

1. Product and company identification

Product name Tronox® Titanium Dioxide, All Grades
Other name CR-470, CR-800E, CR-813, CR-822, CR-826, CR-828, CR-834, 8120, CR-880, 8300, 8400, 8410, 8670, 8800, 8870, 8140, 41J.
Product code 77891, Pigment White #6
Company name Tronox Western Australia Pty. Ltd.
 P.O. Box 305
 Kwinana, Western Australia 6966
Telephone +61-8-9411-1460
Emergency 1-760-476-3960 (Access code 333318)

Recommended use and Limitations on use

Recommended use White pigment for applications in coatings, inks, fibers, plastics, paper.
SDS number B-5017

2. Hazards identification

GHS classification

Physical hazards Not classified.
Health hazards Not classified.
Environmental hazards Not classified.

Label elements

Symbols None.
Signal word None.
Hazard statement The product does not meet the criteria for classification.

Precautionary statements

Prevention Observe good industrial hygiene practices.
Response Flush skin thoroughly with water.
Storage Store in a sealed container.
Disposal Dispose of waste and residues in accordance with local authority requirements.

3. Composition/information on ingredients

Substance or mixture Mixture

Chemical property	CAS Number	Concentration (%)
Titanium dioxide	13463-67-7	80 - 97
Silicon dioxide	7631-86-9	0 - 15
Aluminium hydroxide Aluminum hydroxide	21645-51-2	0 - 10
Zirconium dioxide	1314-23-4	0 - 2

4. First aid measures

Inhalation Move to fresh air. Get medical attention if any discomfort continues.
Skin contact Flush skin thoroughly with water. Get medical attention if irritation develops or persists.
Eye contact Do not rub eyes. Immediately rinse eyes with water. Remove any contact lenses, and continue flushing eyes with running water for at least 15 minutes. Hold eyelids apart to ensure rinsing of the entire surface of the eye and lids with water. Get immediate medical attention.
Ingestion Rinse mouth thoroughly. Do not induce vomiting without advice from poison control center. Never give anything by mouth to an unconscious person. If ingestion of a large amount does occur, call a poison control centre immediately.
Potential delayed effects Dusts may irritate the respiratory tract, skin and eyes. Coughing. Frequent inhalation of dust over a long period of time increases the risk of developing lung diseases.
Personal protection for first-aid responders Ensure that medical personnel are aware of the material(s) involved, and take precautions to protect themselves.
Notes to physician Treat symptomatically.

5. Fire-fighting measures

Extinguishing media	Use fire-extinguishing media appropriate for surrounding materials.
Extinguishing media to avoid	No restrictions known.
HAZCHEM Code Number	None.
Specific hazards during fire fighting	None known.
Special fire fighting procedures	Move containers from fire area if you can do so without risk. Prevent runoff from fire control or dilution from entering streams, sewers or drinking water supply.
Protection of fire-fighters	Selection of respiratory protection for firefighting: follow the general fire precautions indicated in the workplace. Self-contained breathing apparatus and full protective clothing must be worn in case of fire.
Hazards from combustion products	Metallic oxides. Toxic fumes.

6. Accidental release measures

Personal precautions, protective equipment and emergency procedures	Avoid inhalation of dust and contact with skin and eyes. Wear appropriate protective equipment and clothing during clean-up. Local authorities should be advised if significant spillages cannot be contained.
Environmental precautions	Prevent further leakage or spillage if safe to do so. Do not contaminate water.
Spill cleanup methods	Avoid dust formation. Collect powder using special dust vacuum cleaner with particle filter or carefully sweep into closed container. Prevent entry into waterways, sewer, basements or confined areas. For waste disposal, see section 13 of the SDS.

7. Handling and storage

Handling

Precautions	Avoid inhalation of dust and contact with skin and eyes. Use Personal Protective Equipment recommended in section 8 of the SDS. Wash thoroughly after handling.
Safe handling advice	Observe good industrial hygiene practices.
Prevention of fire and explosion	Avoid dust formation.
Local and general ventilation	Use with adequate ventilation.

Storage

Suitable storage conditions	Titanium dioxide is a stable chemical compound that does not decompose during storage but can pick up moisture from the environment if not stored properly affecting product performance. Store indoors in a dry place, away from rain and wet floors. Use on a first-in first-out basis from receipt of the shipment.
Incompatible materials	None known.
Safe packaging materials	Keep in original container.

