



Specification

Product Name: Titanium Dioxide

Product Code: SPEC0057

Description:

Titanium Dioxide, also known as Titanium White is a naturally occurring pigment that is used to whiten chocolate, sugar work and icing. A small amount will produce a brilliant white effect.

Specifications:

Technical Data	Unit	Value	Testing method
Assay TiO ₂ "as is basic"	[%]	min. 99.0	SOP TB.30.1
Particle Size > 0.045 mm	[%]	max. 0.10	SOP TB.37
Whiteness Index CIE	(%)	min. 93.5	SOP TB.36.2.2
Loss on drying at 105°C	(%)	max. 0.5	SOP TB.32
Loss on ignition at 800°C	(%)	max. 0.5	SOP TB.2
Content of Aluminium Oxide	(%)	max. 0.5	SOP TB.6
Content of Silicon Dioxide	(%)	max. 0.5	SOP TB.6
Matter soluble in 0,5 N HCl	(%)	max. 0.5	SOP TB.3
Water soluble matter	(%)	max. 0.25	SOP TB.1
Cadmium as Cd (HCl-soluble)	(mg/kg)	max. 0.5	SOP TB.8
Antimony as Sb (HCl-soluble)	(mg/kg)	max. 2	SOP TB.8
Arsenic as As (HCl-soluble)	(mg/kg)	max. 1	SOP TB.8
Lead as Pb (HCl-soluble)	(mg/kg)	max. 5	SOP TB.8
Mercury as Hg (total)	(mg/kg)	max. 1	SOP TB.10

Ingredients:

Titanium Dioxide (E171)

Dietary Information:

Suitable for Vegans & Vegetarians, Gluten Free, Non-GMO.

Storage:

Store in dry, cool conditions out of direct sunlight.

Packaging:

100g	5060341117602
250g	5060341117619
500g	5060341117626
5kg	5056191005022
10kg	5056191005039

**Shelf Life:**

36 months if stored as above and unopened.

Allergen Declaration

Allergen	Contains (Y/N)
Cereals containing Gluten	N
Crustaceans	N
Eggs	N
Fish	N
Peanuts	N
Soybeans	N
Milk	N
Nuts	N
Celery	N
Mustard	N
Sesame Seeds	N
Sulphur Dioxide and Sulphites (at concentration of more than 10mg/kg or 10mg/L in terms of Sulphur Dioxide)	N
Lupin	N
Molluscs	N

Material Safety Data Sheet**1: Identification of the substance/mixture and of the company/undertaking:****1.1 – Product identifier**

The product in question sold under the trade mark/name Titanium Dioxide, hereinafter referred to as 'the substance' or 'the product', is a chemical substance based on titanium dioxide (TiO₂).

Product grades in question: AV01FG, AV01PhG, AV01Z, AV01SF, AV01P, AV03P, FS, R200C, R200F, R200H, R200M, R200P, RG18P, RGLP2, RGU, RGX, RGZW

1.2 – Relevant identified uses of the substance or mixture and uses advised against:

1.2.1: Relevant identified uses: Pigment

1.2.2: Uses advised against: Based on available data, none are stated.

1.3 – Details of the supplier of the safety data sheet:

Company: Special Ingredients Ltd, 4 Foxwood View, Chesterfield, S41 9RN. Tel: 0044 (0)1246 906247

1.4 - Emergency Telephone Contact: 07387 330318. <https://specialingredients.co.uk/pages/contact>

2: Hazards Identification:**2.1 – Classification of the substance or mixture:**

2.1.1: Classification according to Regulation (EC) No. 1272/2008 (CLP): The product is not classified.



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Registered UK Company No: 08758412 | UK VAT No: GB175274393

**2.1.2: Additional Information:**

Commission Delegated Regulation (EU) No 2020/217 classified titanium dioxide (TiO₂) in powder form containing 1 % or more particles with an aerodynamic diameter ≤10 µm as a carcinogen category 2 by inhalation. Particle analysis confirms that there is no requirement to classify the above mentioned product PRETIOX (pigment grades).

