

SAFETY DATA SHEET

according to Regulation (EC) No. 1907/2006

Version 4.0 Revision Date 16.04.2010

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

Product name : Titanium(IV) oxide

Product Number : 718467
Brand : Aldrich

Company : Sigma-Aldrich Company Ltd.
The Old Brickyard
NEW ROAD, GILLINGHAM
Dorset
SP8 4XT
UNITED KINGDOM

Telephone : +44 (0)1747 833000
Fax : +44 (0)1747 833313
Emergency Phone # : +44 (0)1747 833100
E-mail address : eurtechserv@sial.com

2. HAZARDS IDENTIFICATION**Classification of the substance or mixture**

Not a dangerous substance according to GHS.

This substance is not classified as dangerous according to Directive 67/548/EEC.

Label elements

This substance is not classified as dangerous according to Directive 67/548/EEC.

Other hazards - none

3. COMPOSITION/INFORMATION ON INGREDIENTS

Formula : TiO₂
Molecular Weight : 79.90 g/mol

CAS-No.	EC-No.	Index-No.	Classification	Concentration
Titanium dioxide				
13463-67-7	236-675-5	-	-	-

4. FIRST AID MEASURES**If inhaled**

If breathed in, move person into fresh air. If not breathing give artificial respiration

In case of skin contact

Wash off with soap and plenty of water.

In case of eye contact

Flush eyes with water as a precaution.

If swallowed

Never give anything by mouth to an unconscious person. Rinse mouth with water.

5. FIRE-FIGHTING MEASURES

Suitable extinguishing media

Use water spray, alcohol-resistant foam, dry chemical or carbon dioxide.

Special protective equipment for fire-fighters

Wear self contained breathing apparatus for fire fighting if necessary.

6. ACCIDENTAL RELEASE MEASURES

Personal precautions

Avoid dust formation.

Methods and materials for containment and cleaning up

Sweep up and shovel. Keep in suitable, closed containers for disposal.

7. HANDLING AND STORAGE

Precautions for safe handling

Provide appropriate exhaust ventilation at places where dust is formed. Normal measures for preventive fire protection.

Conditions for safe storage

Store in cool place. Keep container tightly closed in a dry and well-ventilated place.

8. EXPOSURE CONTROLS/PERSONAL PROTECTION

Components with workplace control parameters

Components	CAS-No.	Value	Control parameters	Update	Basis
Titanium dioxide	13463-67-7	TWA	10 mg/m ³	2005-04-06	UK. EH40 Occupational Exposure Limits
Remarks	For the purposes of these limits, respirable dust and inhalable dust are those fractions of the airborne dust which will be collected when sampling is undertaken in accordance with the methods described in MDHS14/3 General methods for sampling and gravimetric analysis of respirable and inhalable dust, as amended by the ISO/CEN convention. The COSHH definition of a substance hazardous to health includes dust of any kind when present at a concentration in air equal to or greater than 10 mg/m ³ 8-hour TWA of inhalable dust or 4 mg/m ³ 8-hour TWA of respirable dust. This means that any dust will be subject to COSHH if people are exposed above these levels. Advice on control is given in EH44 and in the great majority of workplaces reasonable control measures will normally keep exposure below these levels. However some dusts have been assigned specific WELs and exposure to these must comply with the appropriate limit. Most of industrial dusts contain particles of a wide range of sizes. The behaviour, deposition and fate of any particular particle after entry into the human respiratory system and the body response that it elicits, depend on the nature and size of the particle. HSE distinguishes two size fractions for limit-setting purposes termed 'inhalable' and 'respirable'. Inhalable dust approximates to the fraction of airborne material that enters the nose and mouth during breathing and is therefore available for deposition in the respiratory tract. Respirable dust approximates to the fraction that penetrates to the gas exchange region of the lung. Fuller definitions and explanatory material are given in MDHS 14/3. Where dusts contain components that have their own assigned workplace exposure limits, all the relevant limits should be complied with. Where no specific short-term exposure limit is listed, a figure three times the long-term exposure should be used				
		TWA	4 mg/m ³	2005-04-06	UK. EH40 Occupational Exposure Limits

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Personal protective equipment

Respiratory protection

Respiratory protection is not required. Where protection from nuisance levels of dusts are desired, use type N95 (US) or type P1 (EN 143) dust masks. Use respirators and components tested and approved under appropriate government standards such as NIOSH (US) or CEN (EU).