8. Exposure controls/personal protection

Workplace exposure limits

New Zealand. WES. (Workplace Exposure Standards)

Components	Type	Value
Titanium dioxide (CAS 13463-67-7)	TWA	10 mg/m ³
Zirconium dioxide (CAS 1314-23-4)	STEL	10 mg/m ³
	TWA	5 mg/m ³

US. ACGIH Threshold Limit Values

Components	Type	Value	Form
Aluminium hydroxide (CAS 21645-51-2)	TWA	1 mg/m ³	Respirable fraction.
Titanium dioxide (CAS 13463-67-7)	TWA	10 mg/m ³	
Zirconium dioxide (CAS 1314-23-4)	STEL	10 mg/m ³	
	TWA	5 mg/m ³	

UK. EH40 Workplace Exposure Limits (WELs)

Components	Type	Value	Form
Titanium dioxide (CAS 13463-67-7)	TWA	4 mg/m ³	Respirable.
		10 mg/m ³	Inhalable
Zirconium dioxide (CAS 1314-23-4)	STEL	10 mg/m ³	
	TWA	5 mg/m ³	

Australia. National Workplace OELs (Workplace Exposure Standards for Airborne Contaminants, Appendix A)

Components	Type	Value	Form
Titanium dioxide (CAS 13463-67-7)	TWA	10 mg/m ³	Inhalable dust.
Zirconium dioxide (CAS 1314-23-4)	STEL	10 mg/m ³	
	TWA	5 mg/m ³	

Australia. OELs. (Adopted National Exposure Standards for Atmospheric Contaminants in the Occupational Environment)

Components	Type	Value	Form
Titanium dioxide (CAS 13463-67-7)	TWA	10 mg/m ³	Inspirable dust.
Zirconium dioxide (CAS 1314-23-4)	STEL	10 mg/m ³	
	TWA	5 mg/m ³	

Biological limit values	No biological exposure limits noted for the ingredient(s).
Exposure guidelines	No exposure standards allocated.
Engineering controls	Ventilate as needed to control airborne dust. Provide adequate ventilation. Observe Occupational Exposure Limits and minimise the risk of inhalation of dust.
Personal protective equipment	
Respiratory protection	In case of inadequate ventilation or risk of inhalation of dust, use suitable respiratory equipment with particle filter (type P2). Seek advice from local supervisor.
Hand protection	Wear suitable gloves. Suitable gloves can be recommended by the glove supplier.
Skin protection	Risk of contact: Wear appropriate clothing to prevent repeated or prolonged skin contact.
Eye/face protection	Wear dust-resistant safety goggles where there is risk of eye contact.
Radioactive or thermal hazards	Follow standard monitoring procedures.
Hygiene measures	Do not breathe dust. Always observe good personal hygiene measures, such as washing after handling the material and before eating, drinking, and/or smoking. Routinely wash work clothing and protective equipment to remove contaminants.

9. Physical and chemical properties

Appearance	White powder.
Physical state	Solid.
Form	Powder.
Colour	White.
Odour	Odourless.
Odour threshold	Not applicable.
pH	Not applicable.
Melting point/freezing point	1830 - 1850 °C (3326 - 3362 °F)
Boiling point, initial boiling point, and boiling range	2500 - 3000 °C (4532 - 5432 °F)
Flash point	Not available.
Auto-ignition temperature	Not available.
Flammability (solid, gas)	Not applicable.
Flammability limit - lower (%)	Not available.
Flammability limit - upper (%)	Not available.
Explosive limit - lower (%)	Not available.
Explosive limit – upper (%)	Not available.
Vapour pressure	Not available.

Vapour density	Not available.
Evaporation rate	Not available.
Relative density	4.1 Approx. (@ 20°C)
Density	Not available.
Solubility(ies)	
Solubility (water)	Insoluble in water.
Partition coefficient (n-octanol/water)	Not applicable.
Decomposition temperature	Not available.
Bulk density	600 kg/m ³ Approx. (@ 20°C)
Viscosity	Not applicable.
Other data	
Explosive properties	Not explosive.
Oxidizing properties	Not oxidizing.

10. Stability and reactivity

Reactivity	The product is stable and non-reactive under normal conditions of use, storage and transport.
Stability	Material is stable under normal conditions.
Conditions to avoid	Avoid dust formation.
Incompatible materials	None known.
Hazardous decomposition products	No hazardous decomposition products are known.
Possibility of hazardous reactions	Hazardous polymerisation does not occur.

11. Toxicological information

Information on likely routes of exposure

Ingestion	Ingestion may cause irritation and malaise.
Inhalation	Dust may irritate respiratory system.
Skin contact	Dust may irritate skin.
Eye contact	Dust may irritate the eyes.

