# ANHYDROUS SODIUM SULFATE

## Material Safety Data Sheet

Distributed by:
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### SECTION 1: CHEMICAL PRODUCT & COMPANY

**PRODUCT NAME:** Anhydrous sodium sulfate
**MANUFACTURER:**
Searles Valley Minerals
13200 Main Street
Trona, CA 93562

**EMERGENCY PHONE NUMBER:**
24 Hour Information Service: 760-372-2291
CHEMTREC: 800-424-9300
**PREPARATION/REVISION DATE:** December 01, 2011
Supersedes: June 11, 2010, April 10, 2006, April 12, 2004, Nov. 1, 2003, Sept. 25, 2001, Apr. 27, 1999, May 2, 1996, Sept. 8, 2000 Versions

### SECTION 2: COMPOSITION/INFORMATION ON INGREDIENTS

**NOTE:** See Section 15 for Exposure Limits.
**PRODUCT NAME:** Anhydrous sodium sulfate
**FORMULA:** $Na_2SO4$
**CHEMICAL NAME:** Anhydrous sodium sulfate
**SYNONYMS:** Salt cake

**COMPONENTS:**

| | |
|---|---|
| Material: | Anhydrous sodium sulfate |
| CAS Number: | 7757-82-6 |
| Percent: | >99% |

### SECTION 3: HAZARDS IDENTIFICATION

**EMERGENCY OVERVIEW:** Anhydrous Sodium Sulfate is a white, fine granular, crystalline product that is **not** flammable, combustible, or explosive, and it presents no unusual hazard if involved in a fire. **ROUTES OF EXPOSURE:** Inhalation; eye and skin contact. **INHALATION:** Mild irritation to nose, throat, and lungs may occur if dusts exceeding the PEL or TLV are exceeded (see Section 15). **EYE CONTACT:** Contact with dust may cause mild, transient irritation. **DERMAL CONTACT:** Contact may cause mild irritation if exposure is prolonged. **INGESTION:** Sodium sulfate is not considered toxic, but is not intended for ingestion. If swallowed, it may irritate the mouth, esophagus and stomach. Drinking solutions of sodium sulfate may cause diarrhea. **CANCER:** Sodium sulfate is not considered a carcinogen. **REPRODUCTIVE:** Animal studies have shown that sodium sulfate can effect the fetus, causing skeletal abnormalities or increased birth weight. **TARGET ORGANS:** No target organs have been determined. **SIGNS AND SYMPTOMS OF EXPOSURE:** Drinking water containing sodium sulfate may result in gastrointestinal irritation and diarrhea.

### SECTION 4: EMERGENCY & FIRST AID PROCEDURES

**EYES:** Rinse eyes with water. Remove any contact lenses, and continue flushing with plenty of water for several minutes. Seek medical attention if irritation develops and persists. **SKIN:** Wash affected areas with plenty of water, and soap if available, for several minutes. Seek medical attention if irritation develops and persists. **INHALATION:** Remove from area to fresh air. Seek medical attention if respiratory irritation develops or if breathing becomes difficult. **INGESTION:** If large quantities of this material are swallowed, call a physician immediately. Do **not** induce vomiting unless directed to do so by a physician. Never give anything by mouth to an unconscious person.

### SECTION 5: FIRE FIGHTING MEASURES

**GENERAL HAZARD:** Sodium Sulfate is not flammable, combustible, or explosive. It presents no unusual hazards when involved in a fire. **UEL/LEL:** Not Applicable. **FLASH POINT:** Not Applicable. **AUTOIGNITION TEMPERATURE:** Not applicable. **FLAMMABILITY CLASSIFICATION:** Flammability Classification (29 CFR 1910.1200), Non-flammable solid. **EXTINGUISHING MEDIA:** Use material suitable for surrounding fire conditions.

## SECTION 6: ACCIDENTAL RELEASE MEASURES

**ACTION TO TAKE FOR SPILLS OR LEAKS**: Sodium sulfate is injurious to plant life (see Phytotoxicity, Section 12). For dry spills, sweep, vacuum, or shovel and place in containers for disposal in accordance with applicable regulations (see Sections 13 and 15). Avoid contamination of bodies of water during cleanup. Sodium Sulfate is non-hazardous when spilled or disposed of, as defined in the Resource Conservation and Recovery Act. (RCRA) and corresponding regulations (40 CFR 261). (See Section 15).

