Chromium Oxide - Titania

Safety Data Sheet

According to Regulation (EC) No. 1907/2006 (REACH) with its amendment Regulation (EU) 2020/878

Revision Date: 22/10/2021 Date of Issue: 22/10/2021 Version: 1.0

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

1.1. Product Identifier

Product Form : Substance

Product Name : Chromium Oxide - Titania

EC-No. : 215-37-7

CAS-No. : 1308-38-9

REACH registration No : 01-2119433951-39-0037

Synonyms : Chromic oxide; Chromium oxide green; Dichromium(III) trioxide

Other product identifiers : 9597, 9598, 9599, 9684, 9697, 9698, #306, #307, #307SP, #340, #341

1.2. Relevant Identified Uses of the Substance or Mixture and Uses Advised Against

1.2.1. Relevant Identified Uses

Use of the Substance/Mixture : Thermal spray powder

1.2.2. Uses Advised Against

Uses Advised Against : None specified

1.3. Details of the Supplier of the Safety Data Sheet

Company

Saint-Gobain Specialty Grains and Powders
One New Bond Street
Worcester, MA 01606
(508) 795-5000
CeramicMaterials@saint-gobain.com

1.4. Emergency Telephone Number

Emergency Number : ChemTel LLC
Domestic: 1-800-255-3924
International: +1-813-248-0585
Australia: 1-300-954-583
Brazil: 0-800-591-6042
China: 400-120-0751
India: 000-800-100-4086
Mexico: 800-099-0731

SECTION 2: HAZARDS IDENTIFICATION

2.1. Classification of the Substance or Mixture

Classification According to Regulation (EC) No. 1272/2008

Carc. 2 H351

Full text of hazard classes, H- and EUH-statements: see section 16

2.2. Label Elements

Labelling According to Regulation (EC) No. 1272/2008 [CLP]

Hazard Pictograms (CLP) :

GHS08

Signal Word (CLP) : Warning

Hazard Statements (CLP) : H351 - Suspected of causing cancer (inhalation).

Precautionary Statements (CLP) : P201 - Obtain special instructions before use.
P202 - Do not handle until all safety precautions have been read and understood.
P280 - Wear protective gloves/protective clothing/eye protection.
P308+P313 - IF exposed or concerned: Get medical advice/attention.
P405 - Store locked up.
P501 - Dispose of contents/container to hazardous or special waste collection point, in accordance with local, regional, national and/or international regulation.

EUH-statements : EUH212 - Warning! Hazardous respirable dust may be formed when used. Do not breathe dust.

2.3. Other Hazards

Other Hazards Not Contributing to the Classification : Exposure may aggravate pre-existing eye, skin, or respiratory conditions. Risk of thermal burns on contact with molten product. Hexavalent chromium may be formed during high heat application/processing. Inhalation of fumes can cause metal fume fever. Symptoms can include a metallic or sweet taste in the mouth, sweating, shivering, headache, throat irritation, fever, chills, thirstiness, muscle aches, nausea, vomiting, weakness, fatigue, and shortness of breath.

This substance/mixture does not meet the PBT/vPvB criteria of REACH regulation, annex XIII

Component	
Titanium dioxide(13463-67-7)	The substance is included in the list established in accordance with Article 59(1) of REACH for having endocrine disrupting properties, or is identified as having endocrine disrupting properties in accordance with the criteria set out in Commission Delegated Regulation (EU) 2017/2100 or Commission Regulation (EU) 2018/605

SECTION 3: COMPOSITION/INFORMATION ON INGREDIENTS

3.1. Substances

Name	Product Identifier	%	Classification According to Regulation (EC) No. 1272/2008
Chromium oxide (Cr2O3)	(CAS-No.) 1308-38-9 (EC-No.) 215-160-9 (REACH-no) 01-2119433951-39-0037	90 – 97	Not classified
Contains:			
Titanium dioxide substance identified as having endocrine disrupting properties	(CAS-No.) 13463-67-7 (EC-No.) 236-675-5 (EC Index-No.) 022-006-00-2 (REACH-no) 01-2119489379-17-0245	3 – 5	Carc. 2, H351
Silica, vitreous	(CAS-No.) 60676-86-0 (EC-No.) 262-373-8;424-440-1	≤ 5	Not classified
Chromium, ion (Cr6+)	(CAS-No.) 18540-29-9 (EC-No.) 606-053-1	*	Skin Sens. 1, H317 Carc. 1B, H350 Aquatic Acute 1, H400 Aquatic Chronic 1, H410

Full text of H-statements: see section 16

*Hexavalent chromium may be formed during high heat application/processing.

