Safety Data Sheet (SDS) Report

Project Number: P2015011901

Applicant: Panzhihua Tianlun Chemical Co., Ltd
Anning Industrail Park, Ynabian County,Panzhihua,Sichuan,China.

Issue Date: 2015-01-21

Sample Description:

The sample information was submitted and identified on client's behalf to be:

Product Name	:	Titanium Dioxide
Physical State	:	Solid
Data Received	:	January 19, 2015
Data Reviewed	:	January 21, 2015

Service Requested:

Based on the information provided by the applicant, the Safety Data Sheet (SDS) was generated in accordance with requirements of Regulation (EC) No. 1907/2006, Regulation (EC) No 1272/2008, EU Commission Directive 67/548/EEC, 1999/45/EC, for details please refer to attached pages.

Authorized By:

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Titanium Dioxide

Panzhihua Tianlun Chemical Co., Ltd

Project number:P2015011901

Version No: **1.0**
Safety Data Sheet (Conforms to Regulations (EC) No 453/2010)

Issue Date: **21/01/2015**

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

1.1.Product Identifier

Product name	Titanium Dioxide
Chemical Name	Not Applicable
Synonyms	Not Available
Proper shipping name	Not Applicable
Chemical formula	Not Applicable
Other means of identification	Not Available
CAS number	Not Applicable
EC number	Not Applicable
Index number	Not Applicable
REACH registration number	Not Applicable

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

Relevant identified uses	Printing ink,paints, paper, plastics,etc.
Uses advised against	Not Applicable

1.3.Details of the manufacturer/importer

Registered company name	Panzhihua Tianlun Chemical Co., Ltd
Address	Anning Industrail Park, Ynabian County,Panzhihua,Sichuan,China.
Telephone	+86-812-8750166
Fax	+86-812-8750166
Emergency telephone	+86-15281215863
Email	1005605554@qq.com
Importer name	
Address	
Telephone	
Email	

1.4.Emergency telephone number

Association / Organisation	
Emergency telephone numbers	
Other emergency telephone numbers	

SECTION 2 HAZARDS IDENTIFICATION

2.1.Classification of the substance or mixture

Not considered a dangerous mixture according to directive 1999/45/EC, Reg. (EC) No 1272/2008 (if applicable) and their amendments. Not classified as Dangerous Goods for transport purposes.

DSD classification	In case of mixtures, classification has been prepared by following DPD (Directive 1999/45/EC) and CLP Regulation (EC) No 1272/2008 regulations
DPD classification	Not Applicable

2.2. Label elements

CLP label elements	Not Applicable

SIGNAL WORD	**NOT APPLICABLE**

Hazard statement(s)

Continued...

Not Applicable

Precautionary statement(s) Prevention

Not Applicable

Precautionary statement(s) Response

Not Applicable

Precautionary statement(s) Storage

Not Applicable

Precautionary statement(s) Disposal

Not Applicable

DSD / DPD label elements

Not Applicable

Relevant risk statements are found in section 2.1

Indication(s) of danger	Not Applicable

SAFETY ADVICE

Not Applicable

2.3. Other hazards

	Ingestion may produce health damage*.
	Cumulative effects may result following exposure*.

SECTION 3 COMPOSITION / INFORMATION ON INGREDIENTS

3.1.Substances

See 'Composition on ingredients' in Section 3.2

3.2.Mixtures

1.CAS No 2.EC No 3.Index No 4.REACH No	%[weight]	Name	Classification according to directive 67/548/EEC [DSD]	Classification according to regulation (EC) No 1272/2008 [CLP]
1.13463-67-7 2.236-675-5 3.Not Applicable 4.Not Available	>98.5	titanium dioxide	Not Applicable	Not Applicable
1.7631-86-9 2.231-545-4 3.Not Available 4.Not Available	0.6	silicon dioxide	Not Applicable	Not Applicable
1.12136-45-7 2.235-227-6 3.Not Available 4.Not Available	0.2425	potassium monoxide	Not Applicable	Metal Corrosion Category 1, Skin Corrosion/Irritation Category 1A; H290, H314 [1]
1.1314-56-3 2.215-236-1 3.015-010-00-0 4.Not Available	0.1704	Diphosphorus pentaoxide	R35 [1]	Skin Corrosion/Irritation Category 1A; H314 [1]
1.1314-62-1 2.215-239-8 3.023-001-00-8 4.Not Available	0.0869	vanadium pentoxide	R20/22, R37, R48/23, R51/53, R63, R68 [2]	Muta. 2, Repr. 2, STOT RE 1, Acute Tox. 4 *, Acute Tox. 4 *, STOT SE 3, Aquatic Chronic 2; H341, H361d ***, H372 **, H332, H302, H335, H411 [3]
1.1344-28-1 2.215-691-6 3.Not Applicable 4.Not Available	0.045	aluminium oxide	Not Applicable	Not Applicable
1.1313-96-8 2.215-213-6 3.Not Available 4.Not Available	0.0433	niobium(V) oxide	R37 [1]	STOT - SE (Resp. Irr.) Category 3; H335 [1]
1.1314-23-4 2.215-227-2 3.Not Available 4.Not Available	0.0117	zirconium dioxide	R36/37/38 [1]	Skin Corrosion/Irritation Category 2, Eye Irritation Category 2, STOT - SE (Resp. Irr.) Category 3; H315, H319, H335 [1]
1.1317-38-0 2.215-269-1, 215-706-6 3.Not Available 4.Not Available	0.0086	copper(II) oxide	R20/22, R36/37/38, R50/53, R48/20 [1]	Acute Toxicity (Oral) Category 4, Acute Toxicity (Inhalation) Category 4, Skin Corrosion/Irritation Category 2, Eye Irritation Category 2, STOT - SE (Resp. Irr.) Category 3, STOT - RE Category 2, Acute Aquatic Hazard Category 1, Chronic Aquatic Hazard Category 1; H302, H332, H315, H319, H335, H373, H400, H410 [1]

Continued...

1.1332-81-6 2.215-576-0 3.Not Available 4.Not Available	0.0079	antimony tetroxide	R20/22, R36/37/38, R51/53 [1]	Acute Toxicity (Oral) Category 4, Acute Toxicity (Inhalation) Category 4, Skin Corrosion/Irritation Category 2, Eye Irritation Category 2, STOT - SE (Resp. Irr.) Category 3, Chronic Aquatic Hazard Category 2; H302, H332, H315, H319, H335, H411 [1]
1.1305-78-8 2.215-138-9 3.Not Available 4.Not Available	0.0058	calcium oxide	R37/38, R41 [1]	Skin Corrosion/Irritation Category 2, Serious Eye Damage Category 1, STOT - SE (Resp. Irr.) Category 3; H315, H318, H335 [1]
1.1309-37-1 2.215-168-2 3.Not Available 4.Not Available	0.0028	Diiron trioxide	Not Applicable	Not Applicable
1.1309-48-4 2.215-171-9 3.Not Available 4.Not Available	0.0013	magnesium oxide fume	Not Applicable	Not Applicable
1.1308-38-9 2.215-160-9 3.Not Available 4.Not Available	0.0009	chromium (III) oxide	R20/22, R43, R52 [1]	Acute Toxicity (Oral) Category 4, Acute Toxicity (Inhalation) Category 4, Skin Sensitizer Category 1; H302, H332, H317 [1]
1.1344-43-0 2.215-695-8 3.Not Available 4.Not Available	0.0005	manganous oxide	R20/21/22, R36/37/38 [1]	Acute Toxicity (Oral) Category 4, Acute Toxicity (Dermal) Category 4, Acute Toxicity (Inhalation) Category 4, Skin Corrosion/Irritation Category 2, Eye Irritation Category 2, STOT - SE (Resp. Irr.) Category 3; H302, H312, H332, H315, H319, H335 [1]

