

MATERIAL SAFETY DATA SHEET

Magnesium Nitrate Solution

Section 1 – CHEMICAL PRODUCT AND COMPANY INFORMATION

Formulator's Name:

Mar Vista Resources, LLC
745 North Ave
Corcoran, CA 93212

EMERGENCY TELEPHONE NO.:

DAYS: (559) 992-4535
24 Hour Emergency HAZMAT Response: (800) 424-9300
EPA National Response Center: (800) 424-9300

PRODUCT NAME:

Magnesium Nitrate Solution

PRODUCT SYNONYMS:

Magnesium Nitrate Solution, Liquid Mag Nitrate, 7-0-0-6(Mg)

CHEMICAL NAME/CLASS:

Inorganic Nitrate Solution

PRODUCT USE:

Various Industrial and Agricultural Applications

Section 2 - -COMPOSITION/INFORMATION ON INGREDIENTS

INGREDIENT NAME	CAS REGISTRY NUMBER	TYPICAL WT %
Magnesium Nitrate	13446-18-9	35-40%
Water	7732-18-5	Balance

Section 3 – HAZARDS IDENTIFICATION

EMERGENCY OVERVIEW

COLOR: Water White, clear to slightly yellowish liquid

ODOR: Essentially Odorless

PHYSICAL FORM: Liquid

SIGNAL WORD: None

EMERGENCY OVERVIEW: The primary health hazard associated with this product is the potential for moderate irritation of eyes, skin, and other contaminated tissue. This product is not flammable or reactive. In its dry form, this product may act as an oxidizer to initiate and sustain the combustion of flammable materials. Emergency responders must wear the personal protective equipment suitable for the situation to which they are responding.

SYMPTOMS OF OVEREXPOSURE BY ROUTE OF EXPOSURE: The primary routes of overexposure for the solution are via inhalation and contact with skin and eyes. The following paragraphs describe the symptoms of overexposure to this material.

INHALATION: If vapors, mists, or sprays of this product are inhaled, they may irritate the nose, throat, and lungs. Symptoms may include the following: sneezing, coughing, and difficulty breathing. Severe overexposures can result in damage to respiratory system tissues. Most symptoms generally are alleviated when the overexposure ends.

CONTACT WITH SKIN or EYES: Depending on the duration of over-exposure, contact with the eyes will cause irritation, pain, and reddening. Severe eye exposure can cause conjunctivitis. Severe, prolonged exposures may cause tissue damage which could lead to blindness. Depending on the duration of skin contact, skin overexposures will cause reddening, discomfort, moderate irritation, and tissue damage. Dermatitis may result from prolonged or repeated skin contact.

SKIN ABSORPTION: Skin absorption is not a significant route of overexposure for Magnesium Nitrate solution.

INGESTION: If this product is swallowed, irritation and burns of the mouth, throat, esophagus, and other tissues of the digestive system will occur immediately upon contact. Symptoms of such over-exposure can include nausea, abdominal pain, vomiting, and diarrhea. Severe ingestion overexposures can result in convulsions and collapse. The nitrate component of Magnesium Nitrate solution, may damage the oxygen transport system of the blood. Severe ingestion exposures can be fatal. Repeated ingestion of small amounts of this product (as may occur in the event of poor hygiene practices) may cause weakness, depression, headaches, and mental impairment.

INJECTION: Accidental injection of this product, via laceration or puncture by a contaminated object may cause pain and irritation in addition to the wound.

ACUTE: The primary hazard associated with this product is the potential for moderate irritation of skin, eyes, and other contaminated tissue. Prolonged contact can result in tissue damage. Ingestion of this product can be harmful or fatal.

CHRONIC: Dermatitis (inflammation and redness of the skin) may result from prolonged or repeated skin contact. Repeated ingestion of small amounts of this product may cause weakness, depression, headaches, neurological effects, and mental impairment.

TARGET ORGANS: ACUTE: Skin, eyes, nervous system. **CHRONIC:** Skin, neurological system.

HEALTH: 2

REACTIVITY: 0

FLAMMABILITY: 0

ENVIRONMENT: 0

(0=Insignificant 1=Slight 2=Moderate 3=High 4=Extreme)

Section 4 – FIRST AID MEASURES

Contaminated individuals must be taken for medical attention if any adverse reaction occurs. Rescuers should be taken for medical attention, if necessary. Take a copy of label and MSDS to health professional with contaminated individual.