SECTION 4: FIRST AID MEASURES

4.1. Description of First-aid Measures

First-Aid Measures General : Never give anything by mouth to an unconscious person. If you feel unwell, seek medical advice (show the label where possible).

First-Aid Measures After Inhalation : When symptoms occur: go into open air and ventilate suspected area. Encourage exposed person to cough, spit out, and blow nose to remove dust. Obtain medical attention if breathing difficulty persists.

First-Aid Measures After Skin Contact : Remove contaminated clothing. Brush off loose particles from skin. Drench affected area with water for at least 5 minutes. In case of thermal burns, immediately rinse with cool water for at least 15 minutes and seek medical attention. If exposed or concerned: Get medical advice/attention.

First-Aid Measures After Eye Contact : Rinse cautiously with water for at least 5 minutes. Remove contact lenses, if present and easy to do. Continue rinsing. Obtain medical attention if irritation develops or persists. Obtain medical attention for thermal burns.

First-Aid Measures After Ingestion : Rinse mouth. Do NOT induce vomiting. Obtain medical attention.

4.2. Most Important Symptoms and Effects Both Acute and Delayed

Symptoms/Effects : Suspected of causing cancer (Inhalation).

Symptoms/Effects After Inhalation : Prolonged exposure may cause irritation. Repeated or prolonged exposure to titanium dioxide dust via inhalation is suspected of causing cancer of the respiratory tract. During processing, the most significant route of exposure is by the inhalation (breathing) of fumes. If fumes are inhaled, they can cause a condition commonly known as metal fume fever with symptoms which resemble influenza; Symptoms may be delayed 4-12 hours and begin with a sudden onset of thirst, and a sweet, metallic or foul taste in the mouth. Other symptoms may include upper respiratory tract irritation accompanied by coughing and a dryness of the mucous

membranes, lassitude and a generalized feeling of malaise. Fever, chills, muscular pain, mild to severe headache, nausea, occasional vomiting, exaggerated mental activity, profuse sweating, excessive urination, diarrhea and prostration may also occur.

Symptoms/Effects After Skin Contact : Direct contact may cause irritation by mechanical abrasion. Risk of thermal burns on contact with molten product.

Symptoms/Effects After Eye Contact : Eye contact with dust may cause mechanical irritation. Risk of thermal burns on contact with molten product.

Symptoms/Effects After Ingestion : Ingestion may cause adverse effects.

Chronic Symptoms : Repeated or prolonged exposure to titanium dioxide dust via inhalation is suspected of causing cancer of the respiratory tract. Chromium: Certain hexavalent chromium compounds have been demonstrated to be carcinogenic on the basis of epidemiological investigations on workers and experimental studies in animals. Increased incidences of respiratory cancer have been found in chromium (VI) workers. There is an increased incidence of lung cancer in industrial workers exposed to chromium (VI) compounds. Please refer to IARC volume 23 for a more detailed discussion.

4.3. Indication of Any Immediate Medical Attention and Special Treatment Needed

If exposed or concerned, get medical advice and attention. If medical advice is needed, have product container or label at hand.

SECTION 5: FIREFIGHTING MEASURES

5.1. Extinguishing Media

Suitable Extinguishing Media : Use extinguishing media suitable for surrounding type of fire.

Unsuitable Extinguishing Media : None known.

5.2. Special Hazards Arising From the Substance or Mixture

Fire Hazard : Not flammable.

Explosion Hazard : Product is not explosive.

Reactivity : Hazardous reactions will not occur under normal conditions.

Hazardous Combustion Products : Chromium VI compounds. Metal oxides.

5.3. Advice for Firefighters

Precautionary Measures Fire : Exercise caution when fighting any chemical fire.

Firefighting Instructions : Use water spray or fog for cooling exposed containers. Do not breathe fumes or vapors from fire. Keep upwind.

Protection During Firefighting : Do not enter fire area without proper protective equipment, including respiratory protection.

