

Printing date 09/02/2022

Version 5.00

Reviewed on 09/02/2022

1 Identification**Product identifier****Trade name:** KRONOS 4311**Relevant identified uses of the substance or mixture**
architectural coatings
industrial coatings
printing inks**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****Description:** Titanium dioxide pigment dispersed in water**Dangerous components:****CAS: 77-99-6** Trimethylolpropane (TMP) ≤ 0.32%
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 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.

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4 First-aid measures

Description of first aid measures

General information	Remove any clothing soiled by the product.
After inhalation	Supply fresh air; consult doctor in case of complaints.
After skin contact	Wash with water and soap and rinse thoroughly.
After eye contact	Rinse opened eye for several minutes under running water. If irritation occurs consult physician.
After swallowing	Rinse out mouth and then drink plenty of water. If symptoms occur consult physician.
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:	Do not allow product to reach sewage system or any water course. Do not allow to penetrate the ground/soil.
Methods and material for containment and cleaning up:	Absorb with liquid-binding material (sand, diatomite, acid binders, universal binders, sawdust). Dispose contaminated material as waste according to section 13.
Reference to other sections	See Section 7 for information on safe handling 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 No special measures required.

Information about protection against explosions and fires: The product is not flammable

Conditions for safe storage, including any incompatibilities

Requirements to be met by storerooms and receptacles: Recommended storage temperature >32°F / >0°C

Information about storage in one common storage facility: Not required.

Further information about storage conditions: None

8 Exposure controls/personal protection

Additional information about design of technical systems: No further data; see Section 7.

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.

Exposure controls

Personal protective equipment

General protective and hygienic measures The usual precautionary measures for handling chemicals should be followed.
Store protective clothing separately.

Breathing equipment: Use breathing protection when aerosol or mist is formed. 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

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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:	Liquid
Color:	White
Odor:	Weak, characteristic
Odor threshold:	Not determined.

pH-value: 8.0 - 9.0

Melting point/Melting range: Not determined

Boiling point/Boiling range: Not determined

Flash point: Not applicable

Ignition temperature: Not applicable

Decomposition temperature: Not applicable

Auto igniting: Product is not selfigniting.

Danger of explosion: Product is not explosive.

Explosion limits:

Lower:	Not determined.
Upper:	Not determined.

Vapor pressure: Not determined.

Density at 20°C (68°F): 2.341 - 2.385 g/cm³ (19.53565 - 19.90283 lbs/gal)

Relative density Not determined.

Evaporation rate Not determined.

Solubility in / Miscibility with

Water: Fully miscible

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

Viscosity:

dynamic at 20°C (68°F): ≤ 800 mPas (Brookfield, 100 rpm)

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Solvent content:

Solids content: 76.0 - 77.0 %

Other information

No further relevant information available.

10 Stability and reactivity

Reactivity The product 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 further data; see Section 5.

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:

Oral ATE > 2,000 mg/kg

Dermal ATE > 2,000 mg/kg

Inhalative ATE > 5 mg/m³

Primary irritant effect:

on the skin: No irritant effect.

on the eye: No irritant effect

Sensitization:

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)

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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.

Carcinogenic categories**IARC (International Agency for Research on Cancer)****CAS: 13463-67-7 Titanium dioxide: 2B****CAS: 3252-43-5 Dibromacetonitril: 2B****CAS: 7664-93-9 Sulfuric acid: 1****NTP (National Toxicology Program)****CAS: 7664-93-9 Sulfuric acid: K****OSHA-Ca (Occupational Safety & Health Administration)****None of the ingredients is listed.**

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12 Ecological information

Toxicity	Based on the composition it can be assumed that the mixture dose not pose any risk for the aquatic environment.
Persistence and degradability	No further relevant information available.
Bioaccumulative potential	No further relevant information available.
Mobility in soil	The product 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	Not applicable
DOT, ADR/RID/ADN, ADN, IMDG, IATA	Not applicable
UN proper shipping name	Not applicable
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:	
Marine pollutant:	No
Special precautions for user	None
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): Product contains traces below 0.0001 %

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CAS: 7664-93-9 Sulfuric acid
Section 313 (Specific toxic
chemical listings):

Product contains traces below 0.0001 %

CAS: 7664-93-9 Sulfuric acid: *
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.

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:

Product contains traces below 0.0001 %

CAS: 7664-93-9 Sulfuric acid: CA, CO, R2

Pennsylvania Right-to-Know List:

CAS: 13463-67-7 Titanium dioxide

Pennsylvania Special Hazardous

Substance List:

Product contains traces below 0.0001 %

CAS: 7664-93-9 Sulfuric acid: E

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

CAS: 7664-93-9 Sulfuric acid: A2

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:

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Date of preparation / last
revision

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acc. to OSHA HCS**

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Abbreviations and acronyms:

RID: Règlement international concernant le transport des marchandises dangereuses par chemin de fer (Regulations Concerning the International Transport of Dangerous Goods by Rail)
ICAO: International Civil Aviation Organisation
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
REL: Recommended Exposure Limit
Toxic to Reproduction 2: Reproductive toxicity – Category 2

* Data compared to the previous version altered.

Conformed to U.S. OSHA HCS 2012

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