

**Section 1: Identification of the Substance/Mixture and of the Company/Undertaking****Product Identifier:****Identification as on the label/Trade name:** Titanium Dioxide, Enriched Titanium.**Molecular weight:** 79.87**Chemical formula:** TiO<sub>2</sub>**Synonyms:** Titanium (IV) Oxide, Titania.**Details of the supplier of the Safety Data Sheet:**Neonest AB  
Storgatan 70C, Solna  
SE-17152  
Sweden**Contact details:**

+46-76-219-9731

**24-hour Emergency Contact:**Swedish Poisons Centre  
Phone: 112 - Ask for Poisons Information, 112 – begär Giftinformation.**Other International Contacts:**CHEMTREC 24-hour: +1-703-741-5500 (US + Worldwide)  
NHS: 111 (UK)  
Charite: +49 30 450 531 000 (Netherlands)  
INTCF: +34 917689800 (Spain)  
CapTv: +33 1 40 05 48 48 (France)**Section 2: Hazards Identification****Classification of the substances or mixture:****The mixture is classified according to:** Regulation EC 1272/2008 [EU-GHS/CLP]**Hazard classes/Hazard categories:**

Not classified as hazardous.

**Hazard statement:**

None required.

**Label elements:****Hazard pictograms:** Not required.**Signal Words:** Not required.**Hazard Statements:** Not required.**Precautionary Statements:** None.**Other hazards:** None known.

### Section 3: Composition/Information on Ingredients

**Substance/Mixture:** Substance.

**Ingredients:**

Substance name (IUPAC/EC)	CAS-No.	Molecular weight	Concentration % by weight	Classification
	EC-No.			EC1272/2008
Titanium dioxide	13463-67-7	79.87	>99%	Not Classified.
	236-675-5			

For explanation of abbreviations see Section 16.

### Section 4: First-Aid Measures

**Description of first aid measures:**

**In case of inhalation:** Remove to fresh air. Get medical attention for any breathing difficulty.

**In case of skin contact:** Immediately flush skin with plenty of soap and water for at least 15 minutes. Remove contaminated clothing and shoes. Wash clothing before reuse. Thoroughly clean shoes before reuse. Get medical attention if irritation develops.

**In case of eye contact:** Immediately flush eyes with plenty of water for at least 15 minutes, lifting upper and lower eyelids occasionally. Get medical attention if irritation persists.

**In case of ingestion:** Not expected to require first aid measures. If large amounts were swallowed, give water to drink and get medical advice.

**Most important symptoms and effects, both acute and delayed:**

**Inhalation:** May cause mild irritation to the respiratory tract.

**Eyes:** May cause mild irritation, possible reddening.

**Skin contact:** May cause mild irritation and redness.

**Ingestion:** Not expected to be a health hazard exposure route.

**Indication of any immediate medical attention and special treatment needed:** Treat symptomatically. Show this safety data sheet to a physician or emergency room.

### Section 5: Fire-Fighting Measures

**Extinguisher media:**

**Suitable extinguisher media:** Use any means suitable for extinguishing surrounding fire.

**Unsuitable extinguishing media:** None known.

**Special hazards arising from the mixture:** None known.

**Advice for fire-fighters:** In the event of a fire, wear full protective clothing and NIOSH-approved self-contained breathing apparatus with full facepiece operated in the pressure-demand or other positive-pressure mode.

**Further information:** Standard procedure for chemical fires. Use extinguishing measures that are appropriate to local circumstances and the surrounding environment.

## Section 6: Accidental Release Measures

### Personal precautions, protective equipment and emergency procedures:

**Personal precautions:** Wear appropriate personal protective equipment as specified in Section 8. Ventilate area of leak or spill. Avoid dust formation. Avoid breathing vapours, mist or gas.

**Environmental precautions:** Prevent product from entering drains. Prevent further leakage or spillage if safe to do so. Local authorities should be advised if significant spillages cannot be contained.

### Methods for containment and cleaning up:

**Methods for cleaning up:** Sweep up and containerize for reclamation or disposal. Vacuuming or wet sweeping may be used to avoid dust dispersal.

### Reference to other sections:

Treat recovered material as described in the section "Disposal considerations".

## Section 7: Handling and Storage

### Precautions for safe handling:

**Advice on safe handling:** Further processing of solid materials may result in the formation of combustible dusts. The potential for combustible dust formation should be taken into consideration before additional processing occurs. Provide appropriate exhaust ventilation at places where dust is formed.