SECTION 6: ACCIDENTAL RELEASE MEASURES

6.1. Personal Precautions, Protective Equipment and Emergency Procedures

General Measures : Avoid generating dust. Do not get in eyes, on skin, or on clothing. Do not breathe dust or fumes.

6.1.1. For Non-Emergency Personnel

Protective Equipment : Use appropriate personal protective equipment (PPE).

Emergency Procedures : Evacuate unnecessary personnel.

6.1.2. For Emergency Responders

Protective Equipment : Equip cleanup crew with proper protection.

Emergency Procedures : Upon arrival at the scene, a first responder is expected to recognise the presence of dangerous goods, protect oneself and the public, secure the area, and call for the assistance of trained personnel as soon as conditions permit. Ventilate area.

6.2. Environmental Precautions

Prevent entry to sewers and public waters.

6.3. Methods and Materials for Containment and Cleaning Up

For Containment : Contain solid spills with appropriate barriers and prevent migration and entry into sewers or streams.

Methods for Cleaning Up : Avoid dispersal of dust in the air (ie, clearing dust surfaces with compressed air). Clean up spills immediately and dispose of waste safely. If melted: allow liquid to solidify before taking it up. Recover the product by vacuuming, shoveling or sweeping. Transfer spilled material to a suitable container for disposal. Contact competent authorities after a spill.

6.4. Reference to Other Sections

See Section 8 for exposure controls and personal protection and Section 13 for disposal considerations.

SECTION 7: HANDLING AND STORAGE

7.1. Precautions for Safe Handling

Additional Hazards When Processed : Avoid dust production that exceeds permissible exposure limits. Risk of thermal burns on contact with molten product. Hexavalent chromium may be formed during high heat application/processing. Do not breathe dust or fumes.

Precautions for Safe Handling : Obtain special instructions before use. Do not handle until all safety precautions have been read and understood. Avoid creating or spreading dust. Do not breathe dust. Do not get in eyes, on skin, or on clothing. Wash hands and other exposed areas with mild soap and water before eating, drinking or smoking and when leaving work.

Hygiene Measures : Handle in accordance with good industrial hygiene and safety procedures.

7.2. Conditions for Safe Storage, Including Any Incompatibilities

Technical Measures : Comply with applicable regulations.

Storage Conditions : Store in accordance with applicable national storage class systems. Keep container closed when not in use. Store in a dry, cool place. Store locked up/in a secure area.

Incompatible Materials : Strong acids. Strong bases.

7.3. Specific End Use

Thermal spray powder

SECTION 8: EXPOSURE CONTROLS/PERSONAL PROTECTION

8.1. Control Parameters

Please see section 16 for the legal basis of limit value information in section 8.1, including the national legislation or provision which gives rise to a given limit.

