

1 Identification

Product identifier
Trade name:
KRONOS Titanium dioxide
Product Codes
**KRONOS 1000; KRONOS 1002; KRONOS 2044;
KRONOS 2073; KRONOS 2078; KRONOS 2211;
KRONOS 2220; KRONOS 2222; KRONOS 2230;
KRONOS 2233; KRONOS 2350; KRONOS 2500;**
CAS Number:
13463-67-7
EC number:
236-675-5
**Relevant identified uses of the
substance or mixture**
**White pigment for application in
coating materials, printing inks, man-made fibres, plastics, paper,
glass, vitreous enamels, ceramic products**
Uses advised against
**Manufacture of titanium metal
None**
Details of the supplier of the safety data sheet
Manufacturer/Supplier:
**KRONOS (US), Inc.
5430 LBJ Freeway, Suite 1700
Dallas, Tx 75240
+1 (972) 233-1700**
Emergency telephone number:
**CHEMTREC: +1-800-424-9300 for transportation emergencies only
(U.S.)
KRONOS: +1-800-866-5600 for other product information (8:00
am – 5:00 pm, central time U.S.)**

2 Hazard(s) identification

**Classification of the substance
or mixture**
**The substance is not classified, according to the Globally
Harmonized System (GHS).**
Label elements
GHS label elements
Not applicable
Hazard pictograms
Not applicable
Signal word
Not applicable
Hazard statements
Not applicable
Other hazards
Dust load

3 Composition/information on ingredients

Chemical characterization: Substances
CAS No. Description:
CAS: 13463-67-7 Titanium dioxide
EC number:
236-675-5

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4 First-aid measures

Description of first aid measures
General information
No special measures required.
After inhalation
Supply fresh air; consult doctor in case of complaints.
After skin contact
Immediately wash with water and soap and rinse thoroughly.
After eye contact
Rinse opened eye for several minutes under running water. If symptoms persist, consult a doctor.
After swallowing
Rinse out mouth and then drink plenty of water.
Most important symptoms and effects, both acute and delayed
No further relevant information available.
Indication of any immediate medical attention and special treatment needed
No further relevant information available.

5 Fire-fighting measures

Extinguishing media
Suitable extinguishing agents
**Use fire fighting measures that suit the environment.
The product is not flammable.**
Special hazards arising from the substance or mixture
None
Advice for firefighters
Protective equipment:
Use protective measures that suit the hazard conditions.

6 Accidental release measures

Personal precautions, protective equipment and emergency procedures
Not required.
Environmental precautions:
No special measures required.
Methods and material for containment and cleaning up:
Avoid dust formation. Sweep or vacuum up, use vacuum approved for fine dusts.
Reference to other sections
**See Section 8 for information on personal protective equipment.
See Section 13 for disposal information.**

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7 Handling and storage

Handling

**Precautions for safe handling
Information about protection
against explosions and fires:**

Provide vacuum dust collection if dust is formed.

**The product is not flammable
Titanium dioxide product may be packaged at temperatures of
approximately 100 to 120 °C (212 to 248 °F) and stay hot for a long
time depending on ambient temperatures and inventory storage
practices. Due to the potential of elevated pigment temperature,
caution should be used while handling pigment and when used in
or near volatile solvent applications.**

Conditions for safe storage, including any incompatibilities

**Requirements to be met by
storerooms and receptacles:**

No special requirements.

**Information about storage in
one common storage facility:**

Not required.

**Further information about
storage conditions:**

Store in dry conditions.

8 Exposure controls/personal protection

Control parameters

**Components with limit values
that require monitoring at the
workplace:**

**The product does not contain any relevant quantities of materials
with critical values that have to be monitored at the workplace.
Not required.**

Additional Occupational Exposure Limit Values for possible hazards during processing:

CAS: 13463-67-7 Titanium dioxide

ACGIH - TLV 10 mg/m³ TWA,

**OSHA - PEL 15* mg/m³
*total dust, 8 hr TWA**

Exposure controls

**Use local exhaust ventilation if airborne concentrations would
otherwise exceed applicable exposure limits.**

Personal protective equipment

**General protective and hygienic
measures**

**The usual precautionary measures for handling chemicals should
be followed.
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.**

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Breathing equipment:	If workplace exposure limits are exceeded, use respiratory protection according to national regulations. The respirator must be selected by a technically qualified individual.
Protection of hands:	Use gloves appropriate for work conditions to minimize prolonged skin contact and prevent drying and subsequent irritation of skin. 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:	The selection of suitable gloves depends on the type of job, the characteristics of all substances to be handled and on further marks of quality, which may vary from manufacturer to manufacturer. If the product is used in a preparation of several substances, the resistance of the glove material cannot be calculated in advance and has therefore to be checked prior to the application.
Eye protection:	Safety glasses
Body protection:	Protective work clothing.

9 Physical and chemical properties

Information on basic physical and chemical properties

General Information

Appearance:

Form:	Powder
Color:	White
Odor:	Odorless
Odor threshold:	Not relevant

pH-value at 20°C (68°F): 7

Melting point/Melting range: >1800°C (>3,272°F)

Boiling point/Boiling range: Not relevant

Flash point: Not applicable

Flammability (solid, gaseous): Product is not flammable.

Ignition temperature: Not applicable

Danger of explosion: Product is not explosive.

Density:	20°C	Anatase 3,9 g/cm ³ (30 lbs/ U.S. gal.)
		Rutile 4,2 g/cm ³ (35 lbs/U.S. gal.)

Bulk density: ca. 500-900 kg/m³ (4.2 - 7.5 lbs/U.S. gal.)

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Vapor density Not applicable.
Evaporation rate Not applicable.

Solubility in / Miscibility with Water: Insoluble

Partition coefficient (n-octanol/water): Not applicable

Viscosity:
dynamic: Not applicable.

Other information No further relevant information available.

10 Stability and reactivity

Reactivity The substance is stable under normal use conditions.

Chemical stability
Thermal decomposition / conditions to be avoided: No decomposition under normal use conditions.

Possibility of hazardous reactions No dangerous reactions known

Conditions to avoid No further data; see Section 7.

Incompatible materials: No further data; see Section 7.

Hazardous decomposition products: No dangerous decomposition products known.

11 Toxicological information

Information on toxicological effects

Acute toxicity:
LD/LC50 values that are relevant for classification:

CAS: 13463-67-7 Titanium dioxide

Oral LD50 > 5,000 mg/kg (rat) (OECD 425)

Dermal LD50 > 5,000 mg/kg (rabbit)

Inhalative LC50/4h > 6.8 mg/l (rat)

Primary irritant effect:
on the skin:

OECD 404:
 No irritant effect.
 Powderized material may dry and mechanically irritate skin.

on the eye:

OECD 405:
 No irritating effect.
 Like any foreign body, particles (dust) can cause mechanical irritation.

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Sensitization: OECD 406, OECD 429
No sensitizing effects.

Subacute to chronic toxicity:

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Oral NOAEL 3,500 mg/kg/d (rat) (90 d)

Dermal NOAEL (-)
no relevant data availableInhalative NOAEC 10 mg/m³ (rat) (90 d)**Additional toxicological
information:****Titanium Dioxide**

On February 18, 2020, the European Union (EU) published the delegated regulation classifying certain powder titanium dioxide (TiO₂) as a suspected carcinogen (Category 2) via inhalation under EU Regulation No 1272/2008 on classification, labelling, and packing (CLP) of substances and mixtures. Classification requirements will come into force on October 1, 2021, mandating hazard labels be placed on certain TiO₂ powder products and certain powder mixtures containing TiO₂ sold into the EU market. This classification of TiO₂ is not based on new science but instead on older scientifically questioned animal test data. Other studies and extensive data, including separate epidemiologic studies of TiO₂ workers, have shown no TiO₂-specific links to cancer. TiO₂ has been characterized by IARC as possibly carcinogenic to humans (Group 2B) through inhalation (not ingestion). It has not been characterized as a potential carcinogen by either NTP or OSHA.

Carcinogenic categories**IARC (International Agency for Research on Cancer)**

: 2B

NTP (National Toxicology Program)

Substance is not listed.

OSHA-Ca (Occupational Safety & Health Administration)

Substance is not listed.