SKIN EXPOSURE: If this product contaminates the skin, begin decontamination with running water. The minimum flushing is for 15 minutes. Remove exposed or contaminated clothing, taking care not to contaminate eyes. Victim must seek immediate medical attention if any adverse effect occurs.

EYE EXPOSURE: If this product's liquid or vapors enter the eyes, open contaminated individual's eyes while under gently running water. Use sufficient force to open eyelids. Have contaminated individual "roll" eyes. Minimum flushing is for 15 minutes. Contaminated individual must seek immediate medical attention.

INHALATION: If vapors, mists, or sprays of this product are inhaled, remove contaminated individual to fresh air. If necessary, use artificial respiration to support vital functions. Remove or cover gross contamination to avoid exposure to rescuers.

INGESTION: If this product is swallowed, CALL PHYSICIAN OR POISON CONTROL CENTER FOR MOST CURRENT INFORMATION. If professional advice is not available, do not induce vomiting. Contaminated individual should drink milk, egg whites, or large quantities of water. Never induce vomiting or give diluents (milk or water) to someone who is unconscious, having convulsions, or unable to swallow.

MEDICAL CONDITIONS AGGRAVATED BY EXPOSURE: Pre-existing dermatitis, or other skin disorders, and conditions involving the other Target Organs (See Section 3, Hazard Identification) may be aggravated by over-exposure to this product.

RECOMMENDATIONS TO PHYSICIANS: Treat symptoms and eliminate over-exposure. Be observant for signs of pulmonary edema in the event of severe inhalation over-exposures.

Section 5 – FIRE FIGHTING MEASURES

FLASH POINT: Not flammable.

AUTOIGNITION TEMPERATURE: Not flammable.

FLAMMABLE LIMITS (in air by volume, %): Lower (LEL): Not applicable.
Upper (UEL): Not applicable.

FIRE EXTINGUISHING MATERIALS:	Water Spray:	YES	Carbon Dioxide:	YES
	Foam:	YES	Dry Chemical:	YES
	Halon:	YES	Other:	Any "ABC" Class.

UNUSUAL FIRE AND EXPLOSION HAZARDS: This product is a moderate irritant and presents a potential contact hazard to firefighters. When involved in a fire, this material may decompose and produce acrid vapors, magnesium compounds, and oxides of nitrogen. Though not anticipated to be a significant hazard associated with this product, due to the fact this is a solution, it is important to note that in its dry form, Magnesium Nitrate is an oxidizer, which can act to initiate and sustain the combustion of flammable materials.

Explosion Sensitivity to Mechanical Impact: Not sensitive.

Explosion Sensitivity to Static Discharge: Not sensitive.

SPECIAL FIRE-FIGHTING PROCEDURES: Incipient fire responders should wear eye protection. Structural fire fighters must wear Self-Contained Breathing Apparatus and full protective equipment. Chemical resistant clothing may be necessary. Move containers from fire area if they have not been exposed to heat and if it can be done without risk to personnel. If this product is involved in a fire, fire run-off water should be contained to prevent possible environmental damage. Rinse all contaminated equipment thoroughly with water before returning to service.

Section 6 – ACCIDENTAL RELEASE MEASURES

IN CASE OF SPILL OR LEAK: Stop the leak, if possible. Ventilate the space involved. Contain, vacuum up, place in non-sparking containers for disposal. Prevent waterway contamination. Construct a dike to prevent spreading. Collect run-off and transfer to drums or tanks for later disposal. Consult with regulatory specialists to determine appropriate state or local reporting requirements, for assistance in waste characterization and/or hazardous waste disposal and other requirements listed in pertinent environmental permits.

Section 7 – HANDLING AND STORAGE

WORK PRACTICES AND HYGIENE PRACTICES: As with all chemicals, avoid getting this product on you or in you. Wash hands after handling this product. Do not eat, drink, smoke or apply cosmetics while handling this product. All work practices should minimize the generation of splashes and aerosols. Remove contaminated clothing immediately.

STORAGE AND HANDLING PRACTICES: All employees who handle this material should be trained to handle it safely. Avoid breathing vapors or mists generated by this product. Use in a well-ventilated location. Open containers slowly, on a stable surface. Containers of this product must be properly labeled. Empty containers may contain residual liquid or vapors, therefore, empty containers should be handled with care. Store containers in a cool, dry location, away from direct sunlight, sources of intense heat, or where freezing is possible. Store away from incompatible materials (see Section 10, Stability and Reactivity). Material should be stored in secondary containers, or in a diked area, as appropriate. Keep container tightly closed when not in use. Inspect all incoming containers before storage, to ensure containers are properly labeled and not damaged.