Hand protection

For prolonged or repeated contact use protective gloves.

Eye protection

Safety glasses with side-shields conforming to EN166

Hygiene measures

General industrial hygiene practice.

9. PHYSICAL AND CHEMICAL PROPERTIES

Appearance

Form	powder
Colour	white
Odour	odourless

Safety data

pH	no data available
Melting point	1,850 °C
Boiling point	no data available
Flash point	not applicable
Ignition temperature	no data available
Lower explosion limit	no data available

Upper explosion limit no data available

Water solubility no data available

10. STABILITY AND REACTIVITY

Chemical stability

Stable under recommended storage conditions.

Conditions to avoid

no data available

Materials to avoid

Strong acids

Hazardous decomposition products

Hazardous decomposition products formed under fire conditions. - Titanium/titanium oxides

11. TOXICOLOGICAL INFORMATION

Acute toxicity

LD50 Oral - rat - > 10,000 mg/kg

LD50 Dermal - rabbit - > 10,000 mg/kg

Skin corrosion/irritation

Skin - Human - Mild skin irritation - 3 h

Serious eye damage/eye irritation

Eyes - rabbit - No eye irritation

Respiratory or skin sensitization

Will not occur

Germ cell mutagenicity

Genotoxicity in vitro - Hamster - ovary

Micronucleus test

Genotoxicity in vitro - Hamster - Lungs

DNA inhibition

Genotoxicity in vitro - Hamster - ovary

Sister chromatid exchange

Genotoxicity in vivo - mouse - Intraperitoneal

Micronucleus test

Carcinogenicity

Carcinogenicity - rat - Inhalation

Tumorigenic: Carcinogenic by RTECS criteria. Lungs, Thorax, or Respiration: Tumors.

Carcinogenicity - rat - Intramuscular

Tumorigenic: Neoplastic by RTECS criteria. Blood: Lymphomas including Hodgkin's disease.

Tumorigenic: Tumors at site or application.

IARC: 2B - Group 2B: Possibly carcinogenic to humans (Titanium dioxide)

Reproductive toxicity

no data available

Specific target organ toxicity - single exposure

no data available

Specific target organ toxicity - repeated exposure

no data available

Aspiration hazard

no data available

Potential health effects

Inhalation	May be harmful if inhaled. May cause respiratory tract irritation.
Ingestion	May be harmful if swallowed.
Skin	May be harmful if absorbed through skin. May cause skin irritation.
Eyes	May cause eye irritation.

Signs and Symptoms of Exposure

To the best of our knowledge, the chemical, physical, and toxicological properties have not been thoroughly investigated.

Additional Information

RTECS: XR2275000

12. ECOLOGICAL INFORMATION**Toxicity**

Toxicity to fish	LC50 - other fish - > 1,000 mg/l - 96 h
Toxicity to daphnia and other aquatic invertebrates.	EC50 - Daphnia magna (Water flea) - > 1,000 mg/l - 48 h EC0 - Daphnia magna (Water flea) - 1,000 mg/l - 48 h

Persistence and degradability

no data available

Bioaccumulative potential

no data available

Mobility in soil

no data available

PBT and vPvB assessment

no data available

Other adverse effects

no data available

13. DISPOSAL CONSIDERATIONS**Product**

Observe all federal, state, and local environmental regulations.

Contaminated packaging

Dispose of as unused product.

14. TRANSPORT INFORMATION**ADR/RID**

Not dangerous goods

IMDG

Not dangerous goods

IATA

Not dangerous goods

15. REGULATORY INFORMATION

This safety datasheet complies with the requirements of Regulation (EC) No. 1907/2006.

16. OTHER INFORMATION

Further information

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