MATERIAL SAFETY DATA SHEET
COMPLIES WITH 29 CFR 1910.1200.
OSHA HAZARD COMMUNICATION RULE

DATE OF LAST REVISION: 05-13-96

CHEMICAL IDENTITY

LABEL IDENTITY	**LITHIUM NIOBATE**
CHEMICAL NAME/SYNONYMS	**LITHIUM NIOBATE**
FORMULA	**LiNbO3**
CHEMICAL FAMILY	**METAL NIOBATE**
CAS REGISTRY NUMBER	**12031.63-9**
HAZARDOUS INGREDIENTS	**LITHIUM NIOBATE**

%:   **ND**   TLV: **not established**   OSHA/PEL: **not established**

PHYSICAL AND CHEMICAL PROPERTIES

COLOR, FORM AND ODOR	**White powder, pieces. No odor**
BOILING POINT	**4742**
DENSITY (gm/cc)	**4.633**
VAPOR PRESSURE @ 20°	**NA**
% VOLATILE BY VOLUME (%)	**NA**
REACTION WITH WATER	**None**
EVAPORATION RATE (H20=1)	**NA**
SOLUBILITY IN WATER	**Soluble**
MELTING POINT	**1250**

FIRE AND EXPLOSION HAZARD DATA

FLASH POINT	**None**
AUTOIGNITION TEMPERATURE (°C)	**None**
FLAMMABILITY	**Non-flammable**
EXTINGUISHING MEDIA	**Agent for metal fires (such as: G-1 powder, MET-L-X or TEC)**
SPECIAL FIRE FIGHTING PROCEDURES	**DO NOT USE WATER!!**
UNUSUAL FIRE & EXPLOSION HAZARDS	**Extremely slight fire/explosion hazard in the form of fine dust when exposed to open flame.**

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HEALTH HAZARD INFORMATION

TOXICITY DATA   ivn-dog LD50: **30mg/kg**

HMIS RATING:
　HEALTH: **1**　FLAMMABILITY: **0**　REACTIVITY: **0**　　PERSONAL PROTECTION: **E**

ROUTES OF ENTRY   INHALATION:　**Yes**
　　　　　　　　　　　　　　　　　SKIN:　　　　**No**
　　　　　　　　　　　　　　　　　INGESTION:　**Yes**

MEDICAL CONDITIONS AGGRAVATED BY OVEREXPOSURE: **neuromuscular effects as well as possible kidney damage.**
EFFECTS OF OVEREXPOSURE (acute and chronic):
　　　INHALATION: **a mild irritant to the nose, throat and lungs. Lithium is readily absorbed through the lungs.**
　　　DERMAL/EYE: **mild irritation may result**
　　　INGESTION: **ingestion of large quantities will cause vomiting, diarrhea, drowsiness, muscular weakness and lack of coordination.**

　CARCINOGENICITY: **No**　NTP: **No**　IARC MONOGRAPHS: **No**　OSHA REGULATE: **No**

EMERGENCY FIRST AID PROCEDURES:
　　　INGESTION: **have victim drink large amounts of water, then induce vomiting. Then contact a physician.**
　　　INHALATION: **remove to fresh air, treat symptomatically.**
　　　SKIN CONTACT: **Wash affected area with soap and water.**
　　　EYE CONTACT: **Flush with water for 15 minutes, consult a doctor if irritation persists.**

REACTIVITY DATA

STABILITY   **Stable**
CONDITIONS CONTRIBUTING TO UNSTABILITY   **None**
INCOMPATIBILITY (MATERIALS TO AVOID)   **None**
HAZARDOUS DECOMPOSITION PRODUCTS   **No data**
HAZARDOUD POLYMERZATION   **Will Not Occur**
CONDITIONS TO AVOID   **None**

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SAFE HANDLING AND USE

STEPS TO BE TAKEN IN CASE MATERIAL IS RELEASED OR SPILLED:
Scoop up pieces, vacuum powder to avoid raising dust.

WASTE DISPOSAL METHOD:
Consult federal, state and local regulations for proper disposal.

SPECIAL PROTECTIVE INFORMATION

RESPIRATORY PROTECTION	**NIOSH approved respirator for dust-mist-fume**
LOCAL EXHAUST	**Recommended**
MECHANICAL (general)	**NA**
SPECIAL	**NA**
OTHER	**NA**
PROTECTIVE GLOVES	**Neoprene**
EYE PROTECTION	**Approved safety glasses**
OTHER PROTECTIVE EQUIPMENT	**Normal lab wear**

SPECIAL PRECAUTIONS

PRECAUTIONS TO BE TAKEN IN HANDLING/STORAGE:
Store in tightly closed container.

TRANSPORTATION REQUIREMENTS	DOT CLASS:	**Not Classified**
	UN NUMBER:	**N C**
	IMCO CLASS:	**N C**
	OTHER:	**ND**

PRECAUTIONARY LABELING   **NONE**

THE ABOVE INFORMATION IS ACCURATE TO THE BEST OF OUR KNOWLEDGE. HOWEVER, SINCE DATA, SAFETY STANDARDS AND GOVERNMENT REGULATIONS ARE SUBJECT TO CHANGE THE CONDITIONS OF HANDLING AND USE, OR MISUSE ARE BEYOND OUR CONTROL, **ANGSTROM SCIENCES** MAKE NO WARRANTY, EITHER EXPRESSED OR IMPLIED, WITH RESPECT TO THE COMPLETENESS OR CONTINUING ACCURACY OF THE INFORMATION CONTAINED HEREIN AND DISCLAIMS ALL LIABILITY FOR THE RELIANCE THEREON. USER SHOULD SATISFY HIMSELF THAT HE HAS ALL CURRENT DATA RELEVANT TO HIS PARTICULAR USE.

NA= NOT APPLICABLE   ND= NO DATA FOUND