## SECTION 7: HANDLING & STORAGE

**GENERAL:** Anhydrous Sodium Sulfate readily absorbs moisture. Dry, indoor storage under atmospheric conditions is recommended. To maintain package integrity and to minimize caking of the product, bags should be handled on a "first-in-first-out" basis. Good housekeeping should be maintained to minimize dust accumulation and generation. Sodium Sulfate will become wet in moist conditions. **HYGIENIC PRACTICES:** Wash hands thoroughly with soap and water after handling and before eating, drinking, or smoking.

## SECTION 8: EXPOSURE CONTROLS/PERSONAL PROTECTION

**ENGINEERING CONTROLS:** Use local exhaust ventilation to keep airborne levels below exposure limits (see Section 15). **EYE PROTECTION:** Use vented goggles or safety glasses in excessively dusty conditions. **SKIN PROTECTION:** Not required under normal conditions. Use if excessively dusty, or if skin is damaged. **RESPIRATORY PROTECTION:** None required where adequate ventilation is provided. If airborne concentrations are high use a NIOSH/MSHA approved respirator that has been selected by a technically qualified person for the specific work conditions.

## SECTION 9: PHYSICAL & CHEMICAL PROPERTIES

**SOLUBILITY IN WATER:** 16.3% at 20° C; 29.8% at 100° C.
**APPEARANCE:** White, fine granular, crystalline solid; odorless.
**MOLECULAR WEIGHT:** 142.04
**BOILING POINT:** Not Applicable
**MELTING POINT:** 884° C.
**pH VALUE:** At 20° C: 1% solution - 9.7; Saturated solution - 9.8.
**FLASH POINT:** Not Applicable.
**SPECIFIC GRAVITY ($H_2O$ = 1 at 4° C):** 2.664 at 25° C.
**VAPOR PRESSURE:** Not Applicable.

## SECTION 10: STABILITY & REACTIVITY DATA

**STABILITY:** Stable
**INCOMPATIBILITY:** Aluminum or magnesium. Violent reactions have been reported when sulfates, including sodium sulfate, are melted with aluminum or magnesium.
**HAZARDOUS DECOMPOSITION PRODUCTS:** When heated to decomposition (1100° C), sodium sulfate produces oxides of sodium and sulfur.
**HAZARDOUS POLYMERIZATION:** Will not occur.

## SECTION 11: TOXICOLOGICAL EFFECTS

**EYES:** May cause irritation. **SKIN:** May cause irritation. **INHALATION:** May irritate nose, throat and lungs. A study of workers in sodium sulfate solution mines showed no abnormalities in lung function that could be related to such exposure. Guinea pigs exposed to a sodium sulfate aerosol for one hour experienced no effects upon pulmonary function. Rabbits exposed for one hour to submicrometer aerosols of sodium sulfate showed no significant effect at levels up to approximately 2 mg/m$^3$. **INGESTION:** Oral $LD_{50}$(mouse) is reported to be 5,989 mg/kg (RTECS WE1650000). Drinking water containing sodium sulfate may cause diarrhea in humans. **CARCINOGENICITY:** Sodium Sulfate is not listed as a carcinogen by the Environmental Protection Agency (EPA) the State of California, the National Toxicology Program, or the International Agency for Research on Cancer. See Section 15 for additional information. **REPRODUCTIVE:** A study in which pregnant mice were exposed to sodium sulfate by subcutaneous injection, a dose of 60 mg/kg caused skeletal abnormalities in fetuses. An *in vivo* developmental toxicity screen, in which pregnant mice were exposed to 2,800 mg/kg/day of sodium sulfate, resulted in an increase in neonatal birth weight; the significance of this effect is unclear.

