Safety Data Sheet

Version 1.4
Revision Date 10/18/2024

1. PRODUCT AND COMPANY IDENTIFICATION

Product Name	**Potassium Nitrate, Enriched Nitrogen**
Chemical Formula	KNO_3
Molecular Weight	101.1 g/mol
CAS No.	7757-79-1
Synonyms	Nitric acid, potassium salt; saltpeter
Supplier Address*	ISOFLEX USA PO Box 472615 San Francisco CA 94147 United States
Telephone	+1 415-440-4433
Fax	+1 415-563-4433
Emergency Phone Number (both supplier and manufacturer)	Infotrac/ +1 800-535-5053 *May include subsidiaries or affiliate companies/divisions
Email	iusa@isoflex.com
Website	www.isoflex.com
Preparation Information	ISOFLEX USA Product Safety +1 415-440-4433

2. HAZARDS IDENTIFICATION

Emergency Overview

DANGER! STRONG OXIDIZER. CONTACT WITH OTHER MATERIAL MAY CAUSE FIRE. HARMFUL IF SWALLOWED, INHALED OR ABSORBED THROUGH SKIN. CAUSES IRRITATION TO SKIN, EYES AND RESPIRATORY TRACT.

Keep away from heat/sparks/open flames/hot surfaces - No smoking
Keep/store away from clothing/combustible materials
Take any precaution to avoid mixing with combustibles
Wear protective gloves/protective clothing/eye protection/face protection
In case of Fire: Use for extinction: CO_2, powder or water spray

OSHA Hazards:	Oxidizer, Carcinogen, Target Organ Effect
Target Organs:	Blood, central nervous system
GHS Classification:	Oxidizing solids (Category 3); Acute toxicity, Oral (Category 5); Acute aquatic toxicity (Category 3)

NFPA Ratings: (0 = Minimal; 1 = Slight; 2 = Moderate; 3 = Serious; 4 = Severe)

Health Hazard = 1 **Flammability = 0** **Reactivity = 0** **Special Notice = Oxidizer**

HMIS Ratings: (0 = Minimal; 1 = Slight; 2 = Moderate; 3 = Serious; 4 = Severe)

Health Hazard = 1 **Flammability = 0** **Physical Hazard = 1** **Personal Protection = D***

HEALTH HAZARD	1
FLAMMABILITY	0
PHYSICAL HAZARD	1
PERSONAL PROTECTION	D

**Personal Protection = D:*

Lab Protective Equipment	GOGGLES & SHIELD; LAB COAT & APRON; VENT HOOD; PROPER GLOVES
Storage Color Code	Yellow (Reactive)

Potential Health Effects

Inhalation	Causes irritation to the respiratory tract; symptoms may include coughing, shortness of breath
Ingestion	Causes irritation to the gastrointestinal tract. Symptoms may include nausea, vomiting and diarrhea. May cause gastroenteritis and abdominal pains. Purging and diuresis can be expected. Rare cases of nitrates being converted to the more toxic nitrites have been reported, mostly with infants.
Skin Contact	Causes irritation to skin; symptoms include redness, itching, and pain
Eye Contact	Causes irritation, redness, and pain
Chronic Exposure	Under some circumstances methemoglobinemia occurs in individuals when the nitrate is converted by bacteria in the stomach to nitrite. Nausea, vomiting, dizziness, rapid heartbeat, irregular breathing, convulsions, coma, and death can occur should this conversion take place. Chronic exposure to nitrites may cause anemia and adverse effects to kidney.
Aggravation of Pre-existing Conditions	No information found

3. COMPOSITION/INFORMATION ON INGREDIENTS

Chemical Name:	Potassium Nitrate
CAS No.:	7757-79-1
Chemical Formula:	KNO_3
Molecular Weight:	101.1 g/mol

4. FIRST AID MEASURES

Inhalation Exposure — Supply fresh air. If required, provide artificial respiration. Keep patient warm. Seek immediate medical advice.

Oral Exposure — Seek IMMEDIATE medical advice. Never give anything by mouth to an unconscious person. Rinse mouth with water.

Dermal Exposure — Immediately flush skin with plenty of water for at least 15 minutes while removing contaminated clothing and shoes. Get medical attention. Wash clothing before reuse. Thoroughly clean shoes before reuse.

Eye Exposure — Immediately flush eyes with plenty of water for at least 15 minutes, lifting lower and upper eyelids occasionally. Get medical attention immediately.