Legend:	*1. Classified by Chemwatch; 2. Classification drawn from EC Directive 67/548/EEC - Annex I; 3. Classification drawn from EC Directive 1272/2008 - Annex VI 4. Classification drawn from C&L*

SECTION 4 FIRST AID MEASURES

4.1. Description of first aid measures

General	▸ Immediately give a glass of water. ▸ First aid is not generally required. If in doubt, contact a Poisons Information Centre or a doctor. ▸ If fumes, aerosols or combustion products are inhaled remove from contaminated area. ▸ Other measures are usually unnecessary. If this product comes in contact with eyes: ▸ Wash out immediately with water. ▸ If irritation continues, seek medical attention. ▸ Removal of contact lenses after an eye injury should only be undertaken by skilled personnel. If skin or hair contact occurs: ▸ Flush skin and hair with running water (and soap if available). ▸ Seek medical attention in event of irritation.
Eye Contact	If this product comes in contact with eyes: ▸ Wash out immediately with water. ▸ If irritation continues, seek medical attention. ▸ Removal of contact lenses after an eye injury should only be undertaken by skilled personnel.
Skin Contact	If skin or hair contact occurs: ▸ Flush skin and hair with running water (and soap if available). ▸ Seek medical attention in event of irritation.
Inhalation	▸ If fumes, aerosols or combustion products are inhaled remove from contaminated area. ▸ Other measures are usually unnecessary.
Ingestion	▸ Immediately give a glass of water. ▸ First aid is not generally required. If in doubt, contact a Poisons Information Centre or a doctor.

4.2 Most important symptoms and effects, both acute and delayed

	See Section 11

4.3. Indication of any immediate medical attention and special treatment needed

Treat symptomatically.

Both dermal and oral toxicity of manganese salts is low because of limited solubility of manganese. No known permanent pulmonary sequelae develop after acute manganese exposure. Treatment is supportive.

[*Ellenhorn and Barceloux: Medical Toxicology*]

In clinical trials with miners exposed to manganese-containing dusts, L-dopa relieved extrapyramidal symptoms of both hypo kinetic and dystonic patients. For short periods of time symptoms could also be controlled with scopolamine and amphetamine. BAL and calcium EDTA prove ineffective.

[*Gosselin et al: Clinical Toxicology of Commercial Products.*]

SECTION 5 FIREFIGHTING MEASURES

5.1. Extinguishing media

	▸ There is no restriction on the type of extinguisher which may be used. ▸ Use extinguishing media suitable for surrounding area.

5.2. Special hazards arising from the substrate or mixture

Fire Incompatibility	None known.

Continued...

5.3. Advice for firefighters

Fire Fighting	▸ Alert Fire Brigade and tell them location and nature of hazard. ▸ Wear breathing apparatus plus protective gloves in the event of a fire. ▸ Prevent, by any means available, spillage from entering drains or water courses. ▸ Use fire fighting procedures suitable for surrounding area.
Fire/Explosion Hazard	▸ Non combustible. ▸ Not considered a significant fire risk, however containers may burn.

SECTION 6 ACCIDENTAL RELEASE MEASURES

6.1. Personal precautions, protective equipment and emergency procedures

	See section 8

6.2. Environmental precautions

	See section 12

6.3. Methods and material for containment and cleaning up

Minor Spills	▸ Clean up all spills immediately. ▸ Avoid contact with skin and eyes. ▸ Wear impervious gloves and safety glasses. ▸ Use dry clean up procedures and avoid generating dust.
Major Spills	▸ Clear area of personnel and move upwind. ▸ Alert Fire Brigade and tell them location and nature of hazard. ▸ Control personal contact with the substance, by using protective equipment and dust respirator. ▸ Prevent spillage from entering drains, sewers or water courses.

6.4. Reference to other sections

	Personal Protective Equipment advice is contained in Section 8 of the MSDS.

SECTION 7 HANDLING AND STORAGE

7.1. Precautions for safe handling

Safe handling	▸ Limit all unnecessary personal contact. ▸ Wear protective clothing when risk of exposure occurs. ▸ Use in a well-ventilated area. ▸ Avoid contact with incompatible materials.
Fire and explosion protection	See section 5
Other information	▸ Store in original containers. ▸ Keep containers securely sealed. ▸ Store in a cool, dry area protected from environmental extremes. ▸ Store away from incompatible materials and foodstuff containers.

7.2. Conditions for safe storage, including any incompatibilities

Suitable container	▸ Plastic woven bag. ▸ Plastic pail. ▸ Polyliner drum. ▸ Packing as recommended by manufacturer.
Storage incompatibility	Avoid contamination of water, foodstuffs, feed or seed. ▸ WARNING: Avoid or control reaction with peroxides. All *transition metal* peroxides should be considered as potentially explosive. For example transition metal complexes of alkyl hydroperoxides may decompose explosively.

PACKAGE MATERIAL INCOMPATIBILITIES

Not Available

7.3. Specific end use(s)

See section 1.2

SECTION 8 EXPOSURE CONTROLS / PERSONAL PROTECTION

8.1. Control parameters

DERIVED NO EFFECT LEVEL (DNEL)

Not Available

PREDICTED NO EFFECT LEVEL (PNEC)

Not Available

OCCUPATIONAL EXPOSURE LIMITS (OEL)

INGREDIENT DATA

Source	Ingredient	Material name	TWA	STEL	Peak	Notes
UK Workplace Exposure Limits (WELs)	titanium dioxide	Titanium dioxide total inhalable / Titanium dioxide respirable	10 mg/m3 / 4 mg/m3	Not Available	Not Available	Not Available

