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School Materials Safety Manual:

No. 315 Lithium Nitrate
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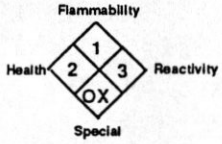
♦SECTION 1 INTRODUCTION

Material Lithium nitrate, ca 100%
Synonyms Nitric acid, lithium salt
Chemical Formula $LiNO_3$
CAS Number 7790-69-4
DOT Classification Oxidizer, UN2722, listed as a Hazardous Material for Transportation (49 CFR 172.101)
EPA Classification *Not* listed as a RCRA Hazardous Waste (40 CFR 261.33), a CERCLA Hazardous Substance (40 CFR 302.4), a SARA Extremely Hazardous Substance (40 CFR 355), or a SARA Toxic Chemical (40 CFR 372.65)
OSHA Classification *Not* listed as an Air Contaminant (29 CFR 1910.1000, Subpart Z)
NFPA Hazard Rating Not found
Genium Hazard Rating

4 = Extreme
3 = High
2 = Moderate
1 = Slight
0 = Minimum
OX = Oxidizer



HMIS	
H	1*
F	1
R	3

* Chronic effects (Sec. 4)

Description Deliquescent (absorbs moisture readily) colorless to white powder or crystals with no odor. Derived by the reaction of nitric acid with lithium carbonate. Used in ceramics, salt baths, heat exchange media, refrigeration systems, and as a rocket fuel propellant.
Overview Lithium nitrate is irritating to eyes and skin in solution or powder form. It is a strong oxidizer capable of igniting other combustibles and can explode when shocked or heated. Use extreme caution when handling this material and check to see if a less reactive material can be used to achieve the same educational results. The most common area of use is in the chemistry laboratory; may also be found in the art room for use in ceramics.
Manufacturer Always request an up-to-date MSDS from your chemical supplier. That sheet should include the manufacturers emergency phone number. This *Manual*'s Resources/Manufacturers Index lists some larger manufacturers and available emergency phone numbers.

♦SECTION 2 USE AND STORAGE DATA

Preliminary Planning Considerations *Plan and provide for safe disposal of all school-generated chemical waste.* Check applicable regulations prior to use. Whenever possible, substitute less hazardous materials. Provide adequate ventilation or restrict use to fume hood. Contact lens use when handling chemical materials is controversial. In some cases, soft lenses can actually protect eyes from chemicals. In other cases, chemical entrapment is presumed a possible hazard. Particles adhering to contact lens surfaces can cause corneal damage. For safety, wear safety glasses or goggles and appropriate protective clothing (e.g., gloves, lab coats) to work with lithium nitrate. Employees and students should know the location of eyewash and shower facilities near chemical use areas. Check and document that eyewash stations and safety showers are working properly.

Usage Precautions and Procedure Before using, *read this material's container label* and follow all precautions. *Do not* smoke in usage or storage areas. Practice good housekeeping to avoid unintentionally mixing incompatibles. *Do not* allow chemical residue or dust buildup in lab or work areas. Keep lithium nitrate away from notebooks, textbooks, and personal belongings to avoid transporting chemical residues from the lab/work area. After working with chemical materials, and before eating, drinking, or smoking, always wash hands and face. Remove and launder contaminated clothing before reusing.
Additional Data Lithium nitrate is stable at room temperature under normal handling and storage conditions. It does not polymerize. There is an explosion risk when shocked or heated. Its incompatibilities include ethanol vapor, propene + sulfur dioxide, combustibles (wood, oil, paper), and other oxidizers such as perchlorates, peroxides, permanganates, chlorates, and other nitrates as a violent reaction can occur.
Preferred Storage Location and Methods Store in tightly closed and properly labeled containers in a cool, dry, well-ventilated area out of direct sunlight and away from combustibles and other incompatibles. To separate incompatible chemicals, store by chemical family, not by alphabetical name. Protect all chemical containers from physical damage. Prohibit smoking in chemical storage areas. Purchase amounts sufficient for one year's use or less.