Chromium oxide (Cr2O3) (1308-38-9)		
USA ACGIH	OEL TWA (Legal Basis:IMDFN1)	0,05 mg/m³ 0.5 (Cr II & Cr III Compounds) 0.05 (Cr VI Water Soluble)
Latvia	OEL TWA (Legal Basis:Reg. No. 325)	1 mg/m³
Titanium dioxide (13463-67-7)		
Austria	OEL TWA (Legal Basis:BGBl. II Nr. 254/2018)	5 mg/m³ (alveolar dust, respirable fraction)
Austria	OEL STEL (Legal Basis:BGBl. II Nr. 254/2018)	10 mg/m³ (alveolar dust, respirable fraction)
Belgium	OEL TWA (Legal Basis:Royal Decree 21/01/2020)	10 mg/m³
Bulgaria	OEL TWA (Legal Basis:Reg. No. 13/10)	10 mg/m³ (respirable dust)
Croatia	OEL TWA (Legal Basis:OG No. 91/2018)	10 mg/m³ (total dust, inhalable particles) 4 mg/m³ (respirable dust)
Denmark	OEL TWA (Legal Basis:BEK No. 698 of 28/05/2020)	6 mg/m³
Estonia	OEL TWA (Legal Basis:Regulation No. 105)	5 mg/m³
France	OEL TWA (Legal Basis:INRS ED 984)	10 mg/m³
Germany	OEL TWA (Legal Basis:TRGS 900)	1,25 mg/m³ (respirable fraction (dust) 10 mg/m³ (inhalable fraction (dust)
Greece	OEL TWA (Legal Basis:PWHSE)	10 mg/m³ (inhalable fraction) 5 mg/m³ (respirable fraction)
Ireland	OEL TWA (Legal Basis:2020 COP)	10 mg/m³ (total inhalable dust) 4 mg/m³ (respirable dust)
Ireland	OEL STEL (Legal Basis:2020 COP)	30 mg/m³ (calculated-respirable dust) 12 mg/m³ (calculated)
USA ACGIH	OEL TWA (Legal Basis:IMDFN1)	10 mg/m³
Latvia	OEL TWA (Legal Basis:Reg. No. 325)	10 mg/m³
Lithuania	OEL TWA (Legal Basis:HN 23:2011)	5 mg/m³
Norway	OEL TWA (Legal Basis:FOR-2020-04-06-695)	5 mg/m³
Norway	OEL STEL (Legal Basis:FOR-2020-04-06-695)	10 mg/m³ (value calculated)
Poland	OEL TWA (Legal Basis:Dz. U. 2020 Nr. 61)	10 mg/m³ (the concentration of the respirable Crystalline silica fraction is determined simultaneously-inhalable fraction)
Portugal	OEL TWA (Legal Basis:Portuguese Norm NP 1796:2014)	10 mg/m³
Portugal	OEL Chemical Category (Legal Basis:Portuguese Norm NP 1796:2014)	A4 - Not Classifiable as a Human Carcinogen
Romania	OEL TWA (Legal Basis:Gov. Dec. No 1.218)	10 mg/m³
Romania	OEL STEL (Legal Basis:Gov. Dec. No 1.218)	15 mg/m³

Slovakia	OEL TWA (Legal Basis:Gov. Decree 33/2018)	5 mg/m³
Spain	OEL TWA (Legal Basis:OELCAIS)	10 mg/m³
Sweden	OEL TLV (Legal Basis:AFS 2018:1)	5 mg/m³ (total dust)
Switzerland	OEL TWA (Legal Basis:OLVSNAIF)	3 mg/m³ (respirable dust)
Silica, vitreous (60676-86-0)		
Austria	OEL TWA (Legal Basis:BGBl. II Nr. 254/2018)	0,3 mg/m³ (respirable fraction (Silica, amorphous)
Belgium	OEL TWA (Legal Basis:Royal Decree 21/01/2020)	0,1 mg/m³ (alveolar dust)
Croatia	OEL TWA (Legal Basis:OG No. 91/2018)	0,08 mg/m³ (respirable dust)
Denmark	OEL TWA (Legal Basis:BEK No. 698 of 28/05/2020)	0,1 mg/m³ (respirable)
Germany	OEL TWA (Legal Basis:TRGS 900)	0,3 mg/m³ (the risk of damage to the embryo or fetus can be excluded when AGW and BGW values are observed-respirable fraction)
Ireland	OEL TWA (Legal Basis:2020 COP)	0,08 mg/m³ (respirable dust)
Ireland	OEL STEL (Legal Basis:2020 COP)	0,24 mg/m³ (calculated-total inhalable dust)
Poland	OEL TWA (Legal Basis:Dz. U. 2020 Nr. 61)	2 mg/m³ (inhalable fraction) 1 mg/m³ (respirable fraction)
Slovenia	OEL TWA (Legal Basis:No. 79/19)	0,3 mg/m³ (respirable fraction)
Switzerland	OEL TWA (Legal Basis:OLVSNAIF)	0,3 mg/m³ (including Silica, amorphous-respirable dust)
Chromium, ion (Cr6+) (18540-29-9)		
Finland	OEL TWA (Legal Basis:HTP-ARVOT 2020)	0,005 mg/m³
France	OEL STEL (Legal Basis:INRS ED 984)	0,005 mg/m³ (restrictive limit)
France	OEL TWA (Legal Basis:INRS ED 984)	0,001 mg/m³ (restrictive limit)
France	OEL BLV (Legal Basis:Decree 2009-1570)	0,01 mg/g creatinine Parameter: Total Chromium - Medium: urine - Sampling time: augmented during shift (Background noise on non-exposed subjects (soluble aerosol)) 0,04 mg/g creatinine Parameter: Total Chromium - Medium: urine - Sampling time: augmented during shift (Exposed subjects to welding fumes (soluble aerosol)) 0,002 mg/g creatinine Parameter: Total Chromium - Medium: urine - Sampling time: end of workweek (Exposed subjects from chrome plating sector) 0,03 mg/g creatinine Parameter: Total Chromium - Medium: urine - Sampling time: end of shift at end of workweek (Background noise on non-exposed subjects (soluble aerosol))
Romania	OEL TWA (Legal Basis:Gov. Dec. No 1.218)	0,05 mg/m³
Romania	OEL Chemical Category (Legal Basis:Gov. Dec. No 1.218)	C1A