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UK Workplace Exposure Limits (WELs)	Diphosphorus pentaoxide	Disphosphorus pentoxide	1 mg/m3	2 mg/m3	Not Available	Not Available
European Union (EU) Commission Directive 2006/15/EC establishing a second list of indicative occupational exposure limit values (IOELVs)	Diphosphorus pentaoxide	Diphosphorus pentaoxide	1 mg/m3	Not Available	Not Available	Not Available
EU Consolidated List of Indicative Occupational Exposure Limit Values (IOELVs)	Diphosphorus pentaoxide	Diphosphorous pentaoxide	1 mg/m3	Not Available	Not Available	Not Available
UK Workplace Exposure Limits (WELs)	vanadium pentoxide	Vanadium pentoxide	0.05 mg/m3	Not Available	Not Available	Not Available
UK Workplace Exposure Limits (WELs)	aluminium oxide	Aluminium oxides inhalable dust / Aluminium oxides respirable dust	10 mg/m3 / 4 mg/m3	Not Available	Not Available	Not Available
UK Workplace Exposure Limits (WELs)	zirconium dioxide	Zirconium compounds (as Zr)	5 mg/m3	10 mg/m3	Not Available	Not Available
UK Workplace Exposure Limits (WELs)	antimony tetroxide	Antimony and compounds except stibine (as Sb)	0.5 mg/m3	Not Available	Not Available	Not Available
UK Workplace Exposure Limits (WELs)	calcium oxide	Calcium oxide	2 mg/m3	Not Available	Not Available	Not Available
UK Workplace Exposure Limits (WELs)	Diiron trioxide	Rouge total inhalable / Rouge respirable	10 mg/m3 / 4 mg/m3	Not Available	Not Available	Not Available
UK Workplace Exposure Limits (WELs)	magnesium oxide fume	Magnesium oxide (as Mg) inhalable dust / Magnesium oxide (as Mg) fume and respirable dust	10 mg/m3 / 4 mg/m3	Not Available	Not Available	Not Available
UK Workplace Exposure Limits (WELs)	manganous oxide	Manganese and its inorganic compounds (as Mn)	0.5 mg/m3	Not Available	Not Available	Not Available

EMERGENCY LIMITS

Ingredient	Material name	TEEL-1	TEEL-2	TEEL-3
titanium dioxide	Titanium oxide; (Titanium dioxide)	10 mg/m3	10 mg/m3	10 mg/m3
silicon dioxide	Silica amorphous hydrated	6 mg/m3	6 mg/m3	85 mg/m3
potassium monoxide	Potassium oxide	0.18 mg/m3	2 mg/m3	54 mg/m3
Diphosphorus pentaoxide	Phosphorus pentoxide	Not Available	Not Available	Not Available
Diphosphorus pentaoxide	zzSicapent	30 mg/m3	330 mg/m3	2000 mg/m3
vanadium pentoxide	Vanadium pentoxide; (Vanadium(V) oxide)	0.64 mg/m3	7 mg/m3	250 mg/m3
aluminium oxide	Aluminum oxide; (Alumina)	1.5 mg/m3	15 mg/m3	25 mg/m3
niobium(V) oxide	Niobium pentoxide; (Niobium(V) oxide)	0.93 mg/m3	10 mg/m3	430 mg/m3
zirconium dioxide	Zirconium oxide	14 mg/m3	110 mg/m3	680 mg/m3
copper(II) oxide	Cupric oxide	0.75 mg/m3	4.6 mg/m3	28 mg/m3
calcium oxide	Calcium oxide	6 mg/m3	110 mg/m3	660 mg/m3
Diiron trioxide	Iron oxide; (Ferric oxide)	15 mg/m3	360 mg/m3	2200 mg/m3
magnesium oxide fume	Magnesium oxide	22 mg/m3	22 mg/m3	130 mg/m3
chromium (III) oxide	Chromic oxide; (Chromium(III) oxide; Chromium sesquioxide)	2.2 mg/m3	3.8 mg/m3	23 mg/m3
manganous oxide	Manganous oxide; (Manganese(II) oxide)	3.9 mg/m3	6.5 mg/m3	22 mg/m3

Ingredient	Original IDLH	Revised IDLH
titanium dioxide	N.E. mg/m3 / N.E. ppm	5,000 mg/m3
silicon dioxide	Not Available	Not Available
potassium monoxide	Not Available	Not Available
Diphosphorus pentaoxide	Not Available	Not Available
vanadium pentoxide	Not Available	Not Available
aluminium oxide	Not Available	Not Available
niobium(V) oxide	Not Available	Not Available
zirconium dioxide	500 mg/m3	25 mg/m3
copper(II) oxide	Not Available	Not Available
antimony tetroxide	80 mg/m3	50 mg/m3
calcium oxide	Unknown mg/m3 / Unknown ppm	25 mg/m3
Diiron trioxide	N.E. mg/m3 / N.E. ppm	2,500 mg/m3
magnesium oxide fume	N.E. mg/m3 / N.E. ppm	750 mg/m3
chromium (III) oxide	Not Available	Not Available
manganous oxide	N.E. mg/m3 / N.E. ppm	500 mg/m3

8.2. Exposure controls

8.2.1. Appropriate engineering controls	Engineering controls are used to remove a hazard or place a barrier between the worker and the hazard. Well-designed engineering controls can be highly effective in protecting workers and will typically be independent of worker interactions to provide this high level of protection.

Continued...

	The basic types of engineering controls are: Process controls which involve changing the way a job activity or process is done to reduce the risk. Enclosure and/or isolation of emission source which keeps a selected hazard 'physically' away from the worker and ventilation that strategically 'adds' and 'removes' air in the work environment.
8.2.2. Personal protection	
Eye and face protection	▸ Safety glasses with side shields ▸ Chemical goggles. ▸ Contact lenses may pose a special hazard; soft contact lenses may absorb and concentrate irritants. A written policy document, describing the wearing of lenses or restrictions on use, should be created for each workplace or task. This should include a review of lens absorption and adsorption for the class of chemicals in use and an account of injury experience.
Skin protection	See Hand protection below
Hands/feet protection	The selection of suitable gloves does not only depend on the material, but also on further marks of quality which vary from manufacturer to manufacturer. Where the chemical is a preparation of several substances, the resistance of the glove material can not be calculated in advance and has therefore to be checked prior to the application. The exact break through time for substances has to be obtained from the manufacturer of the protective gloves and.has to be observed when making a final choice. Suitability and durability of glove type is dependent on usage.
Body protection	See Other protection below
Other protection	No special equipment needed when handling small quantities. **OTHERWISE:** ▸ Overalls. ▸ Barrier cream. ▸ Eyewash unit.
Thermal hazards	Not Available

Recommended material(s)

GLOVE SELECTION INDEX

Glove selection is based on a modified presentation of the:
'Forsberg Clothing Performance Index'.
The effect(s) of the following substance(s) are taken into account in the ***computer-generated*** selection:
titanium dioxide(13463-67-7) is found on the following regulatory lists Not Available

Material	CPI

* CPI - Chemwatch Performance Index
A: Best Selection
B: Satisfactory; may degrade after 4 hours continuous immersion
C: Poor to Dangerous Choice for other than short term immersion
NOTE: As a series of factors will influence the actual performance of the glove, a final selection must be based on detailed observation. -
* Where the glove is to be used on a short term, casual or infrequent basis, factors such as 'feel' or convenience (e.g. disposability), may dictate a choice of gloves which might otherwise be unsuitable following long-term or frequent use. A qualified practitioner should be consulted.

