

# MATERIAL SAFETY DATA SHEET

ACCORDING TO REGULATION (EC) NO 1907/2006

Name Of Item	CAS No.	KE No.	EU No.
TITANIUM DIOXIDE	13463-67-7	KE-33900	236-675-5

## 1. IDENTIFICATION OF THE SUBSTANCE/MIXTURE AND OF THE COMPANY/UNDERTAKING

A. Name of Item	COTIOX Titanium Dioxide (all types)
B. Recommended use of Item and relevant - Recommended use of Item - Uses advised against	White pigment for, paints, coatings, printing inks, plastics, paper etc. Not classified

## 2. HAZARDS IDENTIFICATION

A. Classification of Hazards	Titanium dioxide according to Regulation (EC) No 1272/2008 Directive 67/548/EWG and the Globally Harmonized System(GHS) is not classified as dangerous material
Human Health effects - Skin effect - Eye effect - Swallowing - Inhalation	Skin is not penetrated, but prolonged contact can cause irritation Feeling of a strange body in the eyes No hazard during normal industrial use Chemically neutral dust. Excessive exposure may cause temporary drying effect and/or irritation of mucous membranes
B. Label elements	According to Regulation (EC) No 1272/2008 and GHS titanium dioxide is
C. Other hazards	Neither a PBT nor a vPvB substance

## 3. COMPOSITION/INFORMATION ON INGREDIENTS

Components	CAS No.	EC No.(EINECS)	Concentration (%)
Titanium dioxide Aluminium hydroxide Silicon dioxide, amorphous	13463-67-7	236-675-5	90 ~ 100
Zirconium dioxide	21645-51-2	224-492-7	0 ~ 10
	7631-86-9	262-373-8	0 ~ 10
	1314-23-4	215-227-2	0 ~ 1

## 4. FIRST-AID MEASURES

A. General information	No special measures required
B. Inhalation	Remove person to fresh air, consult doctor in case of symptoms
C. Skin contact	Wash with water and soap
D. Eye contact	Rinse with plenty of water
E. Swallowing	If worrying about exposure, get medical advice
F. Most important symptoms/effects,	No further relevant information available

acute and delayed	
G. Indication of any immediate medical attention and special treatment needed	No further relevant information available

## 5. FIREFIGHTING MEASURES

A. Appropriate(Inappropriate) extinguisher	Not applicable
B. Maleficence by the material	Not applicable
C. Precautions and safety suit when extinguising fire	If it is not dangerous, move the container away from fire Avoid to inhale the material as it is Stand by the side the wind blows and avoid the lower place

## 6. GUIDE-LINE WHEN EXPOSURE OCCURS

A. Devices and precautions to protect body	Avoid inhalation of powder, hume, gas, steam and spray
B. Precautions to protect environment	Not applicable
C. How to purify and remove the pollution	Use any feasible means without dusting. After cleaing, flush away traces with water

## 7. HOW TO HANDLE AND STORE

A. Safety guideline	Avoid breathing dust and wash thoroughly often handing Provide local exhaust at points of dust escape
B. How to do safe storage	Keep distance from heat, spark, flame and high temperature Store under dry conditions and well-ventilated place, Keep sealed

## 8. EXPOSURE CONTROLS/PERSONAL PROTECTION

A. Occupational Exposure Limits ACGIH regulation OSHA regulation Biological terms of exposure	No value assigned for this specific material by the National Occupational health and Safety commision. However, Exposure standard(s) for constituent(s): 10 mg/m3 TWA 15 mg/m3 (total dust, 8hr TWA) Not applicable
B. Proper engineered management	Take the engineered management using local ventilation or manipulation the level of air under the exposure term Take ventilation to keep polluted air under the air exposure level Build the cleaning facility and safety shower booth where storing this material
C. Personal protection equipment Industrial hygiene measures Respiratory protection Hand protection Eye protection Skin and body protection	Keep in clean Wear mask authorized Prolonged exposure should be avoided by wearing suitable protective gloves Wear protective goggles Prolonged exposure should be avoided by wearing suitable protective clothes

