



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

DATE OF LAST REVISION: 05-31-96

CHEMICAL IDENTITY

LABEL IDENTITY	TITANIUM OXIDE
CHEMICAL NAME/SYNONYMS	TITANIUM DIOXIDE
FORMULA	TiO₂
CHEMICAL FAMILY	METAL OXIDE
CAS REGISTRY NUMBER	13463-67-7, LISTED IN THE TSCA INVENTORY
HAZARDOUS INGREDIENTS	TITANIUM OXIDE
%: 100	TLV: 10mg/3 OSHA/PEL: 10mg/3

PHYSICAL AND CHEMICAL PROPERTIES

COLOR, FORM AND ODOR	White to gray powder or lump, odorless
BOILING POINT	2500-3000°C
DENSITY (gm/cc)	4.26
VAPOR PRESSURE @ 20°	NA
% VOLATILE BY VOLUME (%)	NA
REACTION WITH WATER	None
EVAPORATION RATE (H ₂ O=1)	NA
SOLUBILITY IN WATER	Insoluble
MELTING POINT	1830-1850°C

FIRE AND EXPLOSION HAZARD DATA

FLASH POINT	NA
AUTOIGNITION TEMPERATURE (°C)	NA
FLAMMABILITY	Non-flammable
EXTINGUISHING MEDIA	Use dry chemical, CO₂, water.
SPECIAL FIRE FIGHTING PROCEDURES	Wear a NIOSH/MSAH self-contained breathing apparatus and full protective clothing to prevent contact with skin and eyes.
UNUSUAL FIRE & EXPLOSION HAZARDS	None



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HEALTH HAZARD INFORMATION

TOXICITY DATA

No specific data

HMIS RATING:

HEALTH: **nd** FLAMMABILITY: **nd** REACTIVITY: **nd** PERSONAL PROTECTION: **nd**

ROUTES OF ENTRY

INHALATION: **Yes**

SKIN:

INGESTION: **Yes**

MEDICAL CONDITIONS AGGRAVATED BY OVEREXPOSURE:

None known

EFFECTS OF OVEREXPOSURE (acute and chronic):

INHALATION: **may irritate respiratory tract.**

DERMAL/EYE: **may cause mild irritation to skin and eyes.**

OTHER: **TiO₂ is considered a nuisance dust.**

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

EMERGENCY FIRST AID PROCEDURES:

INGESTION: **induce vomiting, seek medical attention**

INHALATION: **remove to fresh air, administer oxygen, seek medical attention**

SKIN CONTACT: **brush material off skin, wash affected area with soap and water.**

EYE CONTACT: **Flush eyes with water for 15 minutes, seek medical attention.**

REACTIVITY DATA

STABILITY

Stable

CONDITIONS CONTRIBUTING TO UNSTABILITY

ND

INCOMPATIBILITY (MATERIALS TO AVOID)

Reacts violently with Lithium at approx. 200°C

HAZARDOUS DECOMPOSITION PRODUCTS

ND

HAZARDOUS POLYMERIZATION

Will Not Occur

CONDITIONS TO AVOID

No specific data



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SAFE HANDLING AND USE

STEPS TO BE TAKEN IN CASE MATERIAL IS RELEASED OR SPILLED: **Wearing full protective clothing, isolate the area and insure proper ventilation. Vacuum up spill and place in a container for proper disposal.**

WASTE DISPOSAL METHOD:

Consult federal, state and local regulations for proper disposal.

SPECIAL PROTECTIVE INFORMATION

RESPIRATORY PROTECTION	NIOSH approved respirator
LOCAL EXHAUST	Maintain exposure below TLV level
MECHANICAL (general)	ND
SPECIAL	NA
OTHER	NA
PROTECTIVE GLOVES	Recommended
EYE PROTECTION	Safety glasses with side shields
OTHER PROTECTIVE EQUIPMENT	Maintain sink, safety shower and eyewash fountain in the work area. Wear full protective clothing at all times.

SPECIAL PRECAUTIONS

PRECAUTIONS TO BE TAKEN IN HANDLING/STORAGE:

Store in tightly closed containers, in a cool dry place, wash hands and face thoroughly after handling and before meals.

TRANSPORTATION REQUIREMENTS: **not regulated by D.O.T.**

DOT CLASS:	ND
UN NUMBER:	ND
IMCO CLASS:	ND
OTHER:	

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

NR=NOT RECORDED