

Safety Data Sheet
acc. to OSHA HCS

Printing date 05/28/2020

Version 2.00

Reviewed on 05/28/2020

1 Identification**Product identifier****Trade name:****KRONOS Titanium Dioxide (TMP grades)****Product Codes**KRONOS 1000; KRONOS 1071; 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 75230-2620
+1 (972) 233-1700**Emergency telephone number:**CHEMTREC: (800) 424-9300
KRONOS: (800) 866-5600**2 Hazard(s) identification****Classification of the substance or mixture**

GHS08 Health hazard

Repr. 2 H361 Suspected of damaging fertility or the unborn child.

Label elements**GHS label elements**

The product is classified and labeled according to the Globally Harmonized System (GHS).

Hazard pictograms

GHS08

Signal word

Warning

Hazard-determining components of labeling:

Trimethylolpropane

Hazard statements

H361 Suspected of damaging fertility or the unborn child.

Precautionary statements

P201 Obtain special instructions before use.

P260 Do not breathe dust.

P284 [In case of inadequate ventilation] wear respiratory protection.

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Additional information: The product is classified and labeled according to the Globally Harmonized System (GHS) based upon self-classification of trimethylolpropane by the supplier and use in product above the concentration cut-off level of 0.1%.

3 Composition/information on ingredients**Chemical characterization: Mixtures****Dangerous components:**

CAS: 77-99-6 Trimethylolpropane $\geq 0.1 - \leq 0.45\%$
EINECS: 201-074-9  Repr. 2, H361

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.

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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 sectionsSee Section 8 for information on personal protection equipment.
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:**

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 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 TWAOSHA - PEL Long-term value: 15* 5** mg/m³
*total dust, ** inhalable dust, 8 hr TWA

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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.
Breathing equipment:	If workplace exposure limits are exceeded, use respiration 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.
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/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.
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:	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: No irritating effect. Like any foreign body, particles (dust) can cause mechanical irritation.
Sensitization:	OECD 406, OECD 429

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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 mg/kg/d
no relevant data availableInhalative NOAEC 10 mg/m³ (rat) (90 d)**CAS: 77-99-6 Trimethylolpropane**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

Based upon the results of a reproductive toxicity study (OECD 443), the manufacturer and others of its consortium membership self-classified TMP as a suspected reproductive toxicant (Rep. Cat 2). Taking into consideration the data from the study, the group also determined a new Derived No Effect Level (DNEL). The new suggested TMP DNEL for workers is 3.3 mg/m³ (systemic, long-term, inhalation route).

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.

CMR effects (carcinogenicity, mutagenicity and toxicity for reproduction)

Repr. 2

Germ cell mutagenicity

Based on available data, the classification criteria are not met.

Carcinogenicity

Based on available data, the classification criteria are not met.

STOT-single exposure

Based on available data, the classification criteria are not met.

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STOT-repeated exposure
Aspiration hazardBased on available data, the classification criteria are not met.
Based on available data, the classification criteria are not met.**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)**CAS: 77-99-6 Trimethylolpropane**

LC50 > 1,000 mg/l /96h (Alburnus alburnus)

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))**CAS: 77-99-6 Trimethylolpropane**EC50 13,000 mg/l /48h (Daphnia magna)
NOEC > 1,000 mg/l /21d (Daphnia magna)**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)**CAS: 77-99-6 Trimethylolpropane**EC0 > 102 mg/l /48h (Daphnia magna)
EC50 > 1,000 mg/l /72h (Pseudokirchneriella subcapitata)**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**
Other information:CAS: 13463-67-7 Titanium dioxide: not relevant for inorganic substances.
CAS: 77-99-6 Trimethylolpropane: not easily biodegradable**Bioaccumulative potential**

Does not accumulate in organisms

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Mobility in soil The product is immobile in soil.**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

DOT, 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

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.

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

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.
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Dallas, Tx 75230-2620
e-mail: SDS-NA@kronosww.com**Date of preparation / last revision**

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Abbreviations and acronyms:ADR: Accord européen sur le transport 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
ACGIH: American Conference of Governmental Industrial Hygienists
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
REL: Recommended Exposure Limit
Repr. 2: Reproductive toxicity – Category 2*** Data compared to the previous version altered.**

Conformed to U.S. OSHA HCS 2012