

LTS RESEARCH LABORATORIES, INC.
MATERIAL SAFETY DATA SHEET
TITANIUM NICKEL

GENERAL

MANUFACTURER/SUPPLIER: LTS RESEARCH LABORATORIES, INC.

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DATE MSDS PREPARED: 02/03/05
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1. PRODUCT IDENTIFICATION

PRODUCT NAME: TITANIUM NICKEL
CHEMICAL NATURE: METAL ALLOY
FORMULA: TiNi
TITANIUM:
CAS #: 7440 - 32 -6
NICKEL:
CAS #: 7440 - 02 -0

2. PHYSICAL AND CHEMICAL CHARACTERISTICS

BOILING POINT 760 mm Hg: N/A
MELTING POINT: N/A
SPECIFIC GRAVITY: N/A
VAPOR DENSITY: N/A
VAPOR PRESSURE: N/A
DENSITY: 6.2 g/cm³
% VOLATILES: N/A
SOLUBILITY IN H₂O: INSOLUBLE
APPEARANCE AND ODOR: SILVER TARGET, NO ODOR

3. HAZARD IDENTIFICATION

HAZARDOUS COMPONENTS %
TITANIUM NICKEL: 0-100%
TITANIUM:
OSHA/PEL: 15 mg/m³
ACGIH/TLV: 10 mg/m³
NICKEL:
OSHA/PEL: 1.0 mg/m³
ACGIH/TLV: 1.0 mg/m³
HMIS RATINGS (SOLID):
HEALTH: 1
FLAMMABILITY: 3
Reactivity: 1

4. FIRE FIGHTING MEASURES

FLASH POINT: N/A
AUTOIGNITION TEMPERATURE: N/A
FLAMMABLE LIMITS:
UPPER: N/A
LOWER: N/A

FLAMMABILITY:	NON-FLAMMABLE SOLID
EXTINGUISHING MEDIA:	EXTINGUISHING MEDIA FOR SURROUNDING MATERIAL.
SPECIAL FIRE FIGHTING PROCEDURES:	FIREFIGHTERS MUST WEAR FULL FACE, SELF-CONTAINED BREATHING APPARATUS WITH FULL PROTECTIVE CLOTHING TO PREVENT CONTACT WITH SKIN AND EYES. FUMES FROM FIRE ARE HAZARDOUS. ISOLATE RUNOFF TO PREVENT ENVIRONMENTAL POLLUTION.
UNUSUAL FIRE AND EXPLOSION HAZARDS:	NONE RECORDED.

5. HEALTH HAZARD INFORMATION

EFFECTS OF EXPOSURE:	TITANIUM NICKEL ALLOYS IN THEIR SOLID STATE PRESENT NO INHALATION, INGESTION OR CONTACT HEALTH HAZARD. HOWEVER, INHALING DUSTS, FUMES OR MISTS WHICH MAY BE GENERATED DURING CERTAIN MANUFACTURING PROCEDURES (BURNING, MELTING, WELDING, SAWING, BRAZING, GRINDING AND MACHINING) MAY BE HAZARDOUS TO YOUR HEALTH. DUSTS MAY ALSO BE IRRITATING TO THE UNPROTECTED SKIN OR EYES.
ACUTE EFFECTS:	
INHALATION:	DUST OR FUMES MAY CAUSE IRRITATION TO THE RESPIRATORY TRACT.
INGESTION:	NO ACUTE HEALTH EFFECTS RECORDED.
SKIN:	DUST MAY CAUSE IRRITATION.
EYE:	MAY CAUSE IRRITATION.
CHRONIC AFFECTS:	PROLONGED INHALATION OF FUMES OR DUSTS MAY CAUSE A VARIETY OF ADVERSE HEALTH EFFECTS TO THE RESPIRATORY SYSTEM, INCLUDING (BUT NOT NECESSARILY LIMITED TO) LESIONS OF THE MUCOUS MEMBRANE, BRONCHITIS, PNEUMONIA AND CANCERS FO THE NASAL CAVITY AND RESPIRATORY TRACT.
ROUTES OF EXPOSURE:	INHALATION, INGESTION, SKIN, EYES.
TARGET ORGAN:	NONE
MEDICAL CONDITIONS GENERALLY AGGRAVATED BY EXPOSURE:	PREEXISTING RESPIRATORY PROBLEMS
CARCINOGENITY:	
NTP:	NO
IARC:	NO
OSHA:	NO
EPA:	NO
ACGIH:	NO

6. STABILITY

STABILITY:	STABLE
CONDITION TO AVOID:	NONE
INCOMPATIBILITY (MATERIAL TO AVOID):	STRONG OXIDIZING AND REDUCING AGENTS
HAZARDOUS DECOMPOSITION PRODUCTS:	METAL OXIDE FUMES.
HAZARDOUS POLYMERIZATION:	WILL NOT OCCUR.