8.2. Exposure Controls

Appropriate Engineering Controls : Suitable eye/body wash equipment should be available in the vicinity of any potential exposure. Ensure adequate ventilation, especially in confined areas. Ensure all national/local regulations are observed.

Personal Protective Equipment : Gloves. Protective clothing. Protective goggles. Insufficient ventilation: wear respiratory protection. Personal protective equipment should be chosen in accordance with Regulation (EU) 2016/425, CEN standards, and in discussion with the supplier of the protective equipment.

Materials for Protective Clothing : Thermal protection required when working with hot material.

Hand Protection : Wear protective gloves.

Eye Protection : Safety glasses with side-shields.

Skin and Body Protection : Wear suitable protective clothing.

Respiratory Protection : If exposure limits are exceeded or irritation is experienced, approved respiratory protection should be worn. In case of inadequate ventilation, oxygen deficient atmosphere, or where exposure levels are not known wear approved respiratory protection.

Thermal Hazard Protection : If material is hot, wear thermally resistant protective gloves. Wear suitable thermal protective clothing. Protect skin and eyes from contact with molten material.

Other Information : When using, do not eat, drink or smoke.

SECTION 9: PHYSICAL AND CHEMICAL PROPERTIES

9.1. Information on Basic Physical and Chemical Properties

Physical State : Solid

Colour, Appearance : Dark green powder

Colour	: No data available
Odour	: Odourless
Odour Threshold	: No data available
pH	: Not available
pH solution	: Not available
Evaporation Rate	: Not applicable
Melting Point	: 2400 °C (4352 °F)
Freezing Point	: Not available
Boiling Point	: No data available
Flash Point	: Not applicable
Auto-Ignition Temperature	: Not applicable
Decomposition Temperature	: No data available
Flammability (solid, gas)	: No data available
Vapour Pressure	: Not applicable
Relative Vapour Density At 20 °C	: No data available
Relative Density	: No data available
Density	: ≈ 4,5 g/cm³
Solubility	: Water: Insoluble
Partition Coefficient n-Octanol/Water	: No data available
Viscosity	: Not applicable
Explosive Properties	: No data available
Oxidising Properties	: None
Explosive Limits	: Not applicable
Particle Size	: Not available
Particle Size Distribution	: Not available
Particle Shape	: Not available
Particle Aspect Ratio	: Not available
Particle Aggregation State	: Not available
Particle Agglomeration State	: Not available
Particle Specific Surface Area	: Not available
Particle Dustiness	: Not available

9.2. Other Information

Relative Evaporation Rate (Butylacetate=1) : Not applicable

SECTION 10: STABILITY AND REACTIVITY

10.1. Reactivity

Hazardous reactions will not occur under normal conditions.

10.2. Chemical Stability

Stable under recommended handling and storage conditions (see section 7).

10.3. Possibility of Hazardous Reactions

Hazardous polymerization will not occur.

10.4. Conditions to Avoid

Avoid dust formation.

10.5. Incompatible Materials

Strong acids. Strong bases.

10.6. Hazardous Decomposition Products

Thermal decomposition generates: Chromium (VI) compounds. Metal oxides.