**Hygiene measures:** Do not eat, drink or smoke when using this product.

### Conditions for safe storage, including incompatibilities:

**Requirements for storage areas and containers:** Keep in a tightly closed container, stored in a cool, dry, ventilated area. Protect against physical damage. Containers of this material may be hazardous when empty since they retain product residues (dust, solids); observe all warnings and precautions listed for the product.

## Section 8: Exposure Controls/Personal Protection

### Control parameters:

#### **Occupational exposure limits:**

##### **Airborne Exposure Limits**

OSHA Permissible Exposure Limit (PEL): 15 mg/m<sup>3</sup> (TWA)

ACGIH Threshold Limit Value (TLV): 10 mg/m<sup>3</sup> (TWA), A4 - Not classifiable as a human carcinogen.

### Exposure controls:

**Appropriate engineering controls:** A system of local and/or general exhaust is recommended to keep employee exposures below the Airborne Exposure Limits. Local exhaust ventilation is generally preferred because it can control the emissions of the contaminant at its source, preventing dispersion of it into the general work area.

### Individual protection measures, such as personal protective equipment:

**Eye/face protection:** Use chemical safety goggles and/or full-face shield where dusting or splashing of solutions is possible. Maintain eye wash fountain and quick drench facilities in work area.

**Hand protection:** Use chemical resistant gloves. Examples of preferred glove barrier materials include: Butyl rubber, Neoprene, Nitrile/butadiene rubber, Polyethylene, Ethyl vinyl alcohol laminate, polyvinyl alcohol, Polyvinyl chloride.

**Body protection:** Wear protective gloves and clean body-covering clothing.

**Respiratory protection:** If the exposure limit is exceeded, a half-face dust/mist respirator may be worn for up to ten times the exposure limit or the maximum-use concentration specified by the appropriate regulatory agency or respirator supplier, whichever is lowest. A full-facepiece dust/mist respirator may be worn up to 50 times the exposure limit, or the maximum-use concentration specified by the appropriate regulatory agency, or respirator supplier, whichever is lowest. For emergencies or instances where the exposure levels are not known, use a full-facepiece positive-pressure, air-supplied respirator.

## Section 9: Physical and Chemical Properties

### Information on basic physical and chemical properties

**Appearance (form):** Solid (powder).

**Colour:** White.

**Odour:** Odourless.

**Odour threshold:** No data available.

**Molecular Weight:** 79.87

**pH (concentration):** 6-7

**Melting point/range (°C):** 1855 °C

**Boiling point/range (°C):** 2500-3000 °C

**Freezing point (°C):** No data available.

**Flash point (°C):** No data available.

**Evaporation rate:** No data available.

**Flammability (solid, gas):** No data available.

**Ignition temperature (°C):** No data available.

**Upper/lower flammability/explosive limits:** No data available.

**Vapour pressure (20 °C):** No data available

**Vapour density:** No data available.

**Relative density (25 °C):** No data available.

**Water solubility (g/L) at 20 °C:** Insoluble in water.

**n-Octanol/Water partition coefficient:** No data available.

**Auto-ignition temperature:** No data available.

**Decomposition temperature:** No data available.

**Viscosity, dynamic (mPa s):** No data available.

**Explosive properties:** The substance or mixture is not classified as explosive.

**Oxidising properties:** The substance or mixture is not classified as oxidizing.

## Section 10: Stability and Reactivity

**Reactivity:** No dangerous reaction known under conditions of normal use.

**Chemical stability:** Stable under normal conditions.

**Possibility of hazardous reactions:** No dangerous reaction known under conditions of normal use.

**Conditions to avoid:** Dust generation.

**Incompatible materials:** For Titanium Dioxide: A violent reaction with lithium occurs around 200 °C (392 °F) with a flash of light; the temperature can reach 900 °C. Violent or incandescent reaction may also occur with other metals such as aluminium, calcium, magnesium, potassium, sodium or zinc

**Hazardous decomposition products:** None known.

## Section 11: Toxicological Information

### Information on toxicological effects:

Not classified based on available information.

### Classification according to GHS (1272/2008/EG, CLP)

#### **Skin corrosion/irritation:**

Not classified based on available information.

#### **Serious eye damage/eye irritation:**

Not classified based on available information.

#### **Respiratory or skin sensitisation:**

Not classified based on available information.

#### **Germ cell mutagenicity:**

Not classified based on available information.

#### **Carcinogenicity:**

NIOSH: NIOSH considers this substance to be a potential occupational carcinogen.

NTP: This substance is not known to be and is not anticipated to be a carcinogen.

IARC: Category 3.

#### **Reproductive toxicity:**

Not classified based on available information.

#### **Specific target organ toxicity – single exposure (STOT):**

Not classified based on available information.

