



LTS RESEARCH LABORATORIES, INC.
MATERIAL SAFETY DATA SHEET
TITANIUM ALLOY GRADE 5

1. PRODUCT AND COMPANY IDENTIFICATION

TRADE NAME: TITANIUM ALLOY GRADE 5
CHEMICAL FORMULA: Ti-Al-V

MANUFACTURER/SUPPLIER: LTS RESEARCH LABORATORIES, INC.
COMPANY'S STREET: 37 RAMLAND ROAD
COMPANY'S CITY: OANGEBURG
COMPANY'S STATE: NEW YORK
COMPANY'S ZIP CODE: 10962

EMERGENCY CHEMTREC #: 800-262-8200
COMPANY'S EMERGENCY TEL. #: 800-424-9300 (LOCAL)
703-527-3887 (INTERNATIONAL)
COMPANY'S TEL #: 845-494-2940

RECOMMENDED USE: SCIENTIFIC RESEARCH AND DEVELOPMENT

2. HAZARDS IDENTIFICATION

SIGNAL WORD: DANGER



HAZARD SYMBOLS: HIGHLY FLAMMABLE AS POWDER

HMS HEALTH RATINGS (0-4):

HEALTH: 1
FLAMMABILITY: 3 (POWDER)
REACTIVITY: 2

3. COMPOSITION

CHEMICAL FAMILY: METAL ALLOY
ADDITIONAL NAMES: TITANIUM ALUMINUM VANADIUM, Ti 6-4, Ti6Al4V

TITANIUM (Ti):
PERCENTAGE: 90 wt%
CAS #: 744-32-6

ALUMINUM (Al):
PERCENTAGE: 6 wt%
CAS #: 7429-90-5

VANADIUM (V):
PERCENTAGE: 4 wt%
CAS #: 7440-62-2

4. FIRST AID PROCEDURES

IMPORTANT SYMPTOMS: NONE
SPECIAL TREATMENT: NONE
GENERAL TREATMENT: SEEK MEDICAL ATTENTION IF SYMPTOMS PERSIST.
INHALATION: REMOVE VICTIM TO FRESH AIR GIVE OXYGEN IF BREATHING IS DIFFICULT.

INGESTION: GIVE 1-2 GLASSES OF MILK OR WATER AND INDUCE VOMITING. NEVER INDUCE VOMITING OR GIVE ANYTHING BY MOUTH TO AN UNCONSCIOUS PERSON.

SKIN: WASH AFFECTED AREA WITH MILD SOAP AND WATER. REMOVE CONTAMINATED CLOTHING.

EYES: FLUSH EYES WITH WATER, LIFTING UPPER AND LOWER EYELIDS, FOR 20 MINUTES.

5. FIRE AND EXPLOSION HAZARDS DATA

FLAMMABILITY: HIGHLY FLAMMABLE IF POWDER

FLASH POINT: N/A

AUTOIGNITION TEMPERATURE: N/A

EXTINGUISHING MEDIA: DO NOT USE WATER FOR METAL FIRES; USE EXTINGUISHING POWDER OR SAND

SPEC. FIRE FIGHTING PROCEDURE: USE FULL-FACE, SELF-CONTAINED BREATHING APPARATUS WITH FULL PROTECTIVE CLOTHING TO PREVENT CONTACT WITH SKIN AND EYES.

6. ACCIDENTAL RELEASE MEASURES

IF MATERIAL IS RELEASED/ SPILLED: WEAR APPROPRIATE RESPIRATORY AND PROTECTIVE EQUIPMENT SPECIFIED IN SPECIAL PROTECTION INFORMATION. ISOLATE SPILL AREA AND PROVIDE VENTILATION. VACUUM UP SPILL USING A HIGH EFFICIENCY PARTICULATE ABSOLUTE (HEPA) AIR FILTER AND PLACE IN A CLOSED CONTAINER FOR DISPOSAL. TAKE CARE NOT TO RAISE DUST.

ENVIRONMENTAL PRECAUTIONS: ISOLATE RUNOFF TO PREVENT ENVIRONMENTAL POLLUTION.

7. HANDLING AND STORAGE

HANDLING CONDITIONS: WASH THOROUGHLY AFTER HANDLING.