SECTION 11: TOXICOLOGICAL INFORMATION

11.1. Information On Hazard Classes As Defined In Regulation (Ec) No 1272/2008

Likely Routes of Exposure	: Dermal. Eye contact. Inhalation.
Acute Toxicity (Oral)	: Not classified (Based on available data, the classification criteria are not met)
Acute Toxicity (Dermal)	: Not classified (Based on available data, the classification criteria are not met)
Acute Toxicity (Inhalation)	: Not classified (Based on available data, the classification criteria are not met)

Chromium oxide (Cr2O3) (1308-38-9)	
LD50 Oral Rat	> 5000 mg/kg
LC50 Inhalation Rat	> 5,41 mg/l/4h

Titanium dioxide (13463-67-7)	
LD50 Oral Rat	> 10000 mg/kg
LC50 Inhalation Rat	5,09 mg/l/4h

Skin Corrosion/Irritation : Not classified (Based on available data, the classification criteria are not met)
Eye Damage/Irritation : Not classified (Based on available data, the classification criteria are not met)
Respiratory or Skin Sensitization : Not classified (Based on available data, the classification criteria are not met)
Germ Cell Mutagenicity : Not classified (Based on available data, the classification criteria are not met)
Carcinogenicity : Suspected of causing cancer (inhalation).

Chromium oxide (Cr2O3) (1308-38-9)	
IARC Group	3

Titanium dioxide (13463-67-7)	
IARC Group	2B

Silica, vitreous (60676-86-0)	
IARC Group	3

Chromium, ion (Cr6+) (18540-29-9)	
IARC Group	1

Reproductive Toxicity : Not classified (Based on available data, the classification criteria are not met)
Specific Target Organ Toxicity (Single Exposure) : Not classified (Based on available data, the classification criteria are not met)
Specific Target Organ Toxicity (Repeated Exposure) : Not classified (Based on available data, the classification criteria are not met)
Aspiration Hazard : Not classified (Based on available data, the classification criteria are not met)
Symptoms/Injuries After Inhalation : Prolonged exposure may cause irritation. Repeated or prolonged exposure to titanium dioxide dust via inhalation is suspected of causing cancer of the respiratory tract. During processing, the most significant route of exposure is by the inhalation (breathing) of fumes. If fumes are inhaled, they can cause a condition commonly known as metal fume fever with symptoms which resemble influenza; Symptoms may be delayed 4-12 hours and begin with a sudden onset of thirst, and a sweet, metallic or foul taste in the mouth. Other symptoms may include upper respiratory tract irritation accompanied by coughing and a dryness of the mucous membranes, lassitude and a generalized feeling of malaise. Fever, chills, muscular pain, mild to severe headache, nausea, occasional vomiting, exaggerated mental activity, profuse sweating, excessive urination, diarrhea and prostration may also occur.
Symptoms/Injuries After Skin Contact : Direct contact may cause irritation by mechanical abrasion. Risk of thermal burns on contact with molten product.
Symptoms/Injuries After Eye Contact : Eye contact with dust may cause mechanical irritation. Risk of thermal burns on contact with molten product.
Symptoms/Injuries After Ingestion : Ingestion may cause adverse effects.
Chronic Symptoms : Repeated or prolonged exposure to titanium dioxide dust via inhalation is suspected of causing cancer of the respiratory tract. Chromium: Certain hexavalent chromium compounds have been demonstrated to be carcinogenic on the basis of epidemiological investigations on workers and experimental studies in animals. Increased incidences of respiratory cancer have been found in chromium (VI) workers. There is an increased incidence of lung cancer in industrial workers exposed to chromium (VI) compounds. Please refer to IARC volume 23 for a more detailed discussion.

11.2. Information On Other Hazards

Based on available data this substance/the substances in this mixture not listed below do(es) not have endocrine disrupting properties with respect to humans as it does not meet the criteria set out in section A of Regulation (EU) No 2017/2100 and/or the criteria set out in Regulation (EU) 2018/605, or the substance(s) are not required to be disclosed.

Component	
Titanium dioxide (13463-67-7)	This chemical is considered to have endocrine disrupting properties with respect to animals and humans in the lungs, producing changes to morphology as it meets the criteria set out in section A of Regulation (EU) 2017/2100, and/or the criteria set out in Regulation (EU) 2018/605. This conclusion is based on evidence from studies and data obtained from a literature search conducted on this chemical, and shows a link between the effects above and endocrine activity, which is relevant for humans.