## SECTION 12: ECOLOGICAL DATA

**FISH TOXICITY:** $TL_m$ Bluegill - 12,750 ppm/96 hr.; $LC_{50}$ Mosquito fish - 17,500 mg/l/48 hr. In turbid water, $LC_{50}$ Fathead

minnow - 13,500 to 14,000 mg/l/24 to 96 hr in soft water; $LC_{50}$ opossum shrimp - 11,300 ppm/48 hr.; $LC_{50}$ Sheepshead minnows - >18,000 ppm/48 hr. **BIRD TOXICITY:** None Available. **INVERTEBRATE TOXICITY:** $LC_{50}$ Daphia Magna - 4547 mg/l/96 hr.; $LC_{50}$ Caddis fly - 320 mg/l/960 hr in soft water. **PHYTOTOXICITY:** Plants were injured by sodium sulfate levels of 4,000 mg/l in soil; 710 mg/l depressed root growth and water absorption. Crop weight reductions ranging up to 85% have been demonstrated for rice, tomato and beans with sodium sulfate levels up to 5,120 mg/l. **ENVIRONMENTAL FATE DATA:** Not Available.

## SECTION 13: DISPOSAL CONSIDERATIONS

**DISPOSAL GUIDANCE:** Small amounts of Sodium Sulfate can usually be disposed of at municipal landfill sites, and require no special treatment. Tonnage quantities are not, however, recommended for the landfill, and if possible should be re-used for an appropriate application. Refer to state and local regulations for applicable site-specific requirements. Sodium Sulfate is not currently listed under any sections of the U.S. Environmental Protection Agency (EPA) Resource Conservation and Recovery Act (RCRA) regulations.

See Section 15 for details on Regulatory Information.

## SECTION 14: TRANSPORT REGULATIONS

**US DEPARTMENT OF TRANSPORTATION (DOT) IDENTIFICATION NUMBER:** Anhydrous Sodium Sulfate is **not** a DOT Hazardous Material or Hazardous Substance. **INTERNATIONAL TRANSPORTATION:** Anhydrous Sodium Sulfate has no U.N. number, and is not regulated under international rail, highway, water, or air transport regulations.

## SECTION 15: REGULATORY INFORMATION

**TSCA NUMBER:** 7757-82-6
**RCRA (40 CFR 261):** Not listed under any section.
**CERCLA (SUPERFUND):** Not listed under any section.
**CLEAN WATER ACT (CWA):** Not listed.
**SAFE WATER DRINKING ACT (SWDA):** Not listed
**OCCUPATIONAL EXPOSURE LIMITS:**
**OSHA:** Particulates not otherwise regulated - 15 $mg/m^3$ (total dust); 5 $mg/m^3$ (respirable fraction).
ACGIH: Particulates not otherwise classified - 10 $mg/m^3$.
**INTERNATIONAL AGENCY for RESEARCH on CANCER:** Not listed.
**NTP ANNUAL REPORT ON CARCINOGENS:** Not listed.
**OSHA CARCINOGEN:** Not listed.
**CONEG MODEL LEGISLATION:** Meets all CONEG requirements relating to heavy metal limitations on components of packaging materials.
**CALIFORNIA PROPOSITION 65:** Not listed as carcinogen or reproductive toxin.
**FEDERAL DRUG AGENCY (FDA):** Sodium Sulfate is permitted for the following uses: Preparation of ultramarine blue colorants (21 CFR 73.50 and 73.2725); Miscellaneous ingredient in chewing gum base (21 CFR 172.615); Boiler Water Additive (21 CFR 173.310); Additive for cellophane (21 CFR 177.1200); Constituent of paper and paper board and cotton and cotton fabric (21 CFR 186.1797).
**Canada's DSL List:** Yes (7757-82-6)
**WORKPLACE HAZARDOUS MATERIALS INFORMATION SYSTEM (WHMIS):** Sodium Sulfate is regulated as a Controlled Product and is classified as D2A because of reproductive toxicity.
**EU CLASSIFICATION:** Not A Dangerous Substance.

## SECTION 16: OTHER INFORMATION

**OTHER INFORMATION:**
**National Fire Protection Association (NFPA) Classification:**
4 = Severe, 3 = Serious, 2 = Moderate, 1 = Slight, 0 = Minimal

| | |
|---|---|
| Health | 0 |
| Flammability | 0 |
| Reactivity | 0 |

**Hazardous Materials Information System (HMIS):**
4 = Extreme, 3 = High, 2 = Moderate, 1 = Slight, 0 = Insignificant

| | |
|---|---|
| Blue: (Acute Health) | 1* |
| Red: (Flammability) | 0 |

Yellow: (Reactivity) 0
* Chronic Effects (for explanation see Section 11)

## NOTICE

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