5. FIREFIGHTING MEASURES

Fire — Not combustible, but substance is a strong oxidizer and its heat of reaction with reducing agents or combustibles may cause ignition.

Explosion — Some nitrates may explode when shocked, exposed to heat or flame, or by spontaneous chemical reaction. Sealed containers may rupture when heated. Sensitive to mechanical impact.

Suitable Extinguishing Media — Dry chemical, carbon dioxide, Halon, water spray, or fog. If water is used, apply from as far a distance as possible. Water spray may be used to keep fire-exposed containers cool. Do not allow water runoff to enter sewers or waterways. Nitrogen oxides (NOx) and metal oxide may be released during fire.

Special Information — Wear full protective clothing and breathing equipment for high-intensity fire or potential explosion conditions. This oxidizing material can increase the flammability of adjacent combustible materials.

6. ACCIDENTAL RELEASE MEASURES

Personal Precautions — Remove all sources of ignition. Ventilate area of leak or spill. Wear appropriate personal protective equipment as specified in Section 8.

Environmental Precautions — Prevent further leakage or spillage if safe to do so. Do not let product enter drains. Discharge into the environment must be avoided.

Methods for Cleaning Up — Clean up spills in a manner that does not disperse dust into the air. Use non-sparking tools and equipment. Reduce airborne dust and prevent scattering by moistening with water. Pick up spill for recovery or disposal and place in a closed container.

7. HANDLING AND STORAGE

Handling — Keep away from heat/sparks/open flames/hot surfaces. No smoking. Keep away from clothing and other combustible

materials. Take any precaution to avoid mixing with combustibles. Wear protective equipment. Avoid formation of dust and aerosols. Provide appropriate exhaust ventilation at places where dust is formed

Storage Keep in a tightly closed container, stored in a cool, dry, ventilated area. Protect against physical damage and moisture. Isolate from any source of heat or ignition. No smoking. Avoid storage on wood floors. Separate from incompatibles, combustibles, organic or other readily oxidizable materials. 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.

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8. EXPOSURE CONTROLS / PERSONAL PROTECTION

Airborne Exposure Limits None established

Ventilation System A system of local and/or general exhaust is recommended to keep employee exposures as low as possible. 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.

Engineering Controls Properly operating chemical fume hood designed for hazardous chemicals and having an average face velocity of at least 100 feet per minute.

Personal Protective Equipment

Personal Respirators For conditions of use where exposure to dust or mist is apparent and

(NIOSH-Approved) engineering controls are not feasible, a particulate respirator (NIOSH type N95 or better filters) may be worn. 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-face positive-pressure, air-supplied respirator. WARNING: Air-purifying respirators do not protect workers in oxygen-deficient atmospheres.

Skin Protection Wear impervious protective clothing, including boots, gloves, lab coat, apron or coveralls, as appropriate, to prevent skin contact.

Eye Protection Use chemical safety goggles and/or full face shield where dusting or splashing of solutions is possible. Maintain eye-wash fountain and quick-drench facilities in work area.

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9. PHYSICAL AND CHEMICAL PROPERTIES

Appearance

Form	White crystals or powder
Odor	Odorless

Safety Data

Solubility:	36 gm/l00 ml water
Density:	2.1
pH:	ca. 7 Saturated aq. sl. @ 15 °C
% Volatiles @ 21 °C (70 °F):	0
Boiling Point:	400 °C (752 °F)

Melting Point:	333 °C (631 °F)
Vapor Density (Air=1):	3.00
Vapor Pressure (mm Hg):	Negligible @ 20 °C
Evaporation Rate (BuAc=1):	No information found

10. STABILITY AND REACTIVITY

Stability	Stable under ordinary conditions of use and storage
Hazardous Decomposition Products	Oxides of nitrogen and toxic metal fumes may form when heated to decomposition. Nitrogen oxides and metal oxide fumes may form.
Hazardous Polymerization	Will not occur
Incompatible Materials	Heavy metals, phosphites, organic compounds, carbonaceous materials, strong acids and many other substances; reacts with reducing agents, flammable substances and powdered metals
Conditions to Avoid	Heat, flames, ignition sources and incompatibilities; reducing agents, easily oxidized materials, metal powders and organic materials

