



Material Safety Data Sheet
According to 91/155 EEC

Printing date 30.05.2006

Reviewed on 17.05.2006

1 Identification of substance

- Product details:
- Trade name: KRONOS Titanium dioxide (all types)
- Application of the substance / the preparation *
White pigment for application in
Coating materials, printing inks, man-made fibres, plastics, paper, glass,
vitreous enamels, ceramic products
- Manufacturer/Supplier:
KRONOS INTERNATIONAL, INC. Tel.: INT + 49 214 356-0
Peschstrasse 5
51373 Leverkusen, Germany
- Informing department:
Technical Service Department
Tel.: INT + 49 214 35 60
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- Emergency information: Tel.: INT + 49 214 35 60

2 Composition/Data on components

- Chemical Characterization:
- CAS No. Designation:
13463-67-7 titanium dioxide
- Identification number(s):
- EINECS / ELINCS Number: 236-675-5
- Additional information: * Standards EN ISO 591-1

3 Hazards identification

- Hazard designation: void
- Information pertaining to particular hazards for man and environment: Dust load
- Classification system:
The classification is in line with current EC lists. It is expanded, however, by
information from technical literature and by information furnished by supplier
companies.

4 First aid measures

- General information: No special measures required.
- After inhalation: Supply fresh air; consult doctor in case of symptoms.
- After skin contact:
Instantly wash with water and soap and rinse thoroughly.
The product is not skin irritating.
- After eye contact: Rinse opened eye for several minutes under running water.
- After swallowing: In case of persistent symptoms consult doctor.

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5 Fire fighting measures

- Suitable extinguishing agents:
Use fire fighting measures that suit the environment.
The product is not inflammable.
- Protective equipment: No special measures required.

6 Accidental release measures

- Person-related safety precautions: Not required.
- Measures for environmental protection: No special measures required.
- Measures for cleaning/collecting: Collect mechanically.
- Additional information:
No dangerous materials are released.
See Section 7 for information on safe handling
See Section 8 for information on personal protection equipment.
See Section 13 for information on disposal.

7 Handling and storage

- Handling:
 - Information for safe handling: Provide suction extractors if dust is formed.
 - Information about protection against explosions and fires:
The product is not inflammable.
- Storage:
 - Requirements to be met by storerooms and containers: No special requirements.
 - Information about storage in one common storage facility: Not required.
 - Further information about storage conditions: Store under dry conditions.

8 Exposure controls and personal protection

- Additional information about design of technical systems:
No further data; see item 7.
- Components with critical values that require monitoring at the workplace:
13463-67-7 titanium dioxide (100.0%)
OEL Short-term value: 5 mg/m³
Long-term value: 10 mg/m³
- Additional information:
The lists that were valid during the compilation were used as basis.
- Personal protective equipment:
- General protective and hygienic measures:
The usual precautionary measures should be adhered to in handling the chemicals.
Titanium dioxide pigments are not irritant but as with all fine powders can absorb moisture and natural oil from the surface of the skin during prolonged exposure. Prolonged exposure should be avoided by wearing suitable protective gloves and clothing.
- Breathing equipment: *
Use breathing protection with high concentrations.

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EN 149: FFP2

- Protection of hands: *
Requirements according to EN 420
Check protective gloves prior to each use for their proper condition.
Preventive skin protection by use of skin-protecting agents is recommended.
- Material of gloves *
Polychloroprene
Mechanical resistance: Level 1,2,2,2 (EN 388)
- Penetration time of glove material *
Value for the permeation: Level ≥ 1 (EN 420)
- Eye protection: Safety glasses
- Body protection: Protective work clothing.

9 Physical and chemical properties

· General Information

Form:	Powder
Colour:	White
Smell:	Odourless
Melting point/Melting range:	>1800°C
Boiling point/Boiling range:	Not determined

- Flash point: Not applicable
- Flammability (solid, gaseous): Product is not inflammable.
- Danger of explosion: Product is not explosive.
- Density: 20°C Anatase 3,9 g/cm³
 Rutile 4,2 g/cm³
- Apparent density at 20°C: 500-900 kg/m³
- Solubility in / Miscibility with
 Water: Insoluble
- pH-value (100 g/l) at 20°C: 7

10 Stability and reactivity

- Thermal decomposition / Conditions to be avoided:
No decomposition if used according to specifications.
 - Dangerous reactions: No dangerous reactions known
 - Dangerous products of decomposition: No dangerous decomposition products known
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11 Toxicological information

- Acute toxicity:
- LD/LC50 values that are relevant for classification:
13463-67-7 titanium dioxide
Oral LD50 >10000 mg/kg (rat)
Dermal LD50 >10000 mg/kg (rabbit)
Inhalative LC50/4 h >6.8 mg/l (rat)
- Primary irritant effect:
 - on the skin: No irritant effect.
 - on the eye: Eye exposure (to dust) may produce irritation.
- Sensitization: No sensitizing effect known.
- Additional toxicological information:
When used and handled according to specifications, the product does not have any harmful effects according to our experience and the information provided to us. As with any nuisance dust, long-term exposure to concentrations of dust above the recommended exposure level may overload lung clearance mechanism and cause adverse lung effects.

12 Ecological information

- Information about elimination (persistence and degradability):
- Other information: The inert product is not biodegradable.
- Ecotoxicological effects
- Aquatic toxicity:
- Type of test Effective concentration Method Assessment:
Leuciscus idus LCO > 1000 mg/l/48h
Daphnia magna (Crustacea) ECO > 3 mg/l/30 days
Pseudomonas fluorescens ECO >10000 mg/l/24h
- General notes: not hazardous for water

13 Disposal considerations

- Product:
 - European waste catalogue Waste code number according to origin of waste
- Uncleaned packagings:
 - Recommendation: Packaging can be reused or recycled after cleaning.

14 Transport information *

- Transport/Additional information:
Not dangerous according to transport specifications.

15 Regulatory information

- Designation according to EC guidelines:
Observe the normal safety regulations when handling chemicals.

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The product is not subject to classification according to EC Directives /
relevant national laws.

- National regulations:
- Water hazard class: not hazardous for water

16 Other information

These data are based on our present knowledge. However, they shall not constitute a guarantee for any specific product features and shall not establish a legally valid contractual relationship.

Carcinogenicity: In February 2006 IARC concluded, "There is inadequate evidence in humans for the carcinogenicity of titanium dioxide." Based on rat inhalation studies IARC concluded that there is "sufficient evidence in experimental animals for the carcinogenicity of titanium dioxide," IARC's overall evaluation was that "Titanium dioxide is possibly carcinogenic to humans (Group 2b)".

This conclusion was based on IARC's guidelines which require such a classification if two or more independent studies in one species carried out at different times or in different laboratories or under different protocols show evidence of tumours.

- Department issuing data specification sheet: Environment & Safety
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- Sources *
KRONOS Information 2.1
HEDSET (793/93/EEC)
- * Data compared to the previous version altered. Amended according to 2001/58/EC