2.2 – Label elements:

Signal word: None.

Hazard pictogram: None.

Hazard statement: None.

Precautionary statements: None

2.3 – Other hazards:

Dangerous respirable dust may be generated when using a powdered substance.

Based on available data, the substance does not meet the criteria for being persistent, bioaccumulative and toxic or very persistent and very bioaccumulative and does not have endocrine disrupting properties.

3: Composition/Information on Ingredients:**3.1 – Substances:**

Main constituent: Titanium dioxide, CAS No 13463-67-7, EINECS No 236-675-5, REACH registration No 01-2119489379-17-0013

3.2 – Mixtures:

Not applicable.

4: First Aid Measures:**4.1 – Description of First Aid Measures:**

General: Seek medical aid in the case of persisting difficulties.

When breathed in: Move the affected person to fresh air and keep him at rest in a position comfortable for breathing, do not let him walk. Preserve him against cooling, loosen tight clothing, collar, tie or belt. Rinse his mouth and nose with water.

If on skin/hair: Wash the affected area with water and soap. Take off all contaminated clothing and wash it before reuse.

If in eyes: Rinse affected eye with running water. Open the eyelids and remove contact lenses if the affected person has them. Rinse for at least 10 minutes from the inner corner of the eye to the outer.

When swallowed: No adverse health effects are anticipated. Do not induce vomiting. Rinse the affected person's mouth with water and give him to drink 2 to 3 dL of water. Do not give anything by mouth if the affected person is unconscious.

4.2 – Most important symptoms and effect, both acute and delayed:

Based on available data, none are known.

4.3 – Indication of any immediate medical attention and special treatment needed:

Treat Symptomatically.

5: Firefighting Measures:**5.1 - Extinguishing media:**

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Suitable extinguishing media: Water fog, foam, dust, CO₂. The product is not combustible.

Unsuitable extinguishing media: Based on available data, none are known.

5.2 – Special hazards arising from the substance or mixture:

Based on available data, none are known.

Hazardous combustion products: Based on available data, none are known.

5.3 – Advice for firefighters:

Use appropriate personal protective equipment (see SECTION 8).

6: Accidental Release Measures:

6.1 – Personal precautions, protective equipment and emergency procedures:

Based on available data, neither special actions nor targeted training shall be taken. Use appropriate personal protective equipment (see SECTION 8). Keep unnecessary personnel from entering. Spilt wet product is slippery.

6.2 – Environmental Precautions:

Close the place of leaking and prevent leaking into the environment by an appropriate absorption material (sand, broken stone). Inform relevant authorities if a contamination of rivers, lakes or water sources occurs.

6.3 – Methods and material for containment and cleaning up:

See SECTION 13 for disposal considerations.

6.4 – Reference to other sections:

See SECTION 1 for emergency phone number. See SECTION 8 for exposure controls/personal protection. See SECTION 13 for disposal considerations.

7: Handling and Storage:

7.1 – Precautions for safe handling:

Warning: Based on available data, none are known.

Handling: Keep hygienic rules for handling chemical substances and mixtures. Do not eat, drink, smoke or chew in the workplace. Take off contaminated clothing in an appropriate manner and wash it before reuse. Wash hands after work. Take off contaminated clothing and personal protective equipment before entering the dining area.

Recommendations for users: Service personnel must be qualified through education and training.

Technical measures: Keep production and processing lines closed to reduce possible leaks. Use a dust reduction device when filling transport packaging. Use special collection and cleaned tubs/tanks when handling large volumes of the substance. If the product is packaged in bags, apply local operational safety regulations for bag handling.

7.2 – Conditions for safe storage, including any incompatibilities:

Do not store outside exposed to the weather. Avoid exposure to the moisture.