11. TOXICOLOGICAL INFORMATION

Acute Toxicity

Oral LD50 (Rat)	3015 mg/kg - Investigated as a mutagen, reproductive effector
Oral LD50 (Rabbit)	1901 mg/kg - Investigated as a mutagen, reproductive effector
Skin Corrosion/Irritation	No data available
Serious Eye Damage/Eye Irritation	No data available
Respiratory or Skin Sensitization	No data available
Germ Cell Mutagenicity	No data available

Carcinogenicity

IARC	2A - Group 2A: Probably carcinogenic to humans (Potassium nitrate)
ACGIH	No component of this product present at levels greater than or equal to 0.1% is identified as a carcinogen or potential carcinogen by ACGIH.
NTP	No component of this product present at levels greater than or equal to 0.1% is identified as a known or anticipated carcinogen by NTP.
OSHA	No component of this product present at levels greater than or equal to 0.1% is identified as a carcinogen or potential carcinogen by OSHA.

Reproductive Toxicity

Oral (Rat)	*Effects on Fertility: Other measures of fertility* *Effects on Newborn: Behavioral*
Oral (Rabbit)	*Effects on Fertility: Abortion*
Oral (Guinea Pig)	*Effects on Newborn: Stillbirth*
	Effects on Fertility: Female fertility index (e.g., # females pregnant per # sperm positive females; # females pregnant per # females mated)
	Effects on Embryo or Fetus: Other effects to embryo

Teratogenicity	No data available
Specific Target Organ Toxicity / Single Exposure (Globally Harmonized System)	No data available
Specific Target Organ Toxicity / Repeated exposure (Globally Harmonized System)	No data available
Aspiration Hazard	No data available
Subacute to Chronic Toxicity	Small doses of nitrates may cause weakness, general depression, headache and mental impairment. Larger doses may cause dizziness, abdominal cramps, vomiting, bloody diarrhea, convulsions and collapse. Chronic exposure to potassium nitrate can cause anemia, nephritis and methemoglobinemia.
Signs and Symptoms of Exposure	Absorption into the body leads to the formation of methemoglobin, which in sufficient concentration causes cyanosis. Onset may be delayed 2 to 4 hours or longer.
Synergistic Effects	No data available
Additional Information	RTECS: TT3700000. To the best or our knowledge, the acute and chronic toxicity of this substance is not fully known.

12. ECOLOGICAL INFORMATION

General Notes	Do not allow undiluted product or large quantities of it to reach the groundwater, water course or sewage system.

Toxicity

Toxicity to Fish	LC50 - *Gambusia affinis* (Mosquito fish) - 22.5 mg/l - 96 h
Toxicity to Daphnia *and Other Aquatic Invertebrates*	EC50 - *Daphnia magna* (Water flea) - 226 mg/l - 72 h
Persistence and Degradability	No data available
Bioaccumulative Potential	No data available
Mobility in Soil	No data available
PBT and vPvB Assessment	No data available
Other Adverse Effects	An environmental hazard cannot be excluded in the event of unprofessional handling or disposal. Harmful to aquatic life.

13. DISPOSAL CONSIDERATIONS

Product	Whatever cannot be saved for recovery or recycling should be handled as hazardous waste and sent to an RCRA-approved waste 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 contents/container in accordance with local/regional/national/international regulations.
Contaminated Packaging	Dispose of container and unused contents in accordance with federal, state and local requirements.

14. TRANSPORT INFORMATION

DOT

Proper Shipping Name	POTASSIUM NITRATE
Hazard Class	5.1
UN/NA	UN1486
Packing Group	III

Land Transport ADR/RID (Cross-Border)

Proper Shipping Name	POTASSIUM NITRATE
Hazard Class	5.1 (O2) Oxidizing substances
Danger Code	50
UN/NA	UN1486
Packing Group	III
Description of Goods	1486 Potassium Nitrate

IMDG

Proper Shipping Name	POTASSIUM NITRATE
Hazard Class	5.1
UN/NA	UN1486
Packing Group	III

International (Air, I.C.A.O. & IATA-DGR)

Proper Shipping Name	POTASSIUM NITRATE
Hazard Class	5.1
UN/NA	UN1486
Packing Group	III

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15. REGULATORY INFORMATION

OSHA Hazards	Oxidizer, Carcinogen, Target Organ Effect
SARA 302 Components	No chemicals in this material are subject to the reporting requirements of SARA Title III, Section 302.
SARA 313 Components	The following components are subject to reporting levels established by SARA Title III, Section 313: Potassium nitrate / CAS No. 7757-79-1 / Revision Date 2007-03-01
SARA 311/312 Hazards	Reactivity Hazard, Chronic Health Hazard
Massachusetts Right to Know Components	Potassium nitrate / CAS No. 7757-79-1 / Revision Date 2007-03-01
Pennsylvania Right to Know Components	Potassium nitrate / CAS No. 7757-79-1 / Revision Date 2007-03-01
New Jersey Right to Know Components	Potassium nitrate / CAS No. 7757-79-1 / Revision Date 2007-03-01
California Prop. 65 Components	This product does not contain any chemicals known to the State of California to cause cancer, birth defects, or any other reproductive harm.