HMS PROTECTIVE EQUIPMENT: GLASSES, GLOVES, APRON, DUST RESPIRATOR

STORAGE CONDITIONS: STORE IN A COOL DRY PLACE IN A TIGHTLY SEALED CONTAINER.

WORK/HYGIENIC MAINTENANCE: DO NOT USE TOBACCO OR FOOD IN WORK AREA. WASH THOROUGHLY BEFORE EATING AND SMOKING. DO NOT BLOW DUST OFF CLOTHING OR SKIN WITH COMPRESSED AIR.

VENTILATION: PROVIDE SUFFICIENT VENTILATION TO MAINTAIN CONCENTRATION AT OR BELOW TLV.

8. EXPOSURE CONTROLS / PERSONAL PROTECTION

OSHA PEL: 15 mg/m³ AS ALUMINUM

ACGIH TLV: 10 mg/m³ AS ALUMINUM

SPECIAL EQUIPMENT: NONE

RESPIRATORY PROTECTION: NIOSH APPROVED DUST/MIST RESPIRATOR

PROTECTIVE GLOVES: RUBBER GLOVES

EYE PROTECTION: SAFETY GLASSES

BODY PROTECTION: PROTECTIVE WORK CLOTHING. WEAR CLOSE-TOED SHOES AND LONG SLEEVES/PANTS.

OTHER: N/A

9. PHYSICAL AND CHEMICAL CHARACTERISTICS

COLOR: METALLIC GREY

FORM: POWDER, PIECES, PELLETS, GRANULES, SPATTERING TARGET

ODOR:	ODORLESS
WATER SOLUBILITY:	INSOLUBLE
BOILING POINT:	N/A
MELTING POINT:	1670 °C
USE TEMPERATURE:	400 °C
DENSITY:	4.42 g/cc
MOLECULAR WEIGHT:	N/A
YOUNG'S MODULUS:	115 GPa
TENSILE STRENGTH:	1000 MPa

10. REACTIVITY

STABILITY:	STABLE
INCOMPATIBILITY:	OXIDIZING AGENTS, HALOGENS, HALOCARBONS, MINERAL ACIDS, AIR
HAZ. DECOMPOSITION PRODUCTS:	TOXIC METAL OXIDE FUME
HAZARDOUS POLYMERIZATION:	WILL NOT OCCUR

11. TOXICOLOGICAL INFORMATION

POTENTIAL HEALTH EFFECTS:	
EYE:	MAY CAUSE ABRASIVE IRRITATION
SKIN:	MAY CAUSE ABRASIVE IRRITATION
INGESTION:	NOT TOXIC
INHALATION:	MAY CAUSE ABRASIVE IRRITATION

ROUTES OF ENTRY:	NONE
TARGET ORGANS:	NONE
SIGNS & SYMPTOMS OF EXPOSURE:	N/A
MEDICAL CONDITIONS AGGRAVATED BY EXPOSURE:	NONE
LD50:	N/A
CARCINOGEN:	
NTP:	N/A
IARC MONOGRAPHS:	N/A
OSHA REGULATED:	N/A



12. ECOLOGICAL INFORMATION

ECOLOGICAL DATA IS NOT AVAILABLE.

13. DISPOSAL CONSIDERATIONS

DISPOSE OF IN ACCORDANCE WITH LOCAL, STATE AND FEDERAL REGULATIONS.

14. TRANSPORTATION DATA

HAZARDOUS: HAZARDOUS AS POWDER ONLY



HAZARD CLASS:	4.1 FLAMMABLE SOLIDS
PACKING GROUP:	II
UN NUMBER:	UN3178
UN PROPER SHIPPING NAME:	FLAMMABLE POWDER, N.O.S. (TITANIUM ALLOY)
ROAD ADR/RID CLASS:	4.1
AIR IATA CLASS:	4.1
MARITIME IMDG CLASS:	4.1

15. REGULATORY INFORMATION

SEC.302 (EHS):	YES
SEC.304 (RQ):	N/A
SEC.313 (SARA):	NO

16. 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.

DATE MSDS PREPARED:	06/28/11
DATE LAST REVISED:	09/04/14