Respiratory protection

Particulate. (AS/NZS 1716 & 1715, EN 143:000 & 149:001, ANSI Z88 or national equivalent)

Required Minimum Protection Factor	Half-Face Respirator	Full-Face Respirator	Powered Air Respirator
up to 10 x ES	P1 Air-line*	- -	PAPR-P1 -
up to 50 x ES	Air-line**	P2	PAPR-P2
up to 100 x ES	-	P3	-
		Air-line*	-
100+ x ES	-	Air-line**	PAPR-P3

* - Negative pressure demand ** - Continuous flow
A(All classes) = Organic vapours, B AUS or B1 = Acid gasses, B2 =Acid gas or hydrogen cyanide(HCN), B3 = Acid gas or hydrogen cyanide(HCN), E = Sulfurdioxide(SO2), G = Agricultural chemicals, K = Ammonia(NH3), Hg = Mercury, NO =Oxides of nitrogen, MB = Methyl bromide, AX = Low boiling point organiccompounds(below 65 degC)

8.2.3. Environmental exposure controls

See section 12

SECTION 9 PHYSICAL AND CHEMICAL PROPERTIES

9.1. Information on basic physical and chemical properties

Appearance	White powder

Physical state	Solid	**Relative density (Water = 1)**	Not Available
Odour	Not Available	**Partition coefficient n-octanol / water**	Not Available
Odour threshold	Not Available	**Auto-ignition temperature (°C)**	Not Available
pH (as supplied)	Not Available	**Decomposition temperature**	Not Available
Melting point / freezing point (°C)	Not Available	**Viscosity (cSt)**	Not Available
Initial boiling point and boiling range (°C)	Not Available	**Molecular weight (g/mol)**	Not Available
Flash point (°C)	Not Available	**Taste**	Not Available
Evaporation rate	Not Available	**Explosive properties**	Not Available
Flammability	Not flammable	**Oxidising properties**	Not Available
Upper Explosive Limit (%)	Not Available	**Surface Tension (dyn/cm or mN/m)**	Not Applicable
Lower Explosive Limit (%)	Not Available	**Volatile Component (%vol)**	Not Available

Continued...

Vapour pressure (kPa)	Not Available	**Gas group**	Not Available
Solubility in water (g/L)	Not Available	**pH as a solution(1%)**	Not Available
Vapour density (Air = 1)	Not Available	**VOC g/L**	Not Available

9.2. Other information

	Not Available

SECTION 10 STABILITY AND REACTIVITY

10.1.Reactivity	See section 7.2
10.2.Chemical stability	Product is considered stable and hazardous polymerisation will not occur.
10.3. Possibility of hazardous reactions	See section 7.2
10.4. Conditions to avoid	See section 7.2
10.5. Incompatible materials	See section 7.2
10.6. Hazardous decomposition products	See section 5.3

SECTION 11 TOXICOLOGICAL INFORMATION

11.1. Information on toxicological effects

Inhaled	The material is not thought to produce adverse health effects or irritation of the respiratory tract (as classified by EC Directives using animal models). Nevertheless, good hygiene practice requires that exposure be kept to a minimum and that suitable control measures be used in an occupational setting.
Ingestion	The material has **NOT** been classified by EC Directives or other classification systems as 'harmful by ingestion'. This is because of the lack of corroborating animal or human evidence. Poisonings rarely occur after oral administration of manganese salts because they are poorly absorbed from the gut.
Skin Contact	The material is not thought to produce adverse health effects or skin irritation following contact (as classified by EC Directives using animal models). Nevertheless, good hygiene practice requires that exposure be kept to a minimum and that suitable gloves be used in an occupational setting.
Eye	Although the material is not thought to be an irritant (as classified by EC Directives), direct contact with the eye may cause transient discomfort characterised by tearing or conjunctival redness (as with windburn). Slight abrasive damage may also result.
Chronic	Long-term exposure to the product is not thought to produce chronic effects adverse to the health (as classified by EC Directives using animal models); nevertheless exposure by all routes should be minimised as a matter of course. Manganese is an essential trace element. Chronic exposure to low levels of manganese can include a mask-like facial expression, spastic gait, tremors, slurred speech, disordered muscle tone, fatigue, anorexia, loss of strength and energy, apathy and poor concentration.

titanium dioxide	**TOXICITY**	**IRRITATION**
	Not Available	Not Available
silicon dioxide	**TOXICITY**	**IRRITATION**
	Not Available	Not Available
potassium monoxide	**TOXICITY**	**IRRITATION**
	Not Available	Not Available
Diphosphorus pentaoxide	**TOXICITY**	**IRRITATION**
	Not Available	Not Available
vanadium pentoxide	**TOXICITY**	**IRRITATION**
	Intraperitoneal (rat) LD50: 12 mg/kg	Nil reported
	Oral (mouse) LD50: 23 mg/kg	
	Oral (rat) LD50: 10 mg/kg	
	Subcutaneous (mouse) LD50: 10 mg/kg	
	Subcutaneous (rat) LD50: 14 mg/kg	
	Not Available	Not Available
aluminium oxide	**TOXICITY**	**IRRITATION**
	Not Available	Not Available
niobium(V) oxide	**TOXICITY**	**IRRITATION**
	Not Available	Not Available
zirconium dioxide	**TOXICITY**	**IRRITATION**
	Not Available	Not Available

Continued...

copper(II) oxide	**TOXICITY**	**IRRITATION**
	Not Available	Not Available
antimony tetroxide	**TOXICITY**	**IRRITATION**
	Not Available	Not Available
calcium oxide	**TOXICITY**	**IRRITATION**
	Not Available	Not Available
Diiron trioxide	**TOXICITY**	**IRRITATION**
	Not Available	Not Available
magnesium oxide fume	**TOXICITY**	**IRRITATION**
	Not Available	Not Available
chromium (III) oxide	**TOXICITY**	**IRRITATION**
	Not Available	Not Available
manganous oxide	**TOXICITY**	**IRRITATION**
	Not Available	Not Available

titanium dioxide	No significant acute toxicological data identified in literature search.
VANADIUM PENTOXIDE	Coma, post-implantation mortality, foetolethality, specific developmental abnormalities and effects on the embryo reported.
MAGNESIUM OXIDE FUME	Substance has been investigated as a tumorigen; found to be an equivocal tumorigenic agent by RTECS criteria in rodents.
CHROMIUM (III) OXIDE	The following information refers to contact allergens as a group and may not be specific to this product. Contact allergies quickly manifest themselves as contact eczema, more rarely as urticaria or Quincke's oedema. The pathogenesis of contact eczema involves a cell-mediated (T lymphocytes) immune reaction of the delayed type. Other allergic skin reactions, e.g. contact urticaria, involve antibody-mediated immune reactions.
POTASSIUM MONOXIDE, VANADIUM PENTOXIDE, NIOBIUM(V) OXIDE, ZIRCONIUM DIOXIDE, COPPER(II) OXIDE, ANTIMONY TETROXIDE, CALCIUM OXIDE, MANGANOUS OXIDE	Asthma-like symptoms may continue for months or even years after exposure to the material ceases. This may be due to a non-allergenic condition known as reactive airways dysfunction syndrome (RADS) which can occur following exposure to high levels of highly irritating compound. Key criteria for the diagnosis of RADS include the absence of preceding respiratory disease, in a non-atopic individual, with abrupt onset of persistent asthma-like symptoms within minutes to hours of a documented exposure to the irritant. A reversible airflow pattern, on spirometry, with the presence of moderate to severe bronchial hyperreactivity on methacholine challenge testing and the lack of minimal lymphocytic inflammation, without eosinophilia, have also been included in the criteria for diagnosis of RADS.

