

SECTION 1: Identification of the substance/mixture and of the company/undertaking**1.1 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
EU REACH Registration number: 01-2119489379-17-xxxx
Downstream User Import Notification (DUIN) submitted (2021)

1.2 Relevant identified uses of the substance or mixture and uses advised against
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
Manufacture of titanium metal

Uses advised against None

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

1.4 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 GB 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 products identified in Section 1.1 are 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.

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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**

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

SECTION 3: Composition/information on ingredients**3.1 Substances****CAS No. Designation:** 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.

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SECTION 6: Accidental release measures**6.1 Personal precautions,
protective equipment and
emergency procedures**

Not required.

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:**

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)

There are no further specific end uses than those named in section 1.2.

SECTION 8: Exposure controls/personal protection**8.1 Control parameters****Components with critical values that require monitoring at the workplace:**

CAS: 13463-67-7 titanium dioxide

WEL Long-term value: 10* 4** mg/m³

*total inhalable **respirable

8.2 Exposure controls**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

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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 respiratory protection according to national regulations.
 EN149: FFP2; EN143: P2

Hand protection

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.

Material of gloves:

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.

Eye/face protection

Safety glasses

Body protection:

Protective work clothing.

SECTION 9: Physical and chemical properties

9.1 Information on basic physical and chemical properties

General Information

Colour:	White
Smell:	Odourless
Odour threshold:	Not relevant
Melting point/freezing point:	>1800°C
Boiling point or initial boiling point and boiling range	Not relevant
Flammability	Product is not flammable.
Flash point:	Not applicable
pH (100 g/l) at 20°C	7
Viscosity:	
Kinematic viscosity	Not applicable
Solubility in / Miscibility with	
Partition coefficient n-octanol/water (log value)	Not applicable
Vapour pressure:	
Density and/or relative density	
Density:	20°C Anatase 3,9 g/cm ³ Rutile 4,2 g/cm ³
Apparent density at 20°C:	500-900 kg/m ³
Vapour density	Not applicable.

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Particle characteristics
Percentage of particles with an aerodynamic diameter $\leq 10 \mu\text{m}$ in the products identified in Section 1.1

mean [%]	minimum [%]	maximum [%]	method
0,028	0,002	0,083	EN15051-2

9.2 Other information
Appearance:
Form:

Powder

Important information on protection of health and environment, and on safety.
Self-flammability:

Not applicable

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

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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.
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)

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
no relevant data availableInhalative NOAEC 10 mg/m³ (rat) (90 d)**Toxicokinetics, metabolism and distribution** 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.

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SECTION 12: Ecological information
12.1 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)

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)

12.2 Persistence and degradability

Not relevant for inorganic substances.

12.3 Bioaccumulative potential

Does not accumulate in organisms

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 UK REACH.

PBT:

Not applicable

vPvB:

Not applicable

12.6 Endocrine disrupting properties

The product does not contain substances with endocrine disrupting properties.

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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, ADN, IMDG, IATA not applicable

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

14.6 Special precautions for user Not an environmentally hazardous substance

14.7 Maritime transport in bulk according to IMO

instruments Not applicable

instruments Not relevant

SECTION 15: Regulatory information

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

Limitation of use None

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 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

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different protocols show evidence of tumours.

Department issuing data
specification sheet:

Global Quality Management

Contact:

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Tel.: INT + 49 214 356-0
e-mail: MSDS@kronosww.com

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
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

Sources

UK REACH-Registration Dossier

* Data compared to the previous
version altered.

Amended according to Regulation (EU) no 2020/878

GB