

1 Identification**Product identifier****Trade name:** KRONOS 3025**CAS Number:** 13463-67-7**EC number:** 236-675-5**Relevant identified uses of the substance or mixture****Additive for application in
Glass, vitreous enamels, ceramic products****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 substance 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: Substances****CAS No. Description:** 13463-67-7 Titanium dioxide**EC number:** 236-675-5**Additional information:** Titanium dioxide without pigment property**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** Wash with water and soap and rinse thoroughly.**After eye contact** Rinse opened eye for several minutes under running water.
If symptoms persist consult doctor.

(Contd. on page 2)

Trade name: KRONOS 3025

(Contd. of page 1)

After swallowing No special measures required.**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:** No special measures required.**Methods and material for containment and cleaning up:** Collect mechanically.
Avoid formation of dust.**Reference to other sections** See Section 7 for information on safe handling
See Section 8 for information on personal protective equipment.
See Section 13 for disposal information.**7 Handling and storage****Handling**
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**Conditions for safe storage, including any incompatibilities**
Requirements to be met by storerooms and receptacles: No special requirements.

(Contd. on page 3)

Trade name: KRONOS 3025

(Contd. of page 2)

Information about storage in one common storage facility: Not required.
Further information about storage conditions: Store in dry conditions.

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:

CAS: 13463-67-7 Titanium dioxide

ACGIH - TLV Long-term value: 10 TWA, mg/m³
 respirable fraction 1mg/m³ TWA

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

Exposure controls

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 respiratory protection according to national regulations.
 The respirator must be selected by a technically qualified individual.

Protection of hands:

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 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

(Contd. on page 4)

Trade name: KRONOS 3025

(Contd. of page 3)

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 (100 g/l) at 20°C (68°F): 7

Melting point/Melting range: >1800°C (>3,272°F)

Boiling point/Boiling range: Not determined

Flash point: Not applicable

Flammability (solid, gaseous): Product is not flammable.

Ignition temperature: Not applicable

Danger of explosion: Product is not explosive.

Density at 20°C (68°F): 4.2 g/cm³ (35.049 lbs/gal)

Bulk density at 20°C (68°F): 850 kg/m³

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: No further relevant information available.

Chemical stability

Thermal decomposition /
conditions to be avoided: No decomposition under normal use conditions.

Possibility of hazardous
reactions: No dangerous reactions known

(Contd. on page 5)

Printing date 10/05/2022

Version 3.10

Reviewed on 10/05/2022

Trade name: KRONOS 3025

(Contd. of page 4)

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:

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)

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 irritant effect

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

Sensitization:

OECD 406, OECD 429

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 available

Inhalative NOAEC 10 mg/m³ (rat) (90 d)

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

(Contd. on page 6)

Trade name: KRONOS 3025

(Contd. of page 5)

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.

Carcinogenic categories**IARC (International Agency for Research on Cancer)**

: 2B

NTP (National Toxicology Program)

Substance is not listed.

OSHA-Ca (Occupational Safety & Health Administration)

Substance is not listed.

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)**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)**Persistence and degradability** No further relevant information available.**Bioaccumulative potential** No further relevant information available.

(Contd. on page 7)

Trade name: KRONOS 3025

(Contd. of page 6)

Mobility in soil No further relevant information available.

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

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 applicable.

Special precautions for user Not applicable.

**Transport in bulk according to Annex II of
 MARPOL73/78 and the IBC Code** Not applicable.

Transport/Additional information: Not dangerous according to the above specifications.

15 Regulatory information

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

SARA
Section 355 (Extremely hazardous substances):

Substance is not listed

Section 313 (Specific toxic chemical listings):

Substance is not listed

Section 311 (TIER 1 notification)

Substance is not listed.

(Contd. on page 8)

Printing date 10/05/2022

Version 3.10

Reviewed on 10/05/2022

Trade name: KRONOS 3025

(Contd. of page 7)

TSCA and Canada DSL Status:: **ACTIVE****Hazardous Air Pollutants**

Substance is not listed.

Proposition 65

Chemicals known to cause cancer:

Substance is listed

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.**CERLCA/SUPERFUND (40 CFR
117, 302)**

Substance is not listed

OCCUPATIONAL SAFETY AND HEALTH ACT (OSHA)**New Jersey Right-to-Know List:**

Substance is listed.

New Jersey Special Hazardous Substance List:

Substance is not listed.

Pennsylvania Right-to-Know List:

Substance is listed.

Pennsylvania Special Hazardous Substance List:

Substance is not listed.

Carcinogenic categories**EPA (Environmental Protection Agency)**

Substance is not listed.

TLV (Threshold Limit Value Notation established by ACGIH): **A4 Not classifiable as human carcinogen****EU REACH registration status:**Substances of very high
concern (SVHC) according to
EU REACH, Article 57The product is not listed as SVHC, it does not contain any
substances of very high concern.**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.**
5430 LBJ Freeway, Suite 1700
Dallas, Tx 75240
e-mail: SDS-NA@kronosww.com**Date of preparation / last
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(Contd. on page 9)

US

**Safety Data Sheet
acc. to OSHA HCS**

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Version 3.10

Reviewed on 10/05/2022

Trade name: KRONOS 3025

(Contd. of page 8)

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
DOT: US Department of Transportation
IATA: International Air Transport Association
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
OSHA: Occupational Safety & Health
TLV: Threshold Limit Value
PEL: Permissible Exposure Limit
REL: Recommended Exposure Limit

* Data compared to the previous version altered.

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US