#### **Specific target organ toxicity (STOT) – repeated exposure:**

Not classified based on available information.

#### **Aspiration toxicity:**

Not classified based on available information.

## Section 12: Ecological Information

### **Toxicity:**

Toxicity to Fish: LC<sub>50</sub> Other Fish, 1,000 mg/l, 96 hours.

Toxicity to Daphnia and Other Aquatic Invertebrates:

EC50 *Daphnia magna*, > 1,000 mg/l, 48 hours.

EC0 *Daphnia magna*, 1,000 mg/l, 48 hours.

**Persistence and degradability:** No data available.

**Bioaccumulative potential:** No data available.

**Mobility in soil:** No data available.

**Results of PBT& vPvB assessment:** Not relevant.

**Other adverse effects:** No data available.

## Section 13: Disposal Considerations

**Waste treatment methods:** Whatever cannot be saved for recovery or recycling should be managed in an appropriate and approved waste disposal facility. Processing, use or contamination of this product may change the waste management options. State and local disposal regulations may differ from federal disposal regulations. Dispose of unused product in accordance with local and national requirements.

## Section 14: Transport Information

**UN number:** Not regulated as a dangerous good.

**UN proper shipping name:** Not regulated as a dangerous good.

**Transport hazard class(es):** Not regulated as a dangerous good.

**Packing group:** Not regulated as a dangerous good.

**Environmental hazards:** Not regulated as a dangerous good.

**Special precautions for user:** Not dangerous goods in the meaning of ADR/RID, ADN, IMDG-Code, ICAO/IATA-DGR.

**Transport in bulk according to Annex II of Marpol and the IBC Code:** Not applicable.

## Section 15: Regulatory Information

### EU regulations:

**Regulation (EC) No. 1005/2009 on substances that deplete the ozone layer, Annex I and II, as amended**  
Not listed.

**Regulation (EC) No. 850/2004 on persistent organic pollutants, Annex I**  
Not listed.

**Regulation (EU) No. 649/2012 concerning the export and import of dangerous chemicals, Annex I, Part 1 as amended**  
Not listed.

**Regulation (EU) No. 649/2012 concerning the export and import of dangerous chemicals, Annex I, Part 2 as amended**  
Not listed.

**Regulation (EU) No. 649/2012 concerning the export and import of dangerous chemicals, Annex I, Part 3 as amended**  
Not listed.

**Regulation (EU) No. 649/2012 concerning the export and import of dangerous chemicals, Annex V as amended**  
Not listed.

**Regulation (EC) No. 166/2006 Annex II Pollutant Release and Transfer Registry**  
Not listed.

**Regulation (EC) No. 1907/2006, REACH Article 59(10) Candidate List as currently published by ECHA**  
Not listed.

### Authorisations:

**Regulation (EC) No. 1907/2006, REACH Annex XIV Substances subject to authorization, as amended**  
Not listed.

### Restrictions on use:

**Regulation (EC) No. 1907/2006 Annex XVII Substances subject to restriction on marketing and use**  
Not regulated.

**Regulation (EC) No. 1907/2006, REACH Annex XVII Substances subject to restriction on marketing and use as amended**  
Not listed.

**Directive 2004/37/EC on the protection of workers from the risks related to exposure to carcinogens and mutagens at work**  
Not regulated.

**Directive 92/85/EEC: on the safety and health of pregnant workers and workers who have recently given birth or are breastfeeding.**

Not regulated.

**Other EU regulations:**

**Directive 2012/18/EU on major accident hazards involving dangerous substances**

Not listed.

**Directive 98/24/EC on the protection of the health and safety of workers from the risks related to chemical agents at work.**

Always applicable.

**Directive 94/33/EC on the protection of young people at work**

Not listed.

**Other regulations:** The product is classified and labelled in accordance with EC directives or respective national laws. This Safety Data Sheet complies with the requirements of Regulation (EC) No 1907/2006, as amended.

**SARA 302 Components:** No chemicals in this material are subject to the reporting requirements of SARA Title III, Section 302.

**SARA 313 Components:** This material does not contain any chemical components with known CAS numbers that exceed the threshold (de minimis) reporting levels established by SARA Title III, Section 313.