7. EMERGENCY AND FIRST AID PROCEDURES:

INHALATION:	PROVIDE FRESH AIR; KEEP WARM AND QUIET. GIVE OXYGEN AND ARTIFICIAL RESPIRATION IF BREATHING IS
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DIFFICULT AND SEEK MEDICAL ATTENTION IF SYMPTOMS PERSIST.
INGESTION: SEEK MEDICAL ATTENTION.
SKIN: REMOVE CONTAMINATED CLOTHING. BRUSH MATERIAL OFF SKIN AND WASH AFFECTED AREA WITH MILD SOAP AND WATER. SEEK MEDICAL ATTENTION IF SYMPTOMS PERSIST.
EYE: FLUSH EYES WITH LUKEWARM WATER, LIFTING UPPER AND LOWER EYELIDS, FOR AT LEAST 15 MINUTES. SEEK MEDICAL ATTENTION IF SYMPTOMS PERSIST.

8. HANDLING AND STORAGE

HANDLING AND STORAGE STORE IN COOL, DRY, WELL VENTILATED AREA, IN TIGHTLY SEALED CONTAINER. WASH THOROUGHLY AFTER HANDLING.

PROTECTION AGAINST EXPLOSIONS AND FIRES: KEEP IGNITION SOURCES AWAY
STORE AWAY FROM HALOGENS.
DO NOT STORE TOGETHER WITH ACIDS.

9. SPILL OR LEAK PROCEDURES

STEPS TO BE TAKEN IN CASE MATERIAL IS RELEASED OR SPILLED: NO SPECIAL PROCEDURES NEEDED

RESPIRATORY PROTECTION: NIOSH APPROVED RESPIRATOR.

VENTILATION: USE LOCAL EXHAUST TO MAINTAIN EXPOSURE AT OR BELOW THE PEL, TLV. HANDLE IN A CONTROLLED ENVIRONMENT. GENERAL EXHAUST IS RECOMMENDED.

PROTECTIVE GLOVES: RUBBER GLOVES

EYE PROTECTION: SAFETY GLASSES

OTHER PROTECTIVE EQUIPMENT: PROTECTIVE GEAR SUITABLE TO PREVENT CONTAMINATION.

WASTE DISPOSAL METHOD: IN ACCORDANCE WITH LOCAL, STATE AND FEDERAL REGULATIONS.

10. TOXICITY DATA

IRRITANT TO SKIN, EYES, MUCUS MEMBRANE
NO SENSITIZING EFFECTS.

LD50/LC50: N/A

CARCINOGENICITY:

EPA:	NO
IARC:	NO
NTP:	NO
OSHA:	NO
ACGIH:	NO

(NOTE: PROLONG INHALATION OF FUMES/DUST FROM THIS ALLOY MAY BE CARCINOGENIC)

EPIDEMIOLOGY: N/A

TERATOGENICITY: N/A.

REPRODUCTIVE EFFECTS: N/A.

NEUROTOXICITY: N/A.

MUTAGENICITY: N/A.

OTHER STUDIES: N/A

TO THE BEST OF OUR KNOWLEDGE THE ACUTE AND CHRONIC TOXICITY OF THIS SUBSTANCE IS NOT FULLY KNOWN.

11. TRANSPORTATION DATA

UN NUMBER: 3089

HAZARD CLASS:	4.1
PROPER SHIPPING NAME:	METAL POWDER, FLAMMABLE, N.O.S.
ADR/RID CLASS:	4.1 (F3) FLAMMABLE
IMDG CLASS:	4.1 (F3) FLAMMABLE
AIR TRAN. ICAO/IATA CLASS:	4.1 (F3) FLAMMABLE
MARITIME TRAN. IMDG CLASS:	4.1 (F3) FLAMMABLE

12. REGULATIONS

RISK PHRASES:	11 HIGHLY FLAMMABLE 40 LIMITED EVIDENCE OF A CARCIOGENIC EFFECT. 43 MAY CAUSE SENSITIZATION BY SKIN CONTACT.
SAFETY PHRASES:	22 DO NOT BREATHE DUST 36 WEAR ASUITABLE PROTECTIVE CLOTHING

13. OTHER INFORMATION

THIS SAFETY DATA SHEET SHOULD BE USED IN CONJUNCTION WITH TECHNICAL SHEETS. IT DOES NOT REPLACE THEM. THE INFORMATION GIVEN IS BASED ON OUR KNOWLEDGE OF THIS PRODUCT, AT THE TIME OF PUBLICATION. IT IS GIVEN IN GOOD FAITH. THE ATTENTION OF THE USER IS DRAWN TO THE POSSIBLE RISKS INCURRED BY USING THE PRODUCT FOR ANY OTHER PURPOSE OTHER THAN THAT FOR WHICH IT WAS INTENDED. THIS DOES NOT IN ANY WAY EXCUSE THE USER FROM KNOWING AND APPLYING ALL THE REGULATIONS GOVERNING HIS ACTIVITY. IT IS THE SOLE RESPONSIBILITY OF THE USER TO TAKE ALL PRECAUTIONS REQUIRED IN HANDLING THE PRODUCT. THE AIM OF THE MANDATORY REGULATIONS MENTIONED IS TO HELP THE USER TO FULFILL HIS OBLIGATIONS REGARDING THE USE OF HAZARDOUS PRODUCTS.