SECTION 12: ECOLOGICAL INFORMATION

12.1. Toxicity

Hazardous To The Aquatic Environment, Short-Term (Acute) : Not classified (Based on available data, the classification criteria are not met)

Hazardous To The Aquatic Environment, Long-Term (Chronic) : Not classified (Based on available data, the classification criteria are not met)

Chromium oxide (Cr_2O_3) (1308-38-9)	
LC50 - Fish	> 10000 mg/l (Exposure time: 96 h - Species: Danio rerio [static])
NOEC Chronic - Fish	1000 mg/l (Species: Brachydanio rerio - Duration: 30 d)

Chromium, ion (Cr^{6+}) (18540-29-9)	
LC50 - Fish [1]	36,2 mg/l (Exposure time: 96 h - Species: Pimephales promelas)
LC50 - Fish [2]	7,6 mg/l (Exposure time: 96 h - Species: Oncorhynchus mykiss)

12.2. Persistence and Degradability

Chromium Oxide - Titania (1308-38-9)	
Persistence and Degradability	Not established.

12.3. Bioaccumulative Potential

Chromium Oxide - Titania (1308-38-9)	
Bioaccumulative Potential	Not established.

12.4. Mobility in Soil

No additional information available

12.5. Results of PBT and vPvB Assessment

Does not contain any PBT/vPvB substances >= 0.1% assessed in accordance with REACH Annex XVIII

12.6. Endocrine Disrupting Properties

Based on available data this substance/the substances in this mixture not listed below do(es) not have endocrine disrupting properties with respect to non-target organisms as it does not meet the criteria set out in section B of Regulation (EU) No 2017/2100 and/or the criteria set out in Regulation (EU) 2018/605, or the substance(s) are not required to be disclosed.

12.7. Other Adverse Effects

Other Information : Avoid release to the environment.

SECTION 13: DISPOSAL CONSIDERATIONS

13.1. Waste Treatment Methods

Product/Packaging Disposal Recommendations : Dispose of contents/container in accordance with local, regional, national, territorial, provincial, and international regulations.

Ecology - Waste Materials : Avoid release to the environment.

SECTION 14: TRANSPORT INFORMATION

The shipping description(s) stated herein were prepared in accordance with certain assumptions at the time the SDS was authored, and can vary based on a number of variables that may or may not have been known at the time the SDS was issued.

In accordance with ADR / RID / IMDG / IATA / ADN

14.1. UN Number or ID Number

Not regulated for transport

14.2. UN Proper Shipping Name

Not regulated for transport

14.3. Transport Hazard Class(Es)

Not regulated for transport

14.4. Packing Group

Not regulated for transport

14.5. Environmental Hazards

Not regulated for transport

14.6. Special Precautions For User

No additional information available

14.7. Maritime Transport in Bulk According to IMO instruments

Not applicable

SECTION 15: REGULATORY INFORMATION

15.1. Safety, Health and Environmental Regulations/Legislation Specific for the Substance or Mixture

15.1.1. EU-Regulations

15.1.1.1. REACH Annex XVII Information

The following restrictions are applicable according to Annex XVII of the REACH Regulation (EC) No 1907/2006:

47. Chromium VI compounds	Chromium Oxide - Titania

15.1.1.2. REACH Candidate List Information

Chromium Oxide - Titania is not on the REACH Candidate List

15.1.1.3. POP (2019/1021) - Persistent Organic Pollutants Information

Chromium Oxide - Titania is not subject to Regulation (EU) No 2019/1021 of the European Parliament and of the Council of 20 June 2019 on persistent organic pollutants

15.1.1.4. PIC Regulation EU (649/2012) - Export and Import of Hazardous Chemicals Information

Chromium Oxide - Titania is not subject to Regulation (EU) No 649/2012 of the European Parliament and of the Council of 4 july 2012 concerning the export and import of hazardous chemicals.