Recommended packing materials: Use original package/containers.

Incompatible materials: Based on available data, none are known.

7.3 – Specific end use(s):

Based on available data, none are known.

**8: Exposure Controls/ Personal Protection:****8.1 – Control parameters:**

Generally: Ensure sufficient ventilation. Reduce inhalation hazards. Keep the Occupational Exposure Limits found in National Guidance documents. Personal protective equipment, process control as well as health and safety rules shall be applied.

Derived No Effect Level (DNEL):

Type	Exposure route	DNEL	Unit
Chronic, local	Chronic, local	Chronic, local	Chronic, local

Predicted No Effect Concentration (PNEC):

Type	PNEC	Unit
Aqua (freshwater)	Aqua (freshwater)	Aqua (freshwater)
0,127	0,127	0,127
mg/L	mg/L	mg/L
Aqua (marine water)	Aqua (marine water)	Aqua (marine water)
1	1	1
mg/L	mg/L	mg/L
Aqua (intermittent releases)	Aqua (intermittent releases)	Aqua (intermittent releases)
0,61	0,61	0,61

8.2 – Exposure controls:**8.2.1 Appropriate engineering controls**

An assessment of the effectiveness of ventilation or other measures and/or the use of personal respiratory protective equipment may be required in accordance with local regulations.

8.2.2 Person protective equipment

General: Personal protective equipment must be appropriate to the nature of the work to be performed, taking the risks into account and must be approved in advance by a professional.

Eye/face protection: Use the dustproof goggles or glasses with side protections.

Skin protection: Wear protective clothes and impervious protective gloves.

Respiratory protection: A respirator or mask with filter B/P2 must be used if the dust concentration is likely to exceed the occupational exposure limit.

Thermal hazards: Based on available data, none are known.

Hygiene measures: Individuals having sensitive skin may use a barrier cream or moisturizer during work.

8.2.2 Environmental exposure controls

Do not allow the product to contaminate the environment. Monitor emissions from ventilation and process equipment to ensure compliance with environmental protection requirements. In some cases, it may be necessary to use scrubbers, filters or other technical modifications to the equipment to reduce emissions to acceptable limits.

9: Physical and Chemical Properties:**9.1 – Information on basic physical and chemical properties:**

(a) Physical state (20 °C, 1013 hPa): Solid, fine crystalline powder

(b) Colour: White Odour:

(c) Odour: Based on available data, it is not known



- (d) Melting point/freezing point (°C): >1560
- (e) Initial boiling point and boiling range (°C): ca. 3000
- (f) Flammability (solid, gas): Based on available data, it is not known
- (g) Lower and upper explosion limit: Based on available data, it is not applicable
- (h) Flash point: Based on available data, it is not applicable
- (i) Auto-ignition temperature: Based on available data, it is not applicable
- (j) Decomposition temperature: Based on available data, it is not applicable
- (k) pH (at 20 °C): Based on available data, it is not applicable
- (l) Kinematic viscosity: Based on available data, it is not applicable
- (m) Solubility: in water, <1 µg/L in the range of pH 6 to 8
- (n) Partition coefficient n-octanol/water: Based on available data, it is not applicable
- (o) Vapour pressure: Based on available data, it is not applicable
- (p) Density and/or relative density (at 20 °C): 3900 až 4260 kg/m³; bulk 500 až 1040 kg/m³; tamped 780 až 1200 kg/m³
- (q) Relative vapour density: Based on available data, it is not applicable
- (r) Particle characteristic: The mean size of the primary particles is greater than 100 nm(found by TEM/SEM)

9.2 – Other information:

- (s) Evaporation rate: Based on available data, it is not applicable
- (t) Explosive properties: Based on available data, none are known
- (u) Oxidising properties: Based on available data, none are known

10: Stability and Reactivity:

10.1 – Reactivity:

Based on available data, no reactivity hazards of the substance are known in the case of recommended storage and use.