**SARA 311/312 Hazards:** Chronic Health Hazard.

**Massachusetts Right to Know Components:** Titanium dioxide, nanoparticles range in size from 1 to 150 nm CAS No. 13463-67-7 / Revision Date 1994-04-01

**Pennsylvania Right to Know Components:** Titanium dioxide, nanoparticles range in size from 1 to 150 nm CAS No. 13463-67-7 / Revision Date 1994-04-01

**New Jersey Right to Know Components:** Titanium dioxide, nanoparticles range in size from 1 to 150 nm CAS No. 13463-67-7 / Revision Date 1994-04-01

**California Prop. 65 Components:** WARNING! This product contains a chemical known to the State of California to cause cancer. Titanium dioxide, nanoparticles range in size from 1 to 150 nm.

**National regulations:** Follow national regulation for work with chemical agents.

**Chemical safety assessment:** No Chemical Safety Assessment has been carried out.

## Section 16: Other Information

**List of abbreviations:**

ACGIH American Conference of Governmental Industrial Hygienists

ADR European Agreement Concerning the International Carriage of Dangerous Goods by Road

ALARA As Low As Is Reasonably Achievable

AMU Atomic Mass Unit

ANSI American National Standards Institute

BLS Basic Life Support

CAM Continuous Air Monitor

CAS Chemical Abstracts Service (division of the American Chemical Society)

CEN European Committee for Standardization

CERCLA Comprehensive Environmental Response Compensation and Liability Act

CLP Classification, Labelling and Packaging (European Union)

CPR Controlled Products Regulations (Canada)

CWA Clean Water Act (USA)



DAC Derived Air Concentration (USA)  
DOE United States Department of Energy (USA)  
DOT United States Department of Transportation (USA)  
DSL Domestic Substances List (Canada)  
EC50 Half Maximal Effective Concentration  
EINECS European Inventory of Existing Commercial Chemical Substances  
EHS Environmentally Hazardous Substance  
ELINCS European List of Notified Chemical Substances  
EMS Emergency Response Procedures for Ships Carrying Dangerous Goods  
EPA Environmental Protection Agency (USA)  
EPCRA Emergency Planning and Community Right-To-Know Act (EPCRA) of 1986  
GHS Globally Harmonized System  
HMIS Hazardous Materials Identification System (USA)  
IARC International Agency for Research on Cancer  
IATA International Air Transport Association  
IBC Intermediate Bulk Containers  
ICAO International Civil Aviation Organization  
IDLH Immediately Dangerous to Life or Health  
IMDG International Maritime Code for Dangerous Goods  
LC50 Lethal concentration, 50 percent  
LD50 Lethal dose, 50 percent  
LDLO Lethal Dose Low  
LOEC Lowest-Observed-Effective Concentration  
MARPOL International Convention for the Prevention of Pollution from Ships  
MSHA Mine Safety and Health Administration (USA)  
NCRP National Council on Radiation Protection & Measurements (USA)  
NDSL Non-Domestic Substances List (Canada)  
NFPA National Fire Protection Association (USA)  
NIOSH National Institute for Occupational Safety and Health (USA)  
NOEC No Observed Effect Concentration  
N.O.S. Not Otherwise Specified  
NRC Nuclear Regulatory Commission (USA)  
NTP National Toxicology Program (USA)  
OSHA Occupational Safety and Health Administration (USA)  
PBT Persistent Bioaccumulative and Toxic Chemical  
PEL Permissible Exposure Limit  
PIH Poisonous by Inhalation Hazard  
RCRA Resource Conservation and Recovery Act (USA)  
RCT Radiation Control Technician  
REACH Registration, Evaluation, Authorisation and Restriction of Chemicals (Europe)  
RID Regulations Concerning the International Transport of Dangerous Goods by Rail  
RTECS Registry of Toxic Effects of Chemical Substances  
SARA Superfund Amendments and Reauthorization Act (USA)  
TDG Transportation of Dangerous Goods (Canada)  
TIH Toxic by Inhalation Hazard  
TLV Threshold Limit Value  
TPQ Threshold Planning Quantity



TSCA Toxic Substances Control Act

TWA Time Weighted Average

UN United Nations (Number)

VOC Volatile Organic Compound

vPvB Very Persistent Very Bioaccumulative Chemical

WGK Wassergefährdungsklassen (Germany: Water Hazard Classes)

WHMIS Workplace Hazardous Materials Information System

**References:**

Not available.

**Full text of any H-statements not written out in full under Sections 2 to 15:**

None.

**Revision information:**

None.

**Training information:**

Follow training instructions when handling this material.

**Further Information:**

The information provided in this Safety Data Sheet is correct to the best of our knowledge, information and belief at the date of its publication. The information given is designed only as a guidance for safe handling, use, processing, storage, transportation, disposal and release and is not to be considered a warranty or quality specification. The information relates only to the specific material designated and may not be valid for such material used in combination with any other materials or in any process, unless specified in the text.