Acute Toxicity	⊘	**Carcinogenicity**	⊘
Skin Irritation/Corrosion	⊘	**Reproductivity**	⊘
Serious Eye Damage/Irritation	⊘	**STOT - Single Exposure**	⊘
Respiratory or Skin sensitisation	⊘	**STOT - Repeated Exposure**	⊘
Mutagenicity	⊘	**Aspiration Hazard**	⊘

Legend: ✔ *– Data required to make classification available*
✘ *– Data available but does not fill the criteria for classification*
⊘ *– Data Not Available to make classification*

CMR STATUS

MUTAGEN	vanadium pentoxide	European Union (EU) Annex I to Directive 67/548/EEC on Classification and Labelling of Dangerous Substances (updated by ATP: 31) - Mutagenic Substances	Muta. Cat

SECTION 12 ECOLOGICAL INFORMATION

12.1. Toxicity

For Manganese and its Compounds:
Environmental Fate: Manganese is a naturally occurring element in the environment occurring as a result of weathering of geological material. It also occurs from its use in steel manufacture/ coal mining. The most commonly occurring of 11 possible oxidation states are +2, (e.g. manganese chloride or sulfate), +4, (e.g. manganese dioxide), and +7 (e.g. potassium permanganate), although the latter is unstable in the environment.
Atmospheric Fate: Elemental/inorganic manganese compounds may exist in air as suspended particulates from industrial emissions or soil erosion.

12.2. Persistence and degradability

Ingredient	Persistence: Water/Soil	Persistence: Air
titanium dioxide	HIGH	HIGH

Continued...

silicon dioxide	LOW	LOW
zirconium dioxide	HIGH	HIGH
copper(II) oxide	HIGH	HIGH

12.3. Bioaccumulative potential

Ingredient	Bioaccumulation
titanium dioxide	LOW (BCF = 10)
silicon dioxide	LOW (LogKOW = 0.5294)
vanadium pentoxide	LOW (BCF = 14)
zirconium dioxide	LOW (LogKOW = 1.429)
copper(II) oxide	LOW (LogKOW = 1.429)

12.4. Mobility in soil

Ingredient	Mobility
titanium dioxide	LOW (KOC = 23.74)
silicon dioxide	LOW (KOC = 23.74)
zirconium dioxide	LOW (KOC = 23.74)
copper(II) oxide	LOW (KOC = 14.3)

12.5.Results of PBT and vPvB assessment

	P	B	T
Relevant available data	Not Available	Not Available	Not Available
PBT and vPvB Criteria fulfilled	Not Available	Not Available	Not Available

12.6. Other adverse effects

No data available

SECTION 13 DISPOSAL CONSIDERATIONS

13.1. Waste treatment methods

Product / Packaging disposal	▸ Recycle wherever possible or consult manufacturer for recycling options. ▸ Consult State Land Waste Management Authority for disposal. ▸ Bury residue in an authorised landfill. ▸ Recycle containers if possible, or dispose of in an authorised landfill.
Waste treatment options	Not Available
Sewage disposal options	Not Available

SECTION 14 TRANSPORT INFORMATION

Labels Required

Marine Pollutant	NO
HAZCHEM	Not Applicable

Land transport (ADR): NOT REGULATED FOR TRANSPORT OF DANGEROUS GOODS

14.1. UN number	Not Applicable
14.2. Packing group	Not Applicable
14.3. UN proper shipping name	Not Applicable
14.4. Environmental hazard	No relevant data
14.5. Transport hazard class(es)	Class: Not Applicable Subrisk: Not Applicable
14.6. Special precautions for user	Special provisions: Not Applicable Limited quantity: Not Applicable

Air transport (ICAO-IATA / DGR): NOT REGULATED FOR TRANSPORT OF DANGEROUS GOODS

14.1. UN number	Not Applicable
14.2. Packing group	Not Applicable
14.3. UN proper shipping name	Not Applicable
14.4. Environmental hazard	No relevant data

Continued...

14.5. Transport hazard class(es)	ICAO/IATA Class: Not Applicable ICAO / IATA Subrisk: Not Applicable ERG Code: Not Applicable
14.6. Special precautions for user	Special provisions: Not Applicable Cargo Only Packing Instructions: Not Applicable Cargo Only Maximum Qty / Pack: Not Applicable Passenger and Cargo Packing Instructions: Not Applicable Passenger and Cargo Maximum Qty / Pack: Not Applicable Passenger and Cargo Limited Quantity Packing Instructions: Not Applicable Passenger and Cargo Limited Maximum Qty / Pack: Not Applicable

Sea transport (IMDG-Code / GGVSee): NOT REGULATED FOR TRANSPORT OF DANGEROUS GOODS

14.1. UN number	Not Applicable
14.2. Packing group	Not Applicable
14.3. UN proper shipping name	Not Applicable
14.4. Environmental hazard	Not Applicable
14.5. Transport hazard class(es)	IMDG Class: Not Applicable IMDG Subrisk: Not Applicable
14.6. Special precautions for user	EMS Number: Not Applicable Special provisions: Not Applicable Limited Quantities: Not Applicable

Inland waterways transport (ADN): NOT REGULATED FOR TRANSPORT OF DANGEROUS GOODS

14.1. UN number	Not Applicable
14.2. Packing group	Not Applicable
14.3. UN proper shipping name	Not Applicable
14.4. Environmental hazard	No relevant data
14.5. Transport hazard class(es)	Not Applicable: Not Applicable
14.6. Special precautions for user	Classification code: Not Applicable Limited quantity: Not Applicable Equipment required: Not Applicable Fire cones number: Not Applicable

Transport in bulk according to Annex II of MARPOL 73 / 78 and the IBC code

Source	Ingredient	Pollution Category
IMO MARPOL 73/78 (Annex II) - List of Noxious Liquid Substances Carried in Bulk	titanium dioxide	Z

SECTION 15 REGULATORY INFORMATION

15.1. Safety, health and environmental regulations / legislation specific for the substance or mixture

titanium dioxide(13463-67-7) is found on the following regulatory lists	'European Customs Inventory of Chemical Substances ECICS (English)','International Agency for Research on Cancer (IARC) - Agents Classified by the IARC Monographs','European Trade Union Confederation (ETUC) Priority List for REACH Authorisation','EU European Chemicals Agency (ECHA) Community Rolling Action Plan (CoRAP) List of Substances','European Union - European Inventory of Existing Commercial Chemical Substances (EINECS) (English)','UK Workplace Exposure Limits (WELs)'
silicon dioxide(7631-86-9) is found on the following regulatory lists	'European Customs Inventory of Chemical Substances ECICS (English)','International Agency for Research on Cancer (IARC) - Agents Classified by the IARC Monographs','EU European Chemicals Agency (ECHA) Community Rolling Action Plan (CoRAP) List of Substances','European List of Notified Chemical Substances (ELINCS)','European Union - European Inventory of Existing Commercial Chemical Substances (EINECS) (English)'
potassium monoxide(12136-45-7) is found on the following regulatory lists	'European Customs Inventory of Chemical Substances ECICS (English)','European Union - European Inventory of Existing Commercial Chemical Substances (EINECS) (English)'
Diphosphorus pentaoxide(1314-56-3) is found on the following	'EU Consolidated List of Indicative Occupational Exposure Limit Values (IOELVs)','European Customs Inventory of Chemical Substances ECICS (English)','European Union (EU) Commission Directive 2006/15/EC establishing a second list of indicative occupational exposure limit values (IOELVs)','European Union - European Inventory of Existing Commercial Chemical Substances (EINECS) (English)','UK Workplace Exposure Limits