10.2 – Chemical Stability:

Based on available data, the product is stable under normal conditions.

10.3 - Possibility of hazardous reactions:

Based on available data, none are known.

10.4 – Conditions to avoid:

Wetting.

10.5 – Incompatible materials:

Based on available data, none are known.

10.6 – Hazardous decomposition products:

Based on available data, none are known.

11: Toxicological Information:

11.1 – Information on hazard classes as defined in Regulation (EC) No 1272/2008:

- (a) Acute toxicity: oral LD₅₀ >5000 mg/kg bw, inhalation LC₅₀ >6.82 mg/L air (MMAD=1.55 µm, GSD=1.70 µm). Based on available data, the classification criteria are not met.
- (b) Skin corrosion/irritation: According to test OECD Guideline 404, the substance is not irritant. Based on available data, the classification criteria are not met.



(c) Serious eye damage/irritation: according to tests OECD Guideline 405, EU Method B.5 and EPA OPPTS 870.2400 the substance does not cause serious eye damage/irritation. Based on available data, the classification criteria are not met.

(d) Respiratory or skin sensitization: according to tests OECD Guidelines 406 and 429 the substance does not have skin sensitizing properties; the substance does not show respiratory sensitizing properties in animal studies or in exposure related observations in humans. Based on available data, the classification criteria are not met.

(e) Germ cell mutagenicity: the substance was tested (bacterial reverse mutation assays, in vitro gene mutation, clastogenicity test) with a negative test result. Based on available data, the classification criteria are not met.

(f) Carcinogenicity: Commission Delegated Regulation (EU) No 2020/217 classified titanium dioxide (TiO₂) in powder form containing 1 % or more particles with an aerodynamic diameter ≤ 10 µm as a carcinogen category 2 by inhalation. The substance is indicated by the IARC Monograph as possibly carcinogenic to humans (group 2B). However, detailed epidemiological studies have not shown an association between substance exposure and cancer risk.

(g) Reproductive toxicity: 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 the substance does not present a reproductive toxicity hazard. Based on available data, the classification criteria are not met.

(h) STOT–single exposure: no reversible or irreversible adverse health effects through oral exposure were observed immediately or delayed after exposure. Based on available data, the classification criteria are not met.

(i) STOT–repeated exposure: the substance does not show any adverse effects whatsoever in a chronic oral repeated dose toxicity study in rats with a NOAEL of 3500 mg/kg bw/day; the substance is not absorbed to any relevant extent through human skin, thus no toxic effects can be expected via the dermal route of exposure; regarding inhalation route of exposure the following observations have been made in experimental animals and in human epidemiological studies: (i) No systemic toxicity was shown to result from chronic inhalation exposure in rats to high concentrations of pigment grade titanium dioxide, (ii) Particle overload is observed for insoluble particles such as titanium dioxide, whereby the rat is the most sensitive species studied, and species-specific differences are demonstrated in various mechanistic animal studies. It has been demonstrated with reasonable certainty that lung overload conditions are not relevant for human health and, therefore, results based on these data do not justify classification. (iii) It has also been clearly demonstrated through epidemiological studies of titanium dioxide–exposed workers that there is no causal link. Based on available data, the classification criteria are not met.

(j) Aspiration hazard: Based on available data, the classification criteria are not met.

11.2 – Information on other hazards

Based on available data, none are known.

12: Ecological Information:

12.1 – Toxicity:

Acute toxicity to aquatic organisms – fish

All reliable acute toxicity tests to fish resulted in LC₅₀ values ranging from >1 to >10000 mg TiO₂/L, as observed for 4 different fish species in both fresh and marine water. All these results are taken together in a weight of evidence approach, and it is concluded that TiO₂ is not acute toxic to fish at >1000 mg TiO₂/L and at >10000 mg TiO₂/L in fresh water and marine water, respectively.