12 Ecological information**Toxicity****Toxicity to fish**

CAS: 13463-67-7 Titanium dioxide

LC50 > 10,000 mg/l (Sheepshead minnow)
(semi-static, OECD 203 (acute toxicity for fish))> 1,000 mg/l (Pimephales promelas)
(static, EPA-540/9-85-006, Acute Toxicity Test for Freshwater Fish)

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Toxicity to Daphnia and other aquatic invertebrates
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LC50 > 10,000 mg/l (Acartia tonsa)
 (ISO 14669 (1999); ISO 5667-16 (1998))
> 1,000 mg/l (Daphnia magna)
 (static, OECD 202 (daphnia acute immobilisation test))

Toxicity to algae and aquatic plants
CAS: 13463-67-7 Titanium dioxide

EC50 > 100 mg/l (Pseudokirchneriella subcapitata)
 (static, OECD 201 (freshwater alga and cyanobacteria, growth inhibition test))
> 10,000 mg/l (Skeletonema costatum)
 (ISO 10253)

Toxicity to sediment organisms
CAS: 13463-67-7 Titanium dioxide

NOEC ≥ 100,000 mg/kg dw (Hyalella azteca)
 (semi-static, ASTM 1706)

Persistence and degradability Not relevant for inorganic substances.

Bioaccumulative potential Does not accumulate in organisms

Mobility in soil The substance is immobile in soil.

Other adverse effects No further relevant information available.

13 Disposal considerations
Waste treatment methods
Recommendation

Disposal must be made according to all federal, state, and local (municipal) regulations.

Uncleaned packagings:
Recommendation:

Disposal must be made according to all federal, state, and local (municipal) regulations.

14 Transport information
UN-Number

DOT, ADR/RID/ADN, ADN, IMDG, IATA Not applicable

UN proper shipping name

ADR/RID/ADN, ADN, IMDG, IATA Not applicable

Transport hazard class(es)

DOT, ADR/RID/ADN, ADN, IMDG, IATA

Class Not applicable

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Packing group

DOT, ADR/RID/ADN, IMDG, IATA

Not applicable

Environmental hazards:

Not an environmentally hazardous substance.

Special precautions for user

Not applicable.

Transport in bulk according to Annex II of
MARPOL73/78 and the IBC Code

Not applicable.

15 Regulatory information

Safety, health and environmental regulations/legislation specific for the substance or mixture

SARA

Section 355 (Extremely hazardous substances):

Substance is not listed

Section 313 (Specific toxic chemical listings):

Substance is not listed

Section 311 (TIER 1 notification)

Substance is not listed.

TSCA and Canada DSL Status:

: ACTIVE

Hazardous Air Pollutants

Substance is not listed.

Proposition 65

Chemicals known to cause cancer:

Substance is listed

Additional information:

The listing is for titanium dioxide as "airborne, unbound particles of respirable size" and does not cover titanium dioxide when it remains within a product matrix.

OCCUPATIONAL SAFETY AND HEALTH ACT (OSHA)

New Jersey Right-to-Know List:

Substance is listed.

New Jersey Special Hazardous Substance List:

Substance is not listed.

Pennsylvania Right-to-Know List:

Substance is listed.

Pennsylvania Special Hazardous Substance List:

Substance is not listed.

Carcinogenic categories

EPA (Environmental Protection Agency)

Substance is not listed.

TLV (Threshold Limit Value Notation established by ACGIH)

: A4 Not classifiable as human carcinogen

EU REACH registration status: 01-2119489379-17-xxxx

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**Substances of very high
concern (SVHC) according to
EU REACH, Article 57****The product is not listed as SVHC, it does not contain any
substances of very high concern.****16 Other information****This information is based on our present knowledge. However, this shall not constitute a guarantee
for any specific product features and shall not establish a legally valid contractual relationship.****Contact:****KRONOS (US), Inc.
5430 LBJ Freeway, Suite 1700
Dallas, Tx 75240
e-mail: SDS-NA@kronosww.com****Date of preparation / last
revision****09/01/2022****Abbreviations and acronyms:****ADR: Accord relatif au transport international des marchandises dangereuses par
route (European Agreement Concerning the International Carriage of Dangerous
Goods by Road)
IMDG: International Maritime Code for Dangerous Goods
DOT: US Department of Transportation
IATA: International Air Transport Association
EINECS: European Inventory of Existing Commercial Chemical Substances
CAS: Chemical Abstracts Service (division of the American Chemical Society)
LC50: Lethal concentration, 50 percent
LD50: Lethal dose, 50 percent
OSHA: Occupational Safety & Health
TLV: Threshold Limit Value
PEL: Permissible Exposure Limit
REL: Recommended Exposure Limit***** Data compared to the previous
version altered.***** Data altered compared to the previous version .**

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