Continued...

regulatory lists	(WELs)','European Union (EU) Regulation (EC) No 1272/2008 on Classification, Labelling and Packaging of Substances and Mixtures - Annex VI','European Union (EU) Annex I to Directive 67/548/EEC on Classification and Labelling of Dangerous Substances - updated by ATP: 31','European Union (EU) Commission Directive 2006/15/EC establishing a second list of indicative occupational exposure limit values (IOELVs) (Spanish)'
vanadium pentoxide(1314-62-1) is found on the following regulatory lists	'European Union (EU) Annex I to Directive 67/548/EEC on Classification and Labelling of Dangerous Substances (updated by ATP: 31) - Mutagenic Substances','European Customs Inventory of Chemical Substances ECICS (English)','International Agency for Research on Cancer (IARC) - Agents Classified by the IARC Monographs','European Union - European Inventory of Existing Commercial Chemical Substances (EINECS) (English)','European Union (EU) Annex I to Directive 67/548/EEC on Classification and Labelling of Dangerous Substances (updated by ATP: 31) - Reprotoxic Substances','UK Workplace Exposure Limits (WELs)','European Union (EU) Regulation (EC) No 1272/2008 on Classification, Labelling and Packaging of Substances and Mixtures - Annex VI','European Union (EU) Annex I to Directive 67/548/EEC on Classification and Labelling of Dangerous Substances - updated by ATP: 31'
aluminium oxide(1344-28-1.*) is found on the following regulatory lists	'European Customs Inventory of Chemical Substances ECICS (English)','International Agency for Research on Cancer (IARC) - Agents Classified by the IARC Monographs','European Union - European Inventory of Existing Commercial Chemical Substances (EINECS) (English)','UK Workplace Exposure Limits (WELs)'
niobium(V) oxide(1313-96-8) is found on the following regulatory lists	'European Customs Inventory of Chemical Substances ECICS (English)','European Union - European Inventory of Existing Commercial Chemical Substances (EINECS) (English)'
zirconium dioxide(1314-23-4) is found on the following regulatory lists	'European Customs Inventory of Chemical Substances ECICS (English)','European Union - European Inventory of Existing Commercial Chemical Substances (EINECS) (English)','UK Workplace Exposure Limits (WELs)'
copper(II) oxide(1317-38-0) is found on the following regulatory lists	'European Customs Inventory of Chemical Substances ECICS (English)','European Union - European Inventory of Existing Commercial Chemical Substances (EINECS) (English)'
antimony tetroxide(1332-81-6) is found on the following regulatory lists	'European Customs Inventory of Chemical Substances ECICS (English)','European Union - European Inventory of Existing Commercial Chemical Substances (EINECS) (English)','UK Workplace Exposure Limits (WELs)'
calcium oxide(1305-78-8) is found on the following regulatory lists	'European Customs Inventory of Chemical Substances ECICS (English)','European Union - European Inventory of Existing Commercial Chemical Substances (EINECS) (English)','UK Workplace Exposure Limits (WELs)'
Diiron trioxide(1309-37-1) is found on the following regulatory lists	'European Customs Inventory of Chemical Substances ECICS (English)','International Agency for Research on Cancer (IARC) - Agents Classified by the IARC Monographs','European Union - European Inventory of Existing Commercial Chemical Substances (EINECS) (English)','UK Workplace Exposure Limits (WELs)'
magnesium oxide fume(1309-48-4) is found on the following regulatory lists	'European Customs Inventory of Chemical Substances ECICS (English)','European Union - European Inventory of Existing Commercial Chemical Substances (EINECS) (English)','UK Workplace Exposure Limits (WELs)'
chromium (III) oxide(1308-38-9) is found on the following regulatory lists	'European Customs Inventory of Chemical Substances ECICS (English)','European Union - European Inventory of Existing Commercial Chemical Substances (EINECS) (English)'
manganous oxide(1344-43-0) is found on the following regulatory lists	'European Customs Inventory of Chemical Substances ECICS (English)','European Trade Union Confederation (ETUC) Priority List for REACH Authorisation','European Union - European Inventory of Existing Commercial Chemical Substances (EINECS) (English)','UK Workplace Exposure Limits (WELs)'

This safety data sheet is in compliance with the following EU legislation and its adaptations - as far as applicable - : 67/548/EEC, 1999/45/EC, 98/24/EC, 92/85/EC, 94/33/EC, 91/689/EEC, 1999/13/EC, Regulation (EU) No 453/2010, Regulation (EC) No 1907/2006, Regulation (EC) No 1272/2008 and their amendments as well as the following British legislation:- The Control of Substances Hazardous to Health Regulations (COSHH) 2002- COSHH Essentials- The Management of Health and Safety at Work Regulations 1999

15.2. Chemical safety assessment

For further information please look at the Chemical Safety Assessment and Exposure Scenarios prepared by your Supply Chain if available.

ECHA SUMMARY

Ingredient	CAS number	Index No	ECHA Dossier
titanium dioxide	13463-67-7	Not Applicable	01-2119489379-17-XXXX

Harmonisation (C&L Inventory)	Hazard Class and Category Code(s)	Pictograms Signal Word Code(s)	Hazard Statement Code(s)
2	Acute Tox. 4, Eye Irrit. 2, STOT RE 1, STOT SE 2, Carc. 1B, Skin Irrit. 2, Aquatic Chronic 4	GHS08, Wng, Dgr	H332, H335, H372, H350, H315, H412, H318, H302, H312
1	Skin Irrit. 2, Eye Irrit. 2, Acute Tox. 4, STOT SE 3	GHS07, Wng	H315, H319, H332, H335
2	Skin Irrit. 2, Eye Irrit. 2, Acute Tox. 4, STOT SE 3	GHS07, Wng	H315, H319, H332, H335
1	Skin Irrit. 2, Eye Irrit. 2, Acute Tox. 4, STOT SE 3	GHS07, Wng	H315, H319, H332, H335
2	Skin Irrit. 2, Eye Irrit. 2, Acute Tox. 4, STOT SE 3	GHS07, Wng	H315, H319, H332, H335

Harmonisation Code 1 = The most prevalent classification. Harmonisation Code 2 = The most severe classification.