PROTECTIVE PRACTICES DURING MAINTENANCE OF CONTAMINATED EQUIPMENT: Follow practices indicated in Section 6 (Accidental Release Measures). Make certain that application equipment is locked and tagged-out safely, if necessary. Collect all rinsates and dispose of according to applicable U.S. Federal, State, or local procedures, or the applicable Canadian standards.

Section 8 – EXPOSURE CONTROL, PERSONAL PROTECTION

VENTILATION AND ENGINEERING CONTROLS: Exhaust directly to the outside. Use local exhaust ventilation, and process enclosure if necessary, to control mist formation. Supply sufficient replacement air to make up for air removed by system. Ensure eyewash/safety shower stations are available near areas where this product is used.

RESPIRATORY PROTECTION: If respiratory protection is needed, use only protection authorized in the U.S. Federal OSHA Standard (29 CFR 1910.134), applicable U.S. State regulations, or the Canadian CSA Standard Z94.4-93. Oxygen levels below 19.5% are considered IDLH by OSHA. In such atmospheres, use of a full-facepiece pressure/demand SCBA or a full facepiece, supplied air respirator with auxiliary self-contained air supply is required under OSHA's Respiratory Protection Standard (1910.134-1998)

EYE PROTECTION: Splash goggles or safety glasses. Face shields recommended when using quantities of this product in excess of 1 gallon.

HAND PROTECTION: Wear Neoprene or Rubber gloves for routine industrial use. Use triple gloves for spill response.

BODY PROTECTION: Use body protection appropriate for task. An apron, or other impermeable body protection is suggested. Full-body chemical protective clothing is recommended for emergency response procedures.

Section 9 – PHYSICAL AND CHEMICAL PROPERTIES

VAPOR DENSITY: Not applicable.
SPECIFIC GRAVITY @15°C (59°F): 1.35- 1.36
SOLUBILITY IN WATER: Completely.
VAPOR PRESSURE: Not applicable.
ODOR THRESHOLD: Not applicable.

EVAPORATION RATE (n-BuAc = 1): Similar to water.
FREEZING POINT or RANGE: -7°C (19.4°F)
BOILING POINT: > 100°C (>212°F)
pH @ 15°C (59°F): 6 to 8
LOG WATER/OIL DISTRIBUTION COEFFICIENT: Not available

APPEARANCE AND COLOR: This product is a colorless to slightly yellow, odorless solution.

HOW TO DETECT THIS SUBSTANCE (warning properties): There are no distinguishing characteristics of this product.

Section 10 – STABILITY AND REACTIVITY

STABILITY: Stable.

DECOMPOSITION PRODUCTS: Magnesium compounds, nitrogen oxides.

MATERIALS WITH WHICH SUBSTANCE IS INCOMPATIBLE: Flammable and combustible materials, strong reducing agents, finely powdered metals.

HAZARDOUS POLYMERIZATION: Will not occur.

CONDITIONS TO AVOID: Extreme heat and contact with incompatible chemicals.

Section 11 – TOXICOLOGICAL INFORMATION

TOXICITY DATA: The toxicology data currently available for the components of this product specifically listed in Section 2 (Composition and Information on Ingredients) are as follows:

MAGNESIUM NITRATE SOLUTION:

Standard Draize Test (Skin-Rabbit, adult) 500 mg/24 hours, Mild irritation effects
 Standard Draize Test (Eye effects-Rabbit, adult) 500 mg/24 hours, Mild irritation effects
 LD₅₀ (Oral-Rat) 5440 mg/kg

SUSPECTED CANCER AGENT: The components of this product are not found on the following lists: U.S. FEDERAL OSHA Z LIST, NTP, IARC, and CAL/OSHA and therefore are not considered to be, nor suspected to be, cancer causing agents by these agencies.

IRRITANCY OF PRODUCT: This product is moderately irritating to contaminated tissue.

SENSITIZATION OF PRODUCT: This product contains no known skin or respiratory sensitizers.

REPRODUCTIVE TOXICITY INFORMATION: Listed below is information concerning the effects of this product and its components on the human reproductive system.