## 9. PHYSICAL AND CHEMICAL PROPERTIES

A. Appearance - Substance - Physical state	Inorganic substance Powder,crystalline,white, odorless
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B. Relative vapour density (air=1)	Not applicable
C. Vapour pressure (20°C)	Not applicable
D. pH	6.0 - 8.0
E. Flash point (°C)	Not applicable
F. Boiling point (at 1013 hPa)	2500 ~ 3000°C
G. Density (Relative density)	3.4 ~ 4.3
H. Surface tension	Not applicable
I. Partition coefficient n-octanol/water	Not applicable
J. Explosive properties	No explosive properties
K. Self-ignition temperature	Not auto-ignite at temperature melting
L. Oxidising properties	No oxidizing properties
M. Stability in organic solvents and identity of relevant degradation products	Not applicable
N. Viscosity	Not applicable

## 10. STABILITY AND REACTIVITY

A. Reactivity	Non Reactive
B. Chemical stability	Stable
C. Possibility of hazardous reactions	None
D. Conditions to avoid	None
E. Incompatible materials	None known
D. Hazardous decomposition products	Unknown

## 11. TOXICOLOGICAL INFORMATION

A. Acute toxicity	
Oral	LD50 > 5000 mg/kg (rat)
Inhalation	LC50/4hr > 6.82 mg/l (rat)
B. Irritation/Corrosivity	
Skin	Not irritating (rabbit)
Eye	Not irritating (rabbit)
C. Respiratory or skin sensitisation	No sensitizing effects
D. Mutagenicity	Genetic toxicity : negative
E. Carcinogenicity	IARC has characterized titanium dioxide as pertaining to Group 2B (possibly carcinogenic to humans), but either NTP or OSHA has not characterized titanium dioxide as a potential carcinogen Detailed epidemiological studies have shown no causative link

between titanium dioxide exposure and cancer risk in humans

F. Toxicity for reproduction

Based on the weight of evidence from the available long-term toxicity/ carcinogenicity studies in rodents and the relevant information on the toxicokinetic behavior in rats it is concluded that TiO<sub>2</sub> does not present a reproductive toxicity hazard.

**12. ECOLOGICAL INFORMATION**

A. Biological toxicity

- Fish
- Aquatic plants
- Aquatic invertebrates

Pimphales promelas LC<sub>50</sub>(96hr) > 1000 mg/l  
Pseudokirchneriella subcapitata EC<sub>50</sub>(72hr) > 61 mg/l  
Daphnia magna LC<sub>50</sub>(48hr) > 100 mg/l

B. Persistence and resolvability

- Persistence
- Resolvability

None  
None

C. Biological concentration

- Concentration
- Resolvability

None  
None

D. Soil movement

None

E. Other toxicity

None

**13. DISPOSAL CONSIDERATIONS**

A. Waste treatment methods

Remove the waste according to environmental regulations  
Not classified as hazardous waste

**14. TRANSPORTATION INFORMATION**

A. UN NO.

Not applicable

B. UN proper shipping name

Not applicable

C. Transport hazard class(es)

Not applicable

D. Packing group

Not applicable

E. Environmental hazards

Not applicable

F. Special precautions for user

Not applicable

**15. REGULATORY INFORMATION**

A. Safety, health and environmental regulations/legislation specific for the substance

Regulation (EC) No 1907/2006 of the European Parliament and of the Council of 18th December 2006 concerning Registration, Evaluation, Authorization and Restriction of Chemicals (REACH), establishing a European Chemicals Agency amending Directive 1999/45/EC and repealing Council Regulation (EEC) No 793/93 and Commission Regulation (EC) No 1488/94 as well as Council Directive 76/769/EEC and Commission Directives 91/155/EEC, 93/67/EEC, 93/105/EEC and 2000/21/EC.  
Regulation (EC) No 1272/2008 of the European Parliament and of the Council of 16 December 2008 on classification, labeling and packaging of substances and mixtures, amending and repealing Directives 67/548/EEC and 1999/45/EC, and amending Regulation (EC) No 1907/2006

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**16. OTHER INFORMATION**

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International Agency for Research on Cancer (IARC) has classified titanium dioxide in to Group 2B "Possibly carcinogenic to humans". This classification is based on the IARC rules which state: there is "Sufficient evidence of carcinogenicity: ...if... two or more independent studies in one species of animals carried out at different times or in different laboratories or under different laboratories or under different protocols" show evidence of tumors. The IARC expert group judged three studies on rats as qualifying. However there is no evidence that titanium dioxide itself has toxic properties that would lead to cancer,nor that it presents a carcinogenic risk to humans at exposures experienced in the workplace.

A. Date of first preparation  
B. Revision Date  
C. Version(Amending number)

2014/10/29  
2016/05/23  
1(one)

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