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16. OTHER INFORMATION

Prepared By	ISOFLEX USA PO Box 472615 San Francisco CA 94147 United States
Issuing Date	January 12, 2014
Revision Date	October 18, 2024
Revision Number	4
Revision Note	Update supplier address

ISOFLEX USA's Commonly Used Abbreviations and Acronyms*

ACGIH	American Conference of Governmental Industrial Hygienists
ADR	European Agreement Concerning the International Carriage of Dangerous Goods by Road
ALARA	As Low As Is Reasonably Achievable
AMU	Atomic Mass Unit
ANSI	American National Standards Institute
BLS	Basic Life Support
CAM	Continuous Air Monitor
CAS	Chemical Abstracts Service (division of the American Chemical Society)
CEN	European Committee for Standardization
CERCLA	Comprehensive Environmental Response Compensation and Liability Act
CLP	Classification, Labelling and Packaging (European Union)
CPR	Controlled Products Regulations (Canada)
CWA	Clean Water Act (USA)
DAC	Derived Air Concentration (USA)
DOE	United States Department of Energy (USA)
DOT	United States Department of Transportation (USA)
DSL	Domestic Substances List (Canada)
EC50	Half Maximal Effective Concentration
EINECS	European Inventory of Existing Commercial Chemical Substances
EHS	Environmentally Hazardous Substance
ELINCS	European List of Notified Chemical Substances
EMS	Emergency Response Procedures for Ships Carrying Dangerous Goods
EPA	Environmental Protection Agency (USA)
EPCRA	Emergency Planning and Community Right-To-Know Act (EPCRA) of 1986
GHS	Globally Harmonized System
HMIS	Hazardous Materials Identification System (USA)
IARC	International Agency for Research on Cancer
IATA	International Air Transport Association
IBC	Intermediate Bulk Containers
ICAO	International Civil Aviation Organization
IDLH	Immediately Dangerous to Life or Health
IMDG	International Maritime Code for Dangerous Goods
LC50	Lethal concentration, 50 percent
LD50	Lethal dose, 50 percent
LDLO	Lethal Dose Low
LOEC	Lowest-Observed-Effective Concentration
MARPOL	International Convention for the Prevention of Pollution from Ships
MSHA	Mine Safety and Health Administration (USA)
NCRP	National Council on Radiation Protection & Measurements (USA)
NDSL	Non-Domestic Substances List (Canada)
NFPA	National Fire Protection Association (USA)
NIOSH	National Institute for Occupational Safety and Health (USA)
NOEC	No Observed Effect Concentration

N.O.S.	Not Otherwise Specified
NRC	Nuclear Regulatory Commission (USA)
NTP	National Toxicology Program (USA)
OSHA	Occupational Safety and Health Administration (USA)
PBT	Persistent Bioaccumulative and Toxic Chemical
PEL	Permissible Exposure Limit
PIH	Poisonous by Inhalation Hazard
RCRA	Resource Conservation and Recovery Act (USA)
RCT	Radiation Control Technician
REACH	Registration, Evaluation, Authorisation and Restriction of Chemicals (Europe)
RID	Regulations Concerning the International Transport of Dangerous Goods by Rail
RTECS	Registry of Toxic Effects of Chemical Substances
SARA	Superfund Amendments and Reauthorization Act (USA)
TDG	Transportation of Dangerous Goods (Canada)
TIH	Toxic by Inhalation Hazard
TLV	Threshold Limit Value
TPQ	Threshold Planning Quantity
TSCA	Toxic Substances Control Act
TWA	Time Weighted Average
UN	United Nations (Number)
VOC	Volatile Organic Compound
vPvB	Very Persistent Very Bioaccumulative Chemical
WGK	Wassergefährdungsklassen (Germany: Water Hazard Classes)
WHMIS	Workplace Hazardous Materials Information System

*One or more of the above-listed items may not appear in this document.

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