keep container closed.

Avoid breathing dust.

Wash thoroughly after handling.

Avoid contact with eyes, skin and clothing.

**Label First Aid:**

If inhaled, remove to fresh air. Get medical attention for any breathing difficulty. In case of contact, immediately

flush eyes or skin with plenty of water for at least 15 minutes. Get medical attention if irritation develops or persists.

**Product Use:**

Laboratory Reagent.

**Revision Information:**

MSDS Section(s) changed since last revision of document include: 8.

The information set forth in this Safety Data Sheet does not purport to be all-inclusive and should be used only as a guide. While the information and recommendations set forth herein are believed to be accurate, the company makes no warranty regarding such information and recommendations and disclaims all liability from reliance thereon.