

CHRUTP Rutile-Standard grade (higher iron)

M a t e r i a l S a f e t y D a t a S h e e t

Tam Ceramics, Inc.
4511 Hyde Park Blvd.
P.O. Box 0067
Niagara Falls, NY 14305-0067 U.S.A.

Product: CERAMIC RUTILE
Internal ID: 54429
MSDS No: TAM CER / 54429
Date: JULY 1994

SECTION I. MATERIAL IDENTIFICATION

Trade/Material Name: CERAMIC RUTILE

Description: Rutile

Other Designations: TiO₂, Titanium Oxide, Titanic Anhydride, Titania GE Material D4C9, ASTM D476, TIPURE (DuPont), TRONOX (Kerr-McGee)

CAS: 013 463 677

Chemical Name: Titanium dioxide

Available from several suppliers, including:

Manufacturer: Tam Ceramics, Inc.
4511 Hyde Park Blvd.
Niagara Falls, New York 14305

Phone: (716) 278-9400

SECTION II. INGREDIENTS AND HAZARDS

| Ingredient Name: | Percent: | Exposure Limits: |
|------------------|----------|---|
| Titanium Dioxide | >94 | 8-hr TWA 15 mg/m ³ * (total dust) |
| Moisture | <1 | |
| | | Human, Skin 300 µg/3D-I Mild Effects |

* Current OSHA PEL. ACGIH (1983) TLV for nuisance particulates is 30 mppcf or 10 mg/m³ of total dust, or 5 mg/m³ of respirable dust; STEL 20 mg/m³ (15 minute period).

** NCI carcinogenesis bioassay completed; results negative: Final report (National Cancer Institute carcinogenesis technical report series, NCI-CC-TR-97,79).

SECTION III. PHYSICAL DATA

Appearance & Odor: Crystals or white powder; no odor. (Natural materials may be colored by impurities.)

Boiling point: 2,500 - 3,000
Water solubility (%): Insoluble

Specific gravity (H₂O=1): ~3.8, ~4.3
Melting point: ~1560°C,
~1840°C
Molecular weight: 79.90

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PHYSICAL DATA continued from page 1

Data listed for Anatase, Rutile pH: - ~6-7, ~6-7

SECTION IV. FIRE AND EXPLOSION DATA

Flash Point (method): Noncombustible

Extinguishing Media: Use that which is suitable for surrounding fire. Does not burn or support combustion. No fire or explosion hazard with material itself.

Special fire-fighting procedures: Firefighters should wear self-contained breathing apparatus where TiO_2 dust can be released.

SECTION V. REACTIVITY DATA

Material is stable in closed containers at room temperature under normal storage and handling conditions. Hazardous polymerization cannot occur

Chemical incompatibilities: Violent reacton with lithium around 200°C.

Reduction of oxide by heating with aluminum, calcium, magnesium, potassium, sodium, or zinc is accompanied by incandescence.

SECTION VI. HEALTH HAZARD INFORMATION

Summary of risks: Hazard with TiO_2 is that of a nuisance dust. It is inert, practically nontoxic and chemically nonirritating. Skin contact with TiO_2 has shown no adverse effects (other than drying and possible particulate abrasion). Eye contact with pure material has shown no specific effects other than general particulate irritation in the eye. Not absorbed by the body. Ingestion of 16 oz has caused no apparent harm or distress. (Readily eliminated within 24 hours.) Excessive exposure above the TLV can give mild pulmonary irritation.

First aid:

Eye contact: Flush thoroughly with running water to remove dust, including under eyelids. Get medical help if irritation persists.

Skin contact: Wash with soap and water. (Use of lotions and barrier creams may be desirable.)

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HEALTH HAZARD INFORMATION continued from page 2

Inhalation: Remove to fresh air. Get medical help for any breathing difficulty.

Ingestion: Contact physician if large amount ingested.

Consider preplacement screening with emphasis on chronic respiratory problems. (Afflicted workers are at an increased risk from severe, prolonged exposure.)

SECTION VII. SPILL, LEAK AND DISPOSAL PROCEDURES

Spill / Leak procedures: Clean-up personnel to wear NIOSH-approved respiratory protection. Spills can be removed by vacuuming up or wet sweeping, keeping airborne dust at a minimum. Pick up and place in a closed container for disposal or reclamation.

Waste management / Disposal: Unsalvageable waste may be buried as inert solid in an approved landfill. Follow Federal, State, and Local regulations.
AQUATIC TOXICITY TLM 96: Over 1000 ppm.

SECTION VIII. SPECIAL PROTECTION INFORMATION

Personal protective equipment:

Goggles: Avoid eye contact by use of goggles where dusty conditions occur.

Gloves: Protective gloves may be desirable for repeated contact in handling.

Respirator: Under dusty conditions above the TLV but below 150 mg/m³ use an approved dust respirator; * above 150 mg/m³ use an air supplied or self-contained breathing apparatus. A full facepiece is needed above 150 mg/m³, and a positive pressure air-supplied system is needed above 750 mg/m³.

Workplace considerations:

Ventilation: Provide adequate exhaust ventilation to meet TLV requirements in the workplace. (Exhaust filter system may be required to avoid environmental contamination.)

Safety stations:

An eyewash fountain should be available to areas of use.

* MSA #66 CM 73053 type filter has been recommended.



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SECTION IX. SPECIAL PRECAUTIONS

Storage segregation: Store in closed containers in a cool, dry, well-ventilated area. Use good housekeeping practices to prevent accumulation of dust, and follow sound cleaning techniques that will keep airborne particulate at a minimum.

Other precautions: Avoid breathing dust. Prevent eye contact with dust.

Prepared/revised by: R.H. Steiger
Environmental/ Safety Engineer
JULY 1994

The information provided in this Material Safety Data Sheet relates only to the specific material designated herein and does not relate to use in combination with any other material or in any process. Component percentages are typical analyses based on historical production performance. Tam Ceramics does not make any expressed or implied warranty that future production will continue to possess these typical properties.