**MATERIALS SAFETY DATA SHEET**

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| **section 1-Material Identity**  product Trade Name: Common Name(s): Chemical Name:  CAS Number:  EINECS Number:  Physical Form:  Manufacturers Name and Address:  North Star Clay Mining Inc. 35 Mammoth Main St.  P.O. Box 190  Eureka, UT 84628 | Halloysite (EG) entrapment grade  Halloysite, Kaolin  Kaolin  1332-58-7 310-127-6 White to off-white powder  Phone: 435-433-6612 FAX: 435-433-5512 |

**Section 2- composition/Information on components**

Halloysite (also known as kaolin or china clay) is a natural material that contains variable proportions of various minerals, including Halloysite, Cristoba alunite, and other minor amounts of natural minerals.

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| Chemical Name: Halloysite  Chemical Family: Kaolin (1:1 Aluminosilicate) **Halloysite:**  CAS number:  EINECS number: USEPA PC CODE: | 12068-50-7 310-127-6 100103 |

OES (Occupational Exposure Standard) for respirable kaolin dust is 2.0mg/m3 in a TWA 8 hr reference period.

**Alunite:**

CAS number: 10043-01-3

EINCS number: 233-141-3

OES (Occupational Exposure Standard) for respirable dust is 2.3 mg/m3 in a TWA 8 hr reference period.

**Section 3: Hazard Information**

Halloysite exhibits low acute toxicity.

**Routes of Entry: Skin: NO Eyes: YES Ingestion: YES Inhalation: YES**

Skin Contact: No adverse effectswould be expected.

Eye contact: Contact with eye tissues may cause mechanical irritation and possible inflammation. Ingestion: No adverse health effects expected from normal and incidental ingestion.

Inhalation: Due to the very small size distribution of the product there exists the possibility of the generation of respirable dust during handling and use the product. Prolonged inhalation of the respirable dust may cause lung fibrosis. Prolonged exposure symptoms include cough and breathlessness. / potential occupational exposure must be monitored and controlled.

Wet spillage can constitute a slip hazard.

**Section 4: First Aid Measures**

Inhalation of Dust: Remove to Fresh Air, if symptoms develop medical advice should be sought.

Skin Contact: Wash affected areas with soap and water.

Eye Contact: Flush with clean water

Ingestion: Rinse mouth with water

**Section 5: Fire Fighting Measures**

NOT Flammable- no precautions necessary

**Section 6: Accidental Release Measures**

Dry powder should be vacuumed or cleaned by other means wherein dust is not generated.

Wet Slurry Material Spill: Use a dry. inert. absorbent solid to absorb the slurry fluids and then collect for disposal. Do not discharge to surface water.

**Section 7: Handling and Storage**

**Handling:** Use appropriate methods to avoid the generation of airborne dust when handling dry powders. No precaution is necessary if handling slurries.

Anapproved face mask should be worn to prevent inhalation of the dry powder.

**Storage:** Powders should be stored in a dry covered area, slurries should be stored in proper containment.

**Section 8: Exposure Control and Personal Protection Respiratory protection:**

**Workplace control parameters:**

**Nuisance Dusts: OSHA PEL (TWA) ACGIH (TWA)**

**Respirable Dusts: 5 mg/M3 3 mg/M3**

**Total Dusts: 15 mg/M3 10 mg/M3**

**OSHA PEL: OSHA permissible exposure limit, 8 hours time weighted average.**

**ACHIH TLV: American Conference of Governmental Industrial Hygienists threshold time weight average.**

**Engineering Controls:** Use local exhaust as required to reduce occupational exposures to within occupational exposure limits.

**Skin Protection:** Halloysite powder may have a drying effect on the skin. Use good hygiene practices.

**Eye Protection:** Wear safety glasses or chemical goggles to prevent eye contact. Do not wear contact lenses when working with halloysite.

**Section 9: Physical and Chemical Properties**

Appearance: White Powder

Odor: None

pH Slurry 6.0-6.5

Boiling Point: Slurry in Water 100 °C or 212°F

Explosive Properties: None

Oxidizing Properties: None

Relative Density: 2.55

**Section 10: Stability and Reactivity**

**Stability:** stable

**Incompatibility:** hydrofluoric acid, strong alkalis

**Hazardous Decomposition or By-Products:** None Known **Hazardous Polymerization** Will not occur

**Section: 11 Toxicological Information**

**Skin Irritation: Not a chemical irritant to the skin.**

**Eye Irritation: Mild irritant to the eyes**

**Acute Oral Toxicity: By analogy acute LD50 (rat) >5000 mg/kg**

**Carcinogenicity: Kaolin and its' homomlogs are not listed as a carcinogen by OSHA, NTP, ACGIH Reproductive Toxicity: No data is available; no reproductive toxicity expected.**

**Teratogenicity: No data for product; no effects should be expected.**

**Section 12: Ecological Information**

**Environmental Statement:** Halloysite is persistent and is non-biodegradable but as it is a natural mineral is unlikely to have any long term effect c the environment.

**Mobility:** Solid, Non-volatile. Insoluble **Degradability:** Not biodegradable and persistent.

**Accumulation:** Not subject to bio-accumulation no bio-magnification identified. Ecotoxic**ity:** Halloysite is non toxic to fish, soil organisms, plants, or animals.

**Section 13: Disposal Considerations**

Halloysite can be disposed of as a non toxic and non reactive material in approved landfill sites when disposed of in accordance with governmental regulations.

**Section 14: Transport Information**

**Halloysite is not classified as dangerous for transportation , no special precautions are required.**

**DOT- proper shipping name: Halloysite Not a DOT/IMO hazardous material Road Transport ARD/RID: Not a dangerous substance as defined by regulation.**

**Inland navigation AND/ADNR: Not a dangerous substance as defined by regulation. Maritime Transport IMDG: Not a dangerous subsntance as defined by regulation. Air Transport ICAO/IATA: Not a dangerous substance as defined by regulation.**

**Section 15: Regulatory Information**

**SARA 311/312: Hazard Category: chronic health**

**SARA 313: None**

**CERCLA Section 103 Reportable Quantity: None**

**Toxic Substances Control Act: Listed on EPA TSCA or exempt.**

**European Inventory of Commercial Chemical Substances: Listed on ENIECS inventory and exempt. Canadian Environmental Protection Act: Listed Canadian Domestic Substances List or Exempt. Japan MITI: Defined in Chemical substance control law.**

**Australian Inventory of Chemical Substances: Listed AICS or exempt.**

**Section 16: Misc. Information**

**Workers should be trained to handle this product without generating dust of spillages of material.**

Note: This Material Safety Data Sheet supersedes all previous materials and is based upon the company's current and best knowledge as c date of preparation. Is it provided in good faith, but is without warranty either expressed or implied as regards the correctness or complete of information contained herein. The conditions and methods of handling, storage and use and/or disposal of the product are beyond our knowledge. Thus it is the sole responsibility of the user to take all precautions required for the safe handling of the product.

Date Prepared: March 2007