Ingredient	CAS number	Index No	ECHA Dossier
silicon dioxide	7631-86-9	Not Available	01-2119379499-16-XXXX

Harmonisation (C&L Inventory)	Hazard Class and Category Code(s)	Pictograms Signal Word Code(s)	Hazard Statement Code(s)
2	Eye Irrit. 2, Acute Tox. 4, STOT RE 1, STOT SE 1, Skin Corr. 1C, Carc. 1B, Aquatic Chronic 3, Flam. Liq. 2, Asp. Tox. 1, Muta. 1B, Carc. 1A	Wng, GHS08, Dgr, GHS05, GHS02	H319, H332, H372, H302, H370, H312, H314, H350, H412, H225, H304, H340

Continued...

2	Acute Tox. 4, Acute Tox. 5	GHS07, Wng	H332, H303
1	Skin Irrit. 2, Eye Irrit. 2, STOT SE 3	GHS07, Wng	H315, H319, H335
2	Skin Irrit. 2, Eye Irrit. 2, STOT SE 3, Carc. 1A, STOT RE 2	Wng, GHS08, Dgr	H315, H319, H335, H350, H373

Harmonisation Code 1 = The most prevalent classification. Harmonisation Code 2 = The most severe classification.

Ingredient	CAS number	Index No	ECHA Dossier
potassium monoxide	12136-45-7	Not Available	Not Available

Harmonisation (C&L Inventory)	Hazard Class and Category Code(s)	Pictograms Signal Word Code(s)	Hazard Statement Code(s)
2	Skin Corr. 1A, Eye Dam. 1, Skin Corr. 1B, Acute Tox. 4, STOT SE 3	GHS05, Dgr, GHS06, Wng, GHS09	H314, H318, H302, H335

Harmonisation Code 1 = The most prevalent classification. Harmonisation Code 2 = The most severe classification.

Ingredient	CAS number	Index No	ECHA Dossier
Diphosphorus pentaoxide	1314-56-3	015-010-00-0	01-2119489912-25-XXXX

Harmonisation (C&L Inventory)	Hazard Class and Category Code(s)	Pictograms Signal Word Code(s)	Hazard Statement Code(s)
1	Skin Corr. 1A	GHS05, Dgr	H314
2	Skin Corr. 1A, Eye Dam. 1, Acute Tox. 2, Skin Corr. 1B, Met. Corr. 1	GHS05, Dgr, GHS06	H314, H318, H330, H290

Harmonisation Code 1 = The most prevalent classification. Harmonisation Code 2 = The most severe classification.

Ingredient	CAS number	Index No	ECHA Dossier
vanadium pentoxide	1314-62-1	023-001-00-8	01-2119531331-54-XXXX

Harmonisation (C&L Inventory)	Hazard Class and Category Code(s)	Pictograms Signal Word Code(s)	Hazard Statement Code(s)
1	Acute Tox. 4, STOT SE 3, Muta. 2, Repr. 2, STOT RE 1, Aquatic Chronic 2	GHS09, GHS08, Dgr	H302, H332, H335, H341, H361, H372, H411
2	STOT SE 3, Muta. 2, Repr. 2, STOT RE 1, Aquatic Chronic 2, Acute Tox. 3, Acute Tox. 2, Carc. 2, Eye Dam. 1, Aquatic Acute 1, STOT RE 2, Aquatic Acute 2	GHS09, GHS08, Dgr, GHS06, GHS05	H335, H341, H361, H372, H411, H301, H310, H330, H318, H400, H350, H315

Harmonisation Code 1 = The most prevalent classification. Harmonisation Code 2 = The most severe classification.

Ingredient	CAS number	Index No	ECHA Dossier
aluminium oxide	1344-28-1	Not Applicable	01-2119817795-27-XXXX, 01-2119529248-35-XXXX

Harmonisation (C&L Inventory)	Hazard Class and Category Code(s)	Pictograms Signal Word Code(s)	Hazard Statement Code(s)
2	STOT SE 3, Acute Tox. 4, STOT RE 1, Muta. 2, Skin Sens. 1, Carc. 1B, Repr. 2, Aquatic Chronic 3, Skin Irrit. 2, Eye Irrit. 2, Flam. Liq. 2	GHS08, Dgr, Wng, GHS09, GHS02	H370, H332, H372, H341, H317, H350, H361, H412, H220, H315, H319, H225

Harmonisation Code 1 = The most prevalent classification. Harmonisation Code 2 = The most severe classification.

Ingredient	CAS number	Index No	ECHA Dossier
niobium(V) oxide	1313-96-8	Not Available	01-2119548385-32-XXXX

Harmonisation (C&L Inventory)	Hazard Class and Category Code(s)	Pictograms Signal Word Code(s)	Hazard Statement Code(s)
1	Skin Irrit. 2, Eye Irrit. 2, STOT SE 3	GHS07, Wng	H315, H319, H335
2	Skin Irrit. 2, Eye Irrit. 2, STOT SE 3, Aquatic Chronic 4	GHS07, Wng	H315, H319, H335, H413

Harmonisation Code 1 = The most prevalent classification. Harmonisation Code 2 = The most severe classification.

Ingredient	CAS number	Index No	ECHA Dossier
zirconium dioxide	1314-23-4	Not Available	01-2119486976-14-XXXX

Harmonisation (C&L Inventory)	Hazard Class and Category Code(s)	Pictograms Signal Word Code(s)	Hazard Statement Code(s)
2	Skin Irrit. 2, Eye Irrit. 2, STOT SE 3, STOT RE 2, Skin Sens. 1, Resp. Sens. 1	Wng, GHS08, GHS02, Dgr	H315, H319, H335, H372, H336, H220, H317, H334

Harmonisation Code 1 = The most prevalent classification. Harmonisation Code 2 = The most severe classification.

Ingredient	CAS number	Index No	ECHA Dossier
copper(II) oxide	1317-38-0	Not Available	01-2119502447-44-XXXX

Harmonisation (C&L Inventory)	Hazard Class and Category Code(s)	Pictograms Signal Word Code(s)	Hazard Statement Code(s)
1	Aquatic Acute 1, Acute Tox. 4, Aquatic Chronic 1	GHS09, Wng, GHS07, Dgr	H400, H302, H410

Continued...

2	Aquatic Acute 1, Acute Tox. 4, Skin Irrit. 2, Eye Irrit. 2, STOT SE 3, Aquatic Chronic 1, Flam. Sol. 2, Self-react. F, Self-heat. 2, Acute Tox. 2, Asp. Tox. 1, Skin Sens. 1, Resp. Sens. 1, STOT RE 2	GHS09, Wng, GHS08, GHS07, Dgr	H400, H302, H315, H319, H335, H410, H312, H331

Harmonisation Code 1 = The most prevalent classification. Harmonisation Code 2 = The most severe classification.

Ingredient	CAS number	Index No	ECHA Dossier
antimony tetroxide	1332-81-6	Not Available	Not Available

Harmonisation (C&L Inventory)	Hazard Class and Category Code(s)	Pictograms Signal Word Code(s)	Hazard Statement Code(s)
2	Skin Irrit. 2, Eye Irrit. 2, STOT SE 3	GHS07, Wng	H315, H319, H335

Harmonisation Code 1 = The most prevalent classification. Harmonisation Code 2 = The most severe classification.

Ingredient	CAS number	Index No	ECHA Dossier
calcium oxide	1305-78-8	Not Available	01-2119475325-36-XXXX, 01-2119666323-39-XXXX, 01-2119862019-36-XXXX

Harmonisation (C&L Inventory)	Hazard Class and Category Code(s)	Pictograms Signal Word Code(s)	Hazard Statement Code(s)
1	Skin Irrit. 2, Eye Dam. 1, STOT SE 3	GHS05, Dgr	H315, H318, H335
2	Eye Dam. 1, Acute Tox. 4, Skin Corr. 1C, Skin Corr. 1B, STOT SE 1	GHS05, Dgr, GHS06, GHS08, Wng	H318, H302, H314, H370, H372, H312, H317
1	Skin Irrit. 2, Eye Dam. 1, STOT SE 3	GHS05, Dgr	H315, H318, H335
2	Skin Irrit. 2, Eye Dam. 1, STOT SE 3	GHS05, Dgr	H315, H318, H335

Harmonisation Code 1 = The most prevalent classification. Harmonisation Code 2 = The most severe classification.

Ingredient	CAS number	Index No	ECHA Dossier
Diiron trioxide	1309-37-1	Not Available	01-2119457614-35-XXXX

Harmonisation (C&L Inventory)	Hazard Class and Category Code(s)	Pictograms Signal Word Code(s)	Hazard Statement Code(s)
2	Aquatic Chronic 2, Skin Irrit. 2, STOT SE 3, Eye Dam. 1, STOT RE 1, Acute Tox. 4	Wng, GHS09, GHS08, Dgr, GHS05	H411, H315, H370, H318, H372, H332, H302

Harmonisation Code 1 = The most prevalent classification. Harmonisation Code 2 = The most severe classification.

Ingredient	CAS number	Index No	ECHA Dossier
magnesium oxide fume	1309-48-4	Not Available	Not Available

Harmonisation (C&L Inventory)	Hazard Class and Category Code(s)	Pictograms Signal Word Code(s)	Hazard Statement Code(s)
2	Aquatic Chronic 1, Skin Irrit. 2, Skin Sens. 1B, STOT SE 2, Eye Dam. 1, Acute Tox. 4, Skin Sens. 1	GHS09, Wng, GHS08, GHS05, Dgr	H410, H315, H371, H318, H332, H302

Harmonisation Code 1 = The most prevalent classification. Harmonisation Code 2 = The most severe classification.

Ingredient	CAS number	Index No	ECHA Dossier
chromium (III) oxide	1308-38-9	Not Available	01-2119433951-39-XXXX

Harmonisation (C&L Inventory)	Hazard Class and Category Code(s)	Pictograms Signal Word Code(s)	Hazard Statement Code(s)
2	Acute Tox. 4, Skin Sens. 1, Repr. 1B, Resp. Sens. 1, STOT SE 3, Aquatic Acute 1, Aquatic Chronic 1, Muta. 1B, Carc. 1A, Acute Tox. 3, Skin Corr. 1A, Eye Dam. 1, Acute Tox. 2, STOT RE 1	Wng, GHS08, Dgr, GHS09, GHS06, GHS05	H302, H317, H319, H360, H334, H400, H410, H340, H350, H311, H314, H330, H372, H371

Harmonisation Code 1 = The most prevalent classification. Harmonisation Code 2 = The most severe classification.

Ingredient	CAS number	Index No	ECHA Dossier
manganous oxide	1344-43-0	Not Available	Not Available

Harmonisation (C&L Inventory)	Hazard Class and Category Code(s)	Pictograms Signal Word Code(s)	Hazard Statement Code(s)
2	Acute Tox. 4, Skin Irrit. 2, Eye Irrit. 2, STOT SE 3, Acute Tox. 3	Wng, GHS06, Dgr, GHS08	H302, H332, H315, H319, H335, H311, H400

Harmonisation Code 1 = The most prevalent classification. Harmonisation Code 2 = The most severe classification.

SECTION 16 OTHER INFORMATION

Full text Risk and Hazard codes

H220	Extremely flammable gas
H225	Highly flammable liquid and vapour
H290	May be corrosive to metals
H301	Toxic if swallowed
H302	Harmful if swallowed

Continued...

H303	May be harmful if swallowed
H304	May be fatal if swallowed and enters airways
H310	Fatal in contact with skin
H311	Toxic in contact with skin
H312	Harmful in contact with skin
H314	Causes severe skin burns and eye damage
H315	Causes skin irritation
H317	May cause an allergic skin reaction
H318	Causes serious eye damage
H319	Causes serious eye irritation
H330	Fatal if inhaled
H331	Toxic if inhaled
H332	Harmful if inhaled
H334	May cause allergy or asthma symptoms or breathing difficulties if inhaled
H335	May cause respiratory irritation
H336	May cause drowsiness or dizziness
H340	May cause genetic defects
H341	Suspected of causing genetic defects
H350	May cause cancer
H360	May damage fertility or the unborn child
H361	Suspected of damaging fertility or the unborn child
H370	Causes damage to organs
H371	May cause damage to organs
H372	Causes damage to organs through prolonged or repeated exposure
H373	May cause damage to organs through prolonged or repeated exposure
H400	Very toxic to aquatic life
H410	Very toxic to aquatic life with long lasting effects
H411	Toxic to aquatic life with long lasting effects
H412	Harmful to aquatic life with long lasting effects
H413	May cause long lasting harmful effects to aquatic life

R20/21/22	Harmful by inhalation, in contact with skin and if swallowed.
R20/22	Harmful by inhalation and if swallowed.
R35	Causes severe burns.
R36/37/38	Irritating to eyes, respiratory system and skin.
R37	Irritating to respiratory system.
R41	Risk of serious damage to eyes.
R43	May cause SENSITISATION by skin contact.
R48/23	Toxic: danger of serious damage to health by prolonged exposure through inhalation.
R50/53	Very toxic to aquatic organisms, may cause long-term adverse effects in the aquatic environment.
R51/53	Toxic to aquatic organisms, may cause long-term adverse effects in the aquatic environment.
R52	Harmful to aquatic organisms.
R63	Possible risk of harm to the unborn child.
R68	Possible risk of irreversible effects.

Other information

Ingredients with multiple cas numbers

Name	CAS No
vanadium pentoxide	12260-63-8, 1314-62-1
copper(II) oxide	1317-38-0, 1317-92-6, 1344-70-3, 185461-92-1

The (M)SDS is a Hazard Communication tool and should be used to assist in the Risk Assessment. Many factors determine whether the reported Hazards are Risks in the workplace or other settings. Risks may be determined by reference to Exposures Scenarios. Scale of use, frequency of use and current or available engineering controls must be considered.

For detailed advice on Personal Protective Equipment, refer to the following EU CEN Standards:
EN 166 Personal eye-protection
EN 340 Protective clothing
EN 374 Protective gloves against chemicals and micro-organisms
EN 13832 Footwear protecting against chemicals
EN 133 Respiratory protective devices

end of SDS