Results of test of acute toxicity on fish:

Pimephales promelas LC₅₀ (96 hours): >1000 mg/L, tested according to EPA-540/9-85-006, Acute Toxicity Test for Freshwater Fish

Oncorhynchus mykiss LC50 (96 hours): >100 mg/L, tested in fresh water, according to OECD Guideline 203 (Fish, Acute Toxicity Test)

Oncorhynchus mykiss LC50 (14 days): >1 mg/L, tested in fresh water where fish were exposed to a different concentration of tested material and several biochemical endpoints in various organs were measured afterwards.

Danio rerio LC50 (48 hours): >10 mg/L, tested in fresh water, according to American Society of Testing and Materials (ASTM), 2002

Cyprinodon variegatus LC50 (96 hours): >10000 mg/L, tested in marine water, according to OECD Guideline 203 (Fish, Acute Toxicity Test) and according to OSPARCOM (2005-11), Protocol for a fish acute toxicity test.

Acute toxicity to aquatic organisms – invertebrates

All reliable acute toxicity tests to invertebrates resulted in L(E)C50 values ranging from >10 to >10000 mg TiO₂/L, as observed for 4 different invertebrate species in both fresh water and marine water. All these results are taken together in a weight of evidence approach, and it is concluded that TiO₂ is not toxic to aquatic invertebrates at >1000 mg TiO₂/L and at >10000 mg TiO₂/L in fresh water and marine water, respectively.

Results of test of acute toxicity on invertebrates:

Daphnia magna LC50 (48 hours): >100 mg/L, tested in fresh water, according to Guideline 202 (*Daphnia* sp. Acute Immobilization Test)

Daphnia pulex LC50 (48 hours): >10 mg/L, tested in fresh water, according to American Society for Testing and Materials: Standard guide for conducting acute toxicity tests on test materials with fishes, macro invertebrates and amphibians.

Ceriodaphnia dubia LC50 (48 hours): >10 mg/L, tested in fresh water, according to American Society for Testing and Materials: Standard guide for conducting acute toxicity tests on test materials with fishes, macro invertebrates and amphibians.

Daphnia magna EC50 (48 hours): >1000 mg/L, tested in fresh water, according to EPA-660/8-87/011, 1987 and ASTM Standard E729 (1986) and OECD Guideline 202 (*Daphnia* sp. Acute Immobilization Test) and U.S. Environmental Protection Agency (660/3-75-009), 1975: Methods for Acute Toxicity Tests with Fish, Macro-invertebrates and Amphibians

Daphnia magna LC50 (48 hours): ≥500 mg/L, tested in freshwater, according to U.S. EPA standard operating procedure 2024

Acartia tonsa LC50 (48 hours): >10000 mg/L, tested in fresh water, according to ISO 14669 (1999) Water quality-determination of acute lethal toxicity to marine copepods (Copepoda crustacea) and ISO 5667-16 (1998) Water quality sampling-guidance on biotesting of samples

Long-term toxicity to aquatic organisms

No reliable chronic toxicity data are available for aquatic invertebrates. As all acute tests show the absence of toxic effects, there is no need for further investigation of effects to aquatic organisms.

Toxicity to algae and aquatic plants

The lowest value for growth rate was observed for *Pseudokirchneriella subcapitata* in fresh water: EC50 (72 hours) 61 mg TiO₂/L, test according to OECD Guideline 201 (Alga, Growth Inhibition Test), with a corresponding EC10 (72 hours) of 12.7 mg TiO₂/L. Tests with *Skeletonema costatum* in marine water result resulted in EC50 of >10000 and a NOEC of 5600 mg TiO₂/L (growth rate), test according to ISO 10253 (Water quality – Marine Algal Growth Inhibition Test with *Skeletonema costatum* and *Phaeodactylum tricornutum*).

