

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 2190
 KRONOS 2211; KRONOS 2220; KRONOS 2222;
 KRONOS 2230; KRONOS 2233; KRONOS 2350;
 KRONOS 2500; KRONOS 2660; KRONOS 2710;
 KRONOS 2760; KRONOS 2810;
 KRONOS 1171, KRONOS 2071; KRONOS 2171

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
 Cosmetics (KRONOS 1171, KRONOS 2071, KRONOS 2171)
 Pharmaceuticals (KRONOS 1171)

Uses advised against

For country-specific information, see Section 15.

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 product 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

2.3 Other hazards

Results of PBT and vPvB assessment The product does not fulfill the criteria for PBT and vPvB according to Annex XIII of REACH.

Determination of endocrine-disrupting properties

The product does not contain any substances above the legal limits that have endocrine disrupting properties according to REACH Article 57(f) or Commission Delegated Regulation (EU) 2017/2100 or Commission Delegated Regulation (EU) 2018/605.

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SECTION 3: Composition/information on ingredients**3.2 Mixtures****Dangerous components:** not applicable**Non-hazardous components** Titanium dioxide
CAS number: 13463-67-7
EC number: 236-675-5
EU REACH Registration number: 01-2119489379-17-xxxx**Additional information:** Pigmentary titanium dioxide (not a nanomaterial according to European Commission Recommendation 2022/C 229/01)**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:** **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**
- 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.

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
Physical state

Solid

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

Auto-ignition temperature:

Not applicable

pH (100 g/l) at 20°C

5.2 - 8.5

Viscosity:
Kinematic viscosity

Not applicable

Solubility in / Miscibility with
Partition coefficient n-octanol/water (log value)

Not applicable

Density and/or relative density
Density:

 20°C Anatase 3,9 g/cm³
 Rutile 4,2 g/cm³
Apparent density at 20°C:

 500-900 kg/m³
Vapour density

Not applicable

Particle characteristics

See section 3.

9.2 Other information
Appearance:
Form:

Powder

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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	not applicable
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SECTION 10: Stability and reactivity

10.1 Reactivity	The substance is stable under normal use conditions.
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10.2 Chemical stability Thermal decomposition / Conditions to be avoided:	No decomposition under normal use conditions
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10.3 Possibility of hazardous reactions	No dangerous reactions known
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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
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10.6 Hazardous decomposition products:	No dangerous decomposition products known
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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.
<u>LD/LC50 values that are relevant for classification:</u>	

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)

Primary irritant effect:	
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.
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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.

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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 any substances above the legal limits that have endocrine disrupting properties according to REACH Article 57(f) or Commission Delegated Regulation (EU) 2017/2100 or Commission Delegated Regulation (EU) 2018/605.**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)

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Toxicity to sediment organisms

CAS: 13463-67-7 titanium dioxide

 NOEC ≥ 100,000 mg/kg dw (*Hyaella 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
PBT:

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

vPvB:

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

**12.6 Endocrine disrupting
properties**

The product does not contain any substances above the legal limits that have endocrine disrupting properties according to REACH Article 57(f) or Commission Delegated Regulation (EU) 2017/2100 or Commission Delegated Regulation (EU) 2018/605.

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

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 an environmentally hazardous substance

14.6 Special precautions for user

Not applicable

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 14.7 Maritime transport in bulk according to IMO instruments
 Not relevant

SECTION 15: Regulatory information

 15.1 Safety, health and environmental regulations/legislation specific for the substance or mixture
 Limitation of use
 Cosmetics: Only KRONOS 1171, KRONOS 2071, and KRONOS 2171 are approved for this use.

KRONOS 1171: Not authorised for use as a food or feed additive in the European Union and Switzerland

 Directive 2012/18/EU
 Named dangerous substances - ANNEX I
 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

None of the ingredients is listed.

REGULATION (EU) 2019/1148

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

None of the ingredients is listed.

Annex II - REPORTABLE EXPLOSIVES PRECURSORS

None of the ingredients is listed.

Regulation (EC) No 273/2004 on drug precursors

None of the ingredients is 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

This information pertains solely to the identified product and includes our reliance on regulations in effect and information from third parties as of the date hereof. It remains the sole responsibility of the customer to determine the suitability of the product when used in specific processes and applications or combined with other materials and to ensure compliance with all relevant laws, regulations, and standards governing those uses. The provision of this information does not constitute a warranty, guarantee, or representation of any kind. No contractual obligations, either express or implied, are created between KRONOS and any recipient of this information.

Department issuing data sheet: Product Stewardship

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Date of previous version: 05.01.2026**Version number of previous version:** 13.00**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
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
PBT: Persistent, Bioaccumulative and Toxic
vPvB: very Persistent and very Bioaccumulative

Sources

REACH-Registration Dossier

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

Amended according to Regulation (EU) no 2020/878

EU