15.1.1.5. REACH Annex XIV Information

Chromium Oxide - Titania is not on the REACH Annex XIV List

15.1.1.6. Substances Depleting the Ozone layer (1005/2009) Information

No additional information available

15.1.1.7. EC Inventory Information

Chromium oxide (Cr_2O_3) (1308-38-9)
Listed on the EEC inventory EINECS (European Inventory of Existing Commercial Chemical Substances)

Titanium dioxide (13463-67-7)
Listed on the EEC inventory EINECS (European Inventory of Existing Commercial Chemical Substances)

Silica, vitreous (60676-86-0)
Listed on the EEC inventory EINECS (European Inventory of Existing Commercial Chemical Substances)
Listed on ELINCS (European List of Notified Chemical Substances)

15.1.1.8. Other Information

No additional information available

15.1.2. National Regulations

No additional information available

15.1.3. International Inventory Lists

Chromium oxide (Cr_2O_3) (1308-38-9)
Listed on the United States TSCA (Toxic Substances Control Act) inventory - Status: Active
Listed on the Canadian DSL (Domestic Substances List)
Listed on the Canadian IDL (Ingredient Disclosure List)
Listed introduction on Australian Industrial Chemicals Introduction Scheme (AICIS Inventory)
Listed on PICCS (Philippines Inventory of Chemicals and Chemical Substances)
Listed on the Japanese ENCS (Existing & New Chemical Substances) inventory
Listed on KECL/KECI (Korean Existing Chemicals Inventory)
Listed on IECSC (Inventory of Existing Chemical Substances Produced or Imported in China)
Japanese Pollutant Release and Transfer Register Law (PRTR Law)
Listed on NZIoC (New Zealand Inventory of Chemicals)
Listed on the Japanese ISHL (Industrial Safety and Health Law)
Listed on INSQ (Mexican National Inventory of Chemical Substances)
Listed on the TCSI (Taiwan Chemical Substance Inventory)
Listed on the NCI (Vietnam - National Chemicals Inventory)

Titanium dioxide (13463-67-7)
Listed on the United States TSCA (Toxic Substances Control Act) inventory - Status: Active
Listed on the Canadian DSL (Domestic Substances List)
Listed introduction on Australian Industrial Chemicals Introduction Scheme (AICIS Inventory)
Listed on PICCS (Philippines Inventory of Chemicals and Chemical Substances)
Listed on the Japanese ENCS (Existing & New Chemical Substances) inventory
Listed on KECL/KECI (Korean Existing Chemicals Inventory)
Listed on IECSC (Inventory of Existing Chemical Substances Produced or Imported in China)
Listed on NZIoC (New Zealand Inventory of Chemicals)
Listed on the Japanese ISHL (Industrial Safety and Health Law)
Listed on INSQ (Mexican National Inventory of Chemical Substances)
Listed on the TCSI (Taiwan Chemical Substance Inventory)
Listed on the NCI (Vietnam - National Chemicals Inventory)

Silica, vitreous (60676-86-0)
Listed on the United States TSCA (Toxic Substances Control Act) inventory - Status: Active
Listed on the Canadian DSL (Domestic Substances List)
Listed on the Canadian IDL (Ingredient Disclosure List)
Listed introduction on Australian Industrial Chemicals Introduction Scheme (AICIS Inventory)
Listed on PICCS (Philippines Inventory of Chemicals and Chemical Substances)

Listed on the Japanese ENCS (Existing & New Chemical Substances) inventory
Listed on KECL/KECI (Korean Existing Chemicals Inventory)
Listed on IECSC (Inventory of Existing Chemical Substances Produced or Imported in China)
Listed on NZIoC (New Zealand Inventory of Chemicals)
Listed on the Japanese ISHL (Industrial Safety and Health Law)
Listed on INSQ (Mexican National Inventory of Chemical Substances)
Listed on the TCSI (Taiwan Chemical Substance Inventory)
Listed on the NCI (Vietnam - National Chemicals Inventory)

Chromium, ion (Cr6+) (18540-29-9)

Listed on IARC (International Agency for Research on Cancer)
Listed on PICCS (Philippines Inventory of Chemicals and Chemical Substances)
Japanese Pollutant Release and Transfer Register Law (PRTR Law)
Listed on the TCSI (Taiwan Chemical Substance Inventory)
Listed on the NCI (Vietnam - National Chemicals Inventory)

15.2. Chemical Safety Assessment

No chemical safety assessment has been carried out

SECTION 16: OTHER INFORMATION

Date of Preparation or Latest Revision : 22/10/2021

Data Sources : Information and data obtained and used in the authoring of this safety data sheet could come from database subscriptions, official government regulatory body websites, product/ingredient manufacturer or supplier specific information, and/or resources that include substance specific data and classifications according to GHS or their subsequent adