

Safety data sheet  
according to 1907/2006/EC, Article 31

Printing date 25.04.2024

Version number 8.00 (replaces version 7.00)

Revision: 25.04.2024

**SECTION 1: Identification of the substance/mixture and of the company/undertaking****1.1 Product identifier**

Trade name: **KRONOS Titanium Dioxide (non-pigmentary)**  
Product Codes **KRONOS 1020; KRONOS 3025**

CAS Number: **13463-67-7**  
EC number: **236-675-5**  
EU REACH Registration number: **01-2119489379-17-xxxx**

**1.2 Relevant identified uses of the substance or mixture and uses advised against**

Identified uses of the substance or mixture  
Additive for application in  
Glass, vitreous enamels, ceramic products

**1.3 Details of the supplier of the safety data sheet**

Manufacturer/Supplier: **KRONOS INTERNATIONAL, Inc.**  
**Peschstrasse 5**  
**51373 Leverkusen, Germany**  
Tel.: INT +49 214 356-0

**EMERGENCY TELEPHONE**  
**NUMBER:** **KRONOS INTERNATIONAL, Inc. (Germany)**  
Tel.: INT + 49 214 356-4444

**SECTION 2: Hazards identification****2.1 Classification of the substance or mixture**

Classification according to Regulation (EC) No 1272/2008 The substance is not classified, according to the CLP regulation.

**2.2 Label elements**

Labelling according to Regulation (EC) No 1272/2008 not applicable  
Hazard pictograms not applicable  
Signal word not applicable  
Hazard statements not applicable

Additional information: The product is not classified pursuant to Regulation 2020/217 (14th ATP to Regulation (EU) 1272/2008, Annex VI). EUH 210 and EUH 212 are included in Section 2.2 voluntarily.  
EUH210 Safety data sheet available on request.  
EUH212 Warning! Hazardous respirable dust may be formed when used. Do not breathe dust.

**2.3 Other hazards**

Results of PBT and vPvB assessment No further relevant information available.

The product is an inorganic substance and does not fulfill the criteria for PBT and vPvB according to Annex XIII of REACH.

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Determination of endocrine-  
disrupting properties

The product does not contain substances with endocrine disrupting properties.

### SECTION 3: Composition/information on ingredients

#### 3.1 Substances

CAS No. Designation:

CAS: 13463-67-7 titanium dioxide

EC number:

236-675-5

### SECTION 4: First aid measures

#### 4.1 Description of first aid measures

General information:

No special measures required.

After inhalation:

Supply fresh air; consult doctor in case of symptoms.

After skin contact:

Wash with water and soap and rinse thoroughly.

After eye contact:

Rinse opened eye for several minutes under running water.  
In case of persistent symptoms consult physician.

After swallowing:

No special measures required.

4.2 Most important symptoms  
and effects, both acute and  
delayed

No further relevant information available.

4.3 Indication of any immediate  
medical attention and special  
treatment needed

No further relevant information available.

### SECTION 5: Firefighting measures

#### 5.1 Extinguishing media

Suitable extinguishing agents:

Use fire fighting measures that suit the environment.  
The product is not flammable.

5.2 Special hazards arising from  
the substance or mixture

None

#### 5.3 Advice for firefighters

Protective equipment:

Use protective measures that suit the hazard conditions.

### SECTION 6: Accidental release measures

6.1 Personal precautions,  
protective equipment and  
emergency procedures

Not required.

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**6.2 Environmental precautions:** No special measures required.

**6.3 Methods and material for containment and cleaning up:** Collect mechanically.  
Avoid causing dust.

**6.4 Reference to other sections** See Section 8 for information on personal protective equipment.  
See Section 13 for information on disposal.

### SECTION 7: Handling and storage

**7.1 Precautions for safe handling** Provide vacuum dust collection if dust is formed.  
**Information about protection against explosions and fires:** No special measures required.  
The product is not flammable.

**7.2 Conditions for safe storage, including any incompatibilities**  
**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.

**7.3 Specific end use(s)** No further relevant information available.

### SECTION 8: Exposure controls/personal protection

**8.1 Control parameters**  
**Components with critical 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.

**8.2 Exposure controls**  
**Appropriate engineering controls** No further data; see Section 7

**Individual protection measures, such as personal protective equipment**  
**General protective and hygienic measures:** The usual precautionary measures should be adhered to in handling chemicals.  
Titanium dioxide pigments are not irritants 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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<b>Breathing equipment:</b>	If workplace exposure limits are exceeded, use respiratory protection according to national regulations.
<b>Hand protection</b>	Requirements according to EN 374 Check protective gloves prior to each use for their proper condition. Preventive skin protection by use of skin-protecting agents is recommended.
<b>Material of gloves:</b>	The selection of suitable gloves does not only depend on the material, but also on further marks of quality and varies 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.
<b>Eye/face protection</b>	Safety glasses
<b>Body protection:</b>	Protective work clothing.

## SECTION 9: Physical and chemical properties

### 9.1 Information on basic physical and chemical properties

#### General Information

<b>Colour:</b>	White
<b>Smell:</b>	Odourless
<b>Odour threshold:</b>	Not relevant
<b>Melting point/freezing point:</b>	>1800°C
<b>Boiling point or initial boiling point and boiling range</b>	Not determined
<b>Flammability</b>	Product is not flammable.
<b>Flash point:</b>	Not applicable
<b>pH (100 g/l) at 20°C</b>	5 - 8
<b>Viscosity:</b>	
<b>dynamic:</b>	Not applicable.
<b>Solubility in / Miscibility with</b>	
<b>Water:</b>	Insoluble
<b>Partition coefficient n-octanol/water (log value)</b>	Not applicable
<b>Density and/or relative density</b>	
<b>Density:</b>	20°C    Anatase 3,9 g/cm <sup>3</sup> Rutile    4,2 g/cm <sup>3</sup>
<b>Apparent density at 20°C:</b>	350 - 900 kg/m <sup>3</sup>
<b>Particle characteristics</b>	Percentage of particles with an aerodynamic diameter ≤ 10 µm in the products identified in Section 1.1 mean [%]    minimum [%]    maximum [%]    method 0,0048       0,0020            0,0107            EN15051-2

### 9.2 Other information

<b>Appearance:</b>	
<b>Form:</b>	Powder

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**Important information on protection of health and environment, and on safety.**

Explosive properties:

Product is not explosive.

Evaporation rate

Not applicable.

**Information with regard to physical hazard classes**

Explosives

not applicable

Flammable gases

not applicable

Aerosols

not applicable

Oxidising gases

not applicable

Gases under pressure

not applicable

Flammable liquids

not applicable

Flammable solids

not applicable

Self-reactive substances and mixtures

not applicable

Pyrophoric liquids

not applicable

Pyrophoric solids

not applicable

Self-heating substances and mixtures

not applicable

Substances and mixtures, which emit flammable gases in contact with water

not applicable

Oxidising liquids

not applicable

Oxidising solids

not applicable

Organic peroxides

not applicable

Corrosive to metals

not applicable

Desensitised explosives

not applicable

## SECTION 10: Stability and reactivity

### 10.1 Reactivity

The substance is stable under normal use conditions.

### 10.2 Chemical stability

Thermal decomposition /

Conditions to be avoided:

No decomposition under normal use conditions

### 10.3 Possibility of hazardous reactions

No dangerous reactions known

### 10.4 Conditions to avoid

No further data; see Section 7

### 10.5 Incompatible materials:

No further data; see Section 7

### 10.6 Hazardous decomposition products:

No dangerous decomposition products known

## SECTION 11: Toxicological information

### 11.1 Information on hazard classes as defined in Regulation (EC) No 1272/2008

Acute toxicity

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

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**LD/LC50 values that are relevant for classification:**

CAS: 13463-67-7 titanium dioxide

Oral LD50 &gt; 5,000 mg/kg (rat) (OECD 425)

Dermal LD50 &gt; 5,000 mg/kg (rabbit)

Inhalative LC50/4h &gt; 6.8 mg/l (rat)

Skin corrosion/irritation OECD 404:

No irritant effect

Serious eye damage/irritation OECD 405:

No irritant effect

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

Respiratory or skin sensitisation OECD 406, OECD 429

No sensitizing effects.

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

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

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

STOT-single exposure Based on available data, the classification criteria are not met.

STOT-repeated exposure Based on available data, the classification criteria are not met.

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

**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

Inhalative NOAEC 10 mg/m<sup>3</sup> (rat) (90 d)

Toxicokinetics, metabolism and distribution

No substantial accumulation of titanium was observed in tissues following oral administration of titanium dioxide.

Dermal absorption can be considered negligible, as titanium dioxide has been shown not to penetrate human skin to any appreciable degree.