Toxicity to sediment organisms

EC50/LC50 in marine water sediment: 14989 mg/kg dw (according to test on *Corophium volutator* according to OSPARCOM guidelines (1995) A sediment Bioassay using an amphipod *Corophium* sp); EC10/LC10 or NOEC in freshwater sediment: 100000 mg/kg sediment dw (according to test on *Hyalella azteca* according to ASTM E1706).

**Toxicity to soil macro-organisms**

Long-term EC10/LC10 or NOEC for soil arthropods: 1000 mg/kg soil dw, tested on *Folsomia candida* according to ISO 11267 (Inhibition of Reproduction of Collembola by Soil Pollutants).

Toxicity to terrestrial plants

Long-term EC10/LC10 or NOEC for terrestrial plants: 100000 mg/kg soil dw, tested on *Hordeum vulgare* (Monocotyledonae (monocots)) and *Lactuca sativa* (Dicotyledonae (dicots)), according to ISO 11269-2 protocol.

Toxicity to soil micro-organisms

Long-term EC10/LC10 or NOEC for soil micro-organisms: 10000 mg/kg soil dw (tested on species/*Inoculum*: soil, according to ISO 14238).

Toxicity to aquatic micro-organisms in sewage treatment systems

EC10/LC10 or NOEC for aquatic micro-organisms: 1000 mg/L, tested activated sludge of a predominantly domestic sewage, in freshwater, according to OECD Guideline 209 (Activated Sludge, Respiration Inhibition Test).

12.2 – Persistence and Degradability:

Based on available data, the substance is not considered as being persistent or degradable.

12.3 - Bioaccumulative Potential:

Based on available data, the substance is not considered as being bioaccumulative.

12.4 - Mobility in soil:

Based on available data, the substance is not considered as being mobile in soil.

12.5 - Results of PBT and vPvB assessment:

Based on available data, the substance is not considered as being PBT or vPvB.

12.6 – Endocrine disrupting properties

Based on available data, none are known.

12.7 – Other adverse effects

Based on available data, none are known.

13: Disposal Considerations:**13.1 – Waste treatment methods:**

Product residues: Check the possibilities for re-utilization. Pack, label and dispose/recycle according to the applicable national and local regulations. Where large quantities are concerned, consult the supplier.

Contaminated packaging: Based on available data, they are not regarded as hazardous waste. When passed on, the recipient must be warned of any possible hazard that may be caused by residues. If recycling is not possible, dispose according to the applicable national and local regulations.

Dangerous wastes: Based on available data, the product is not regarded as hazardous waste. EWL code 06 11 99.

14: Transport Information:

**14.1 UN number or ID Number**

Based on available data, it is not applicable.

14.2 UN proper shipping name

Based on available data, it is not applicable.

14.3 Transport hazard classes

Based on available data, it is not applicable.

14.4 Packing group

Based on available data, it is not applicable.

14.5 Environmental hazards

Based on available data, none are known.

14.6 – Special precautions for user:

See SECTIONS 4 up to 8.

14.7 – Maritime transport in bulk according to IMO instruments

Based on available data, cargoes are not intended to be carried in bulk according to IMO instruments.

15: Regulatory Information:**15.1 – Safety, health and environmental regulations/legislation specific for the substance or mixture:**

Based on the available data information, the EU safety, health and environmental provisions applicable to the hereby mentioned substance are not known.

Based on available data, there is no legal and/or other obligation to provide safety data sheet for hereby mentioned product.

Danish National Regulations: Pregnant/breastfeeding women working with the product must not be in direct contact with the product

15.2 – Chemical safety assessment:

The manufacturer has performed a chemical safety assessment.

Exposure Assessment: Based on available data, the product is not considered as being hazardous and it does not meet the PBT and vPvB criteria, ie. there is no obligation to perform an exposure assessment.

Risk Characterisation: Based on available data, the product is not considered as being hazardous and it does not fulfil the PBT and vPvB criteria, ie. there is no obligation to perform a risk characterisation.