♦SECTION 3 SPILL/DISPOSAL PROCEDURES

If Spilled Ventilate spill area. Promptly and thoroughly clean up spilled material. Cleanup personnel should protect against inhalation and skin or eye contact. Keep combustibles (wood, paper, oil) away from spilled material. For liquid (solution) spills, cover with an inert solid absorbent (vermiculite, dry sand, etc.) and scoop into appropriate containers (with secure lid) for disposal in accordance with existing regulations. As needed, dike spill area with inert absorbent material to contain spill. For dry spills, carefully collect spilled material and scoop into secure disposal or reclamation containers. Avoid creating airborne dust conditions. Vacuum (with appropriate filter) or wet mop to minimize dust dispersion.
Disposal of Small Quantities *Handle emptied containers carefully since residues may remain.* Always check regulations before disposal. Investigate recycling or reclamation rather than landfill disposal. If these methods are not practical, feasible, or in accord with existing regulations, contact your supplier or a licensed disposal contractor for specific treatment/disposal procedures.
Disposal of Larger Amounts Contact your supplier or a licensed disposal company.

Follow all applicable local, state, and Federal regulations for all waste disposal.

♦SECTION 4 HEALTH HAZARDS

Lithium nitrate is irritating to the eyes, skin, and respiratory tract in vapor or powder form. Repeated exposure can lead

to lithium poisoning with effects (including appetite loss and muscle twitching) lasting for months to years. Persons on medication containing lithium or a low sodium diet are at increased risk from exposure to lithium nitrate.

1991-92 ACGIH TLV 8-hr TWA: None established
1990 NIOSH REL 10-hr TWA: None established
1991 OSHA PEL 8-hr TWA: None established
1985-6 Toxicity Data None reported
Carcinogenicity Not listed by the IARC, NTP, or OSHA
Acute Effects Vapors and dusts are irritating and can cause severe burns to the eyes, skin, and respiratory tract.
Chronic Effects Repeated exposure can cause lithium poisoning characterized by appetite loss, nausea, tremor, muscle twitching, apathy, convulsions, coma, and death.

♦SECTION 5 FIRST AID PROCEDURES

Eye Contact Promptly flush eyes with plenty of running water for at least 15 min, including under eyelids. Get prompt medical attention.
Skin Contact After flushing with large amounts of water, wash exposed areas with soap and water.
Inhalation Remove victim from exposure area to fresh air and support breathing as necessary.
Ingestion Get *prompt* medical attention. Contact a poison control center*. Unless otherwise advised, give 1 to 2 glasses of water and induce vomiting. Never give anything by mouth to an unconscious or convulsing person.

Get proper in-school, paramedic, or community medical attention and support.

* See listings on pages 2-8 of *Resources/Manufacturers Index*.

♦SECTION 6 FIRE PROCEDURES AND DATA

Fire Hazards Lithium nitrate may ignite other combustibles (wood, paper, oil) and can accelerate burning of other materials (due to its oxidizing potential) when involved in fire. For major fires, or for fires involving large quantities, firefighters should wear appropriate protective clothing and respirators. Because fire may produce toxic thermal decomposition products, a self-contained breathing apparatus (SCBA) is recommended.
Flash Point and Method None reported
Autoignition Temperature None reported
Flammability Limits in Air (vol. %) None reported
Hazardous Decomposition Products Thermal oxidative decomposition of lithium nitrate can produce toxic nitrogen oxide (NO_x) fumes.
Extinguishing Media *Use water only!*

♦SECTION 7 PHYSICAL DATA

Melting Point 501.8 °F (261 °C)
Solubility in Water Soluble in ~ 2 parts water
Other solubilities Soluble in alcohol
pH Aqueous solution is neutral
Molecular Weight 69.96
Density 2.38

References 100, 124, 127, 132, 136, 149, 153, 527
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