Acute toxicity May cause discomfort if swallowed.

Components	Species	Test results
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Aluminium hydroxide (CAS 21645-51-2)

Acute

Oral

LD50

Rat

> 5000 mg/kg

Routes of exposure Inhalation. Eye contact. Skin contact.

Symptoms Dusts or powder may irritate the respiratory tract, skin and eyes. Coughing. Frequent inhalation of dust over a long period of time increases the risk of developing lung diseases.

Skin corrosion/irritation Dust may irritate skin. Skin irritation occurs on contact with moist or wet skin.

Serious eye damage/eye irritation Dust may irritate the eyes. Dust in the eyes: Exposed may experience eye tearing, redness, and discomfort.

Respiratory sensitizer None known.

Skin sensitizer Not a skin sensitiser.

Germ cell mutagenicity No data available to indicate product or any components present at greater than 0.1% are mutagenic or genotoxic.

Carcinogenicity Suspected of causing cancer. IARC has classified TiO₂ as 2B Possibly carcinogenic to humans. However, the only evidence of carcinogenicity is in rats exposed to very high concentrations. Two major epidemiology studies among titanium dioxide workers in the US and in EUROPE could not demonstrate an elevated lung cancer risk.

Boffetta et. al. Mortality among workers employed in the titanium dioxide production industry in Europe. Cancer Causes Control. 2004 Sep;15(7):697-706.

Fryzek et. al. A cohort mortality study among titanium dioxide manufacturing workers in the United States. J Occup Environ Med. 2003 Apr;45(4):400-9.

IARC Monographs on the Evaluation of Carcinogenic Risks to Humans. IARC Monographs, Volume 93 (Summary)

IARC Monographs. Overall Evaluation of Carcinogenicity

Titanium dioxide (CAS 13463-67-7)

2B Possibly carcinogenic to humans.

Toxic to reproduction	None known.
Specific target organ toxicity - single exposure	None known.
Specific target organ toxicity - repeated exposure	None known.
Aspiration hazard	Not classified.
Chronic effects	Frequent inhalation of dust over a long period of time may increase the risk of developing chronic lung diseases and skin irritation.
Relevant negative data	Not available.
Other information	No other specific acute or chronic health impact noted.

12. Ecological information

Ecotoxicity	The product is not expected to be hazardous to the environment.
Persistence and degradability	The degradability of the product has not been stated.
Bioaccumulation	Bioaccumulation is unlikely to be significant because of the low water solubility of this product.
Partition coefficient n-octanol/water (log Kow)	Not available.
Bioconcentration factor (BCF)	Not available.
Mobility	The product is insoluble in water and will sediment in water systems.
Other hazardous effects	Not established.

13. Disposal considerations

Disposal methods/information	Disposal recommendations are based on material as supplied. Disposal must be in accordance with current applicable laws and regulations, and material characteristics at time of disposal. Dispose of this material and its container to hazardous or special waste collection point. Do not allow this material to drain into sewers/water supplies.
Special precautions	Dispose of in accordance with local regulations.

14. Transport information

IATA

Not regulated as dangerous goods.

IMDG

Not regulated as dangerous goods.

Transport in bulk according to Annex II of MARPOL 73/78 and the IBC Code Not applicable.

15. Regulatory information

Applicable regulations

New Zealand Inventory of Chemicals (NZIoC): Registration status

Aluminium hydroxide (CAS 21645-51-2)	May be used as a single component chemical under an appropriate group standard
Titanium dioxide (CAS 13463-67-7)	May be used as a single component chemical under an appropriate group standard
Zirconium dioxide (CAS 1314-23-4)	HSNO Approved

16. Other information

References HSDB® - Hazardous Substances Data Bank
IARC Monographs. Overall Evaluation of Carcinogenicity

Issued by

Company name Tronox LLC

Prepared by

Not available.

Further information

Nanoparticle Statement- The average primary particle size of this product is larger than the nanoparticle size range as described by ISO/TC 229 and should not be considered as manufactured nanoparticles or nanomaterials. As with other particulate materials there will be a distribution of particle sizes around the average and a small portion of these may be covered by the nanoparticle definition. In this product, the primary particle size is in the 200-300 nm range. However, the primary particle size does not represent the size of particles in this product as supplied since these tend to aggregate or agglomerate into larger particles.

Components listed in Section 3 make up an inseparable chemically reacted pigment. Silicon dioxide is present in finished product as amorphous silica.

Disclaimer

The information in the sheet was written based on the best knowledge and experience currently available.

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18-February-2015