Based on available data, exposure scenarios are not relevant for the hereby mentioned product.

16: Other Information:**Revision and update of this Safety Data Sheet**

The manufacturer revises this Safety Data Sheet every 12 months after the date of validity or if new information with influence on risk assessment is available or permitting/restriction is given. If it conforms, it stays in use, among other on internet pages of manufacturer www.precheza.cz. If it does not conform, it is updated and issued with increased number of editions.

Changes against the last edition of this Safety Data Sheet

Repeals Safety Data Sheet Titanium Dioxide, edition EN1; valid since 01 July 2020.

**Key or legend to abbreviations and acronyms used in the safety data sheet:**

DNEL: Derived No Effect Level, the level of exposure to a substance above which humans should not be exposed

PNEC: Predicted No Effect Concentration, the limit at which below no adverse effects of exposure in an ecosystem are measured

Key literature references and sources of data

Regulation (EC) No 1907/2006 of the European Parliament and of the Council concerning the Registration, Evaluation, Authorisation and Restriction of Chemicals (REACH)

Comission Regulation (EC) 2020/878 amending Annex II to Regulation (EC) No 1907/2006 of the European Parliament and of the Council concerning the Registration, Evaluation, Authorisation and Restriction of Chemicals (REACH)

Regulation (EC) No 1272/2008 of the European Parliament and of the Council on classification, labelling and packaging of substances and mixtures, amending and repealing Directives 67/548/EEC and 1999/45/EC, and amending Regulation (EC) No 1907/2006

Comission Delegated Regulation (EU) 2020/217, amending, for the purposes of its adaptation to technical and scientific progress, Regulation (EC) No 1272/2008 of the European Parliament and of the Council on classification, labelling and packaging of substances and mixtures and correcting that Regulation

UN Globally Harmonized System of Classification and Labeling of Chemicals (GHS)

Safety Data Sheets of raw material suppliers

Safety data sheets of analogous products

Database PhysProp; <http://esc.syrres.com/interkow>

Ecotoxikological database; <http://www.piskac.cz/ETD>

Database ICSC (WHO/IPCS/ILO); <http://www.cdc.gov/niosh/ipcs>

Chemical Safety Report, Titanium Dioxide

The methods of evaluating information referred to in Article 9 of Regulation (EC) No 1272/2008 used for the purpose of classification

Not applicable

A list of relevant hazard statements and/or precautionary statements

Not applicable

Advice on any training appropriate for workers to ensure protection of human health and the environment

Keep all rules applicable on handling chemical substances and mixtures.

Disclaimer

Hereby mentioned product is intended for industrial and related applications only (eg. research and development) by aware and capable staff.

Information included in this document is given in good faith with accentuation that:

- not applicable legal and/or other requirements and/or qualitative attributes of the product(s) are stated as “not relevant” in this Safety Data Sheet;
- not known applicable legal and/or other requirements and/or qualitative attributes of the product(s) are stated as “not known” in this Safety Data Sheet;
- all the hereby given data reflects the best recent stage of knowledge relevant to safety and hygienic requirements;
- all the hereby given data cannot be used as the warranty of the product(s) quality and cannot be used for complaints;
- former application tests are necessary before any use of the hereby mentioned product(s);
- all relevant and known regulations and rules for handling with chemical substances and mixtures have



- to be kept in case of use, handling and/or transport the hereby mentioned product(s);
- the exploitation of hereby mentioned information is not controlled by the producer; the producer does not accept responsibility for any injury and/or damage when/where hereby mentioned product(s) is used by incompetent manner and/or in applications other than recommended and/or identified;
 - the user of the hereby mentioned product(s) is responsible to respect all applicable industrial and other rights related to the hereby mentioned product(s).

The information contained herein is to the best of our knowledge, but since the circumstances and conditions in which it may be used are beyond our control, we do not accept any liability whatsoever, however arising, which results directly or indirectly from the use of the product.