**11.2 Information on other hazards**

Endocrine disrupting properties The product does not contain substances with endocrine disrupting properties.

**SECTION 12: Ecological information**
**12.1 Toxicity**
**Toxicity to fish**

CAS: 13463-67-7 titanium dioxide

LC50 &gt; 10,000 mg/l (Sheepshead minnow)

&gt; 1,000 mg/l (Pimephales promelas)

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**Toxicity to Daphnia and other aquatic invertebrates**

CAS: 13463-67-7 titanium dioxide

LC50 > 10,000 mg/l (*Acartia tonsa*)

> 1,000 mg/l (*Daphnia magna*)

**Toxicity to algae and aquatic plants**

CAS: 13463-67-7 titanium dioxide

EC50 > 100 mg/l (*Pseudokirchneriella subcapitata*)

> 10,000 mg/l (*Skeletonema costatum*)

**Toxicity to sediment organisms**

CAS: 13463-67-7 titanium dioxide

NOEC ≥ 100,000 mg/kg dw (*Hyalella azteca*)

**12.2 Persistence and  
degradability**

No further relevant information available.

**12.3 Bioaccumulative potential**

No further relevant information available.

**12.4 Mobility in soil**

The substance is immobile in soil.

**12.5 Results of PBT and vPvB  
assessment**

The product is an inorganic substance and does not fulfill the criteria for PBT and vPvB according to Annex XIII of REACH.

PBT:

Not applicable

vPvB:

Not applicable

**12.6 Endocrine disrupting  
properties**

The product does not contain substances with endocrine disrupting properties.

**12.7 Other adverse effects**

No further relevant information available.

**SECTION 13: Disposal considerations**
**13.1 Waste treatment methods**

European waste catalogue

Waste code number according to origin of waste

Uncleaned packagings:

Recommendation:

Disposal according to official regulations

**SECTION 14: Transport information**
**14.1 UN number or ID number**

ADR/RID/ADN, ADN, IMDG, IATA

not applicable

**14.2 UN proper shipping name**

ADR/RID/ADN

not applicable

ADN, IMDG, IATA

not applicable

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**14.3 Transport hazard class(es)**

ADR/RID/ADN, ADN, IMDG, IATA

Class

not applicable

**14.4 Packing group**

ADR/RID/ADN, IMDG, IATA

not applicable

**14.5 Environmental hazards**

Not applicable.

**14.6 Special precautions for user**

Not applicable

**14.7 Maritime transport in bulk according to IMO instruments**

Not applicable

Transport/Additional information:

Not dangerous according to transport specifications.

**SECTION 15: Regulatory information**

**15.1 Safety, health and environmental regulations/legislation specific for the substance or mixture**  
**LIST OF SUBSTANCES SUBJECT TO AUTHORISATION (ANNEX XIV): (Substances not listed)**

Substance is not listed.

Regulation (EU) No 649/2012

Substance is not listed.

**DIRECTIVE 2011/65/EU on the restriction of the use of certain hazardous substances in electrical and electronic equipment – Annex II**

Substance is not listed.

REGULATION (EU) 2019/1148

**Annex I - RESTRICTED EXPLOSIVES PRECURSORS (Upper limit value for the purpose of licensing under Article 5(3))**

Substance is not listed.

**Annex II - REPORTABLE EXPLOSIVES PRECURSORS**

Substance is not listed.

Regulation (EC) No 273/2004 on drug precursors

Substance is not listed.

**REGULATION (EC) No 1005/2009 on substances that deplete the ozone layer – ANNEX I (Ozone-depleting potential)**

Substance is not listed.

**15.2 Chemical Safety Assessment**

Substances of very high concern (SVHC) according to REACH, Article 57

The product is not listed as SVHC, it does not contain any substances of very high concern.

Chemical safety assessment: A Chemical Safety Assessment has been carried out.

**SECTION 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

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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:

Global Quality Management

Contact:

KRONOS INTERNATIONAL, Inc.  
Tel.: INT + 49 214 356-0  
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Date of previous version:  
Version number of previous  
version:

05.10.2022  
7.00

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  
IATA: International Air Transport Association  
GHS: Globally Harmonised System of Classification and Labelling of Chemicals  
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  
PBT: Persistent, Bioaccumulative and Toxic  
vPvB: very Persistent and very Bioaccumulative

\* Data compared to the previous  
version altered.

Amended according to Regulation (EU) no 2020/878

EU