

1 Identification

Product identifier
Trade name:
KRONOS Titanium Dioxide (grades containing TMP)
Product Codes

KRONOS 1071; KRONOS 1073; KRONOS 1074;
KRONOS 2043; KRONOS 2047; KRONOS 2056;
KRONOS 2064; KRONOS 2066; KRONOS 2075;
KRONOS 2076; KRONOS 2160; KRONOS 2190;
KRONOS 2225; KRONOS 2300; KRONOS 2310;
KRONOS 2360; KRONOS 2365; KRONOS 2450;
KRONOS 2800; KRONOS 2900

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

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 product 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

3 Composition/information on ingredients

Chemical characterization: Mixtures
Dangerous components:
CAS: 77-99-6
Trimethylolpropane (TMP)
 $\leq 0.45\%$
EINECS: 201-074-9
☠ Toxic to Reproduction 2, H361
Additional information

Certain manufacturers of TMP self-classified the substance as a category 2, suspected human reproductive toxicant (Repr. 2, H361 Suspected of damaging fertility or the unborn child), under the European Union's REACH regulation based on their interpretation

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of the results of an OECD 443 Extended One-Generation Reproduction Toxicity study in rats commissioned by those manufacturers. See Section 11 for additional information.

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.

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See Section 13 for disposal information.

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:
Information about storage in
one common storage facility:
Further information about
storage conditions:**

No special requirements.

Not required.

Store in dry conditions.

8 Exposure controls/personal protection

Control parameters

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

The following constituent is the only constituent of the product which has a PEL, TLV or other recommended exposure limit.
At this time, the remaining constituent has no known exposure limits.

CAS: 13463-67-7 Titanium dioxide

**ACGIH - TLV Long-term value: 10 TWA, mg/m³
respirable fraction 1mg/m³ TWA**

OSHA - PEL Long-term value: 15* 5 mg/m³
*total dust, ** inhalable 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 and potential skin absorption of TMP should be avoided by wearing suitable protective gloves and clothing that covers the arms.

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Store protective clothing separately.

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 potential skin absorption of TMP 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:

Wear long-sleeved 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.

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Density:	20°C	Anatase 3,9 g/cm³ (30 lbs/ U.S. gal.)
		Rutile 4,2 g/cm³ (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.
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Evaporation rate	Not applicable.
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Solubility in / Miscibility with Water:	Insoluble
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Partition coefficient (n-octanol/water): Not applicable

Viscosity:	
dynamic:	Not applicable.

Other information	No further relevant information available.
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10 Stability and reactivity

Reactivity	The substance is stable under normal use conditions.
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Chemical stability	
Thermal decomposition / conditions to be avoided:	No decomposition under normal use conditions.

Possibility of hazardous reactions	No dangerous reactions known
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Conditions to avoid	No further data; see Section 7.
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Incompatible materials:	No further data; see Section 7.
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Hazardous decomposition products:	No dangerous decomposition products known.
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11 Toxicological information

Information on toxicological effects

Acute toxicity:	Based on available data, the classification criteria are not met.
LD/LC50 values that are relevant for classification:	

ATE(Mix), oral	> 2000 mg/kg
ATE(Mix), dermal	> 2000 mg/kg
ATE(Mix), inhalativ	> 5 mg/l

Primary irritant effect:	
on the skin:	OECD 404:
	No irritant effect.
	Powderized material may dry and mechanically irritate skin.
on the eye:	OECD 405:

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No irritating effect.

Like any foreign body, particles (dust) can cause mechanical irritation.

Sensitization:**OECD 406, OECD 429
No sensitizing effects.****Subacute to chronic toxicity:****CAS: 13463-67-7 Titanium dioxide****Oral NOAEL 3,500 mg/kg/d (rat) (90 d)****Dermal NOAEL (-)
no relevant data available****Inhalative NOAEC 10 mg/m³ (rat) (90 d)****CAS: 77-99-6 Trimethylolpropane (TMP)****Oral NOAEL 67 mg/kg (rat)
subchronic 90-days study****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.

Trimethylolpropane (TMP)

Certain manufacturers of TMP self-classified the substance as a Category 2, suspected human reproductive toxicant (Repr. 2, H361 Suspected of damaging fertility or the unborn child) under the European Union's (EU) REACH regulation based on their interpretation of the results of an OECD 443 Extended One-Generation Reproduction Toxicity study in rats commissioned by those manufacturers. Taking into consideration the data from the study, the group also determined a new EU Derived No Effect Level (DNEL) for workers of 0.94 mg/kg/d (systemic, long-term, dermal route). TMP is contained in the specified TiO₂ products at less than 0.45 %. See Section 8 for recommended exposure control/personal protection.

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Carcinogenic categories
IARC (International Agency for Research on Cancer)
CAS: 13463-67-7 Titanium dioxide: 2B
NTP (National Toxicology Program)
None of the ingredients is listed.
OSHA-Ca (Occupational Safety & Health Administration)
None of the ingredients is listed.
12 Ecological information
Toxicity
Based on available data, the classification criteria are not met.
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)**
Toxicity to Daphnia and other aquatic invertebrates
CAS: 13463-67-7 Titanium dioxide
**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
CAS: 13463-67-7 Titanium dioxide: not relevant for inorganic substances.
Other information:
CAS: 77-99-6 Trimethylolpropane: not easily biodegradable
Bioaccumulative potential
Does not accumulate in organisms
Mobility in soil
The product is immobile in soil.

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Other adverse effects
No further relevant information available.
13 Disposal considerations
**Waste treatment methods
Recommendation**
**Material is not a hazardous waste.
Disposal must be made according to all federal, state, and local
(municipal) regulations.**
**Uncleaned packagings:
Recommendation:**
**Material is not a hazardous waste.
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**
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):
None of the ingredients is listed
Section 313 (Specific toxic chemical listings):
None of the ingredients is listed
Section 311 (TIER 1 notification)
None of the ingredients is listed.
TSCA and Canada DSL Status:
All components have the value ACTIVE.
Hazardous Air Pollutants
None of the ingredients is listed.

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Proposition 65**Chemicals known to cause cancer:****CAS: 13463-67-7 Titanium dioxide****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 Special Hazardous Substance List:**

None of the ingredients is listed.

Pennsylvania Right-to-Know List:**CAS: 13463-67-7 Titanium dioxide****Pennsylvania Special Hazardous Substance List:**

None of the ingredients is listed.

Carcinogenic categories**EPA (Environmental Protection Agency)**

None of the ingredients is listed.

TLV (Threshold Limit Value Notation established by ACGIH)**CAS: 13463-67-7 Titanium dioxide: A4 Not classifiable as human carcinogen****EU REACH registration status:****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**

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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
ELINCS: European List of Notified 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

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REL: Recommended Exposure Limit

Toxic to Reproduction 2: Reproductive toxicity – Category 2

*** Data compared to the previous
version altered.**

*** Data altered compared to the previous version .**

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