Mutagenicity:	This product is not reported to produce mutagenic effects in humans.
Embryotoxicity:	This product is not reported to produce embryotoxic effects in humans.
Teratogenicity:	This product is not reported to cause teratogenic effects in humans.
Reproductive Toxicity:	This product is not reported to cause reproductive toxicity effects in humans

A mutagen is a chemical which causes permanent changes to genetic material (DNA) such that the changes will propagate through generational lines. An embryotoxin is a chemical which causes damage to a developing embryo (i.e. within the first eight weeks of pregnancy in humans), but

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the damage does not propagate across generational lines. A teratogen is a chemical which causes damage to a developing fetus, but the damage does not propagate across generational lines. A reproductive toxin is any substance which interferes in any way with the reproductive process.

ACGIH BIOLOGICAL EXPOSURE INDICES: Currently, there are no ACGIH Biological Exposure Indices (BEIs) determined for the components of this product.

Section 12 – ECOLOGICAL INFORMATION

ALL WORK PRACTICES MUST BE AIMED AT ELIMINATING ENVIRONMENTAL CONTAMINATION

ENVIRONMENTAL STABILITY: The components of this product are relatively stable under ambient, environmental conditions.

EFFECT OF MATERIAL ON PLANTS or ANIMALS: This product may be harmful to terrestrial plant or animal life, especially if released in large quantities.

EFFECT OF CHEMICAL ON AQUATIC LIFE: This product may be harmful to aquatic plant or animal life, especially if released in large quantities.

Section 13 – DISPOSAL CONSIDERATIONS

Consult with environmental engineer or professional to determine if neutralization is appropriate and for handling procedures for residual material. Note: Chemical additions to, processing of, or otherwise altering this material may make this waste management information incomplete, inaccurate, or otherwise inappropriate. Furthermore, state and local waste disposal requirements may be more restrictive or otherwise different from federal laws and regulation.

Section 14 – TRANSPORT INFORMATION

THIS MATERIAL IS NOT HAZARDOUS AS DEFINED BY 49 CFR 172.101 BY THE U.S. DEPARTMENT OF TRANSPORTATION

DOT PROPER SHIPPING NAME:	Not Applicable
DOT HAZARD CLASS:	Not Applicable
DOT IDENTIFICATION NUMBER:	Not Applicable
DOT PACKING GROUP:	Not Applicable
DOT HAZARDOUS SUBSTANCE:	Not Applicable
DOT MARINE POLLUTANT(S):	Not Applicable
LABELLING REQUIREMENTS:	Not Applicable
PLACARDS:	Not Applicable

Section 15 – REGULATORY INFORMATION

U.S. SARA REPORTING REQUIREMENTS: The components of this product are subject to the reporting requirements of Sections 302, 304, and 313 of Title III of the Superfund Amendments and Reauthorization Act, and are listed as follows:

MAGNESIUM NITRATE HEXAHYDRATE (as Nitrate Compounds, Water Dissociable)	
SARA 302 (40 CFR 355, Appendix A)	NO
SARA 304 (40 CFR Table 302.4)	NO
SARA 313 (40 CFR 372.65)	YES

U.S. SARA THRESHOLD PLANNING QUANTITY: There are no specific Threshold Planning Quantities for the components of this product. The default Federal MSDS submission and inventory requirement filing threshold of 10,000 lbs (4,540 kg) therefore applies, per 40 CFR 370.20.

U.S. CERCLA REPORTABLE QUANTITY (RQ): Not applicable.

U.S. TSCA INVENTORY STATUS: Magnesium Nitrate, Hexahydrate is a hydrate of an anhydrous form which is on the TSCA Inventory.

OTHER U.S. FEDERAL REGULATIONS: Not applicable.

U.S. STATE REGULATORY INFORMATION: The components of this product are not covered under the following specific State regulations: California - Permissible Exposure Limits for Chemical Contaminants: No.

CALIFORNIA SAFE DRINKING WATER AND TOXIC ENFORCEMENT ACT (PROPOSITION 65): No component of this product is on the California Proposition 65 lists.

All information contained in this Material Safety Data Sheet is furnished free of charge and is intended for your evaluation. In our opinion the information is, as of the date of this Material Safety Data Sheet, reliable, however, it is your responsibility to determine the suitability of the information for your use. You are advised not to construe the information as absolutely complete since additional information may be necessary or desirable when particular, exceptional or variable conditions or circumstances exist or because of applicable laws or government regulations. Therefore, you should use this information only as a supplement to other information gathered by you, and you must make independent determinations of the suitability and completeness of the information from all sources to assure both proper use of the material described herein and the safety and health of employees. Accordingly, no guarantee is expressed or implied as to the results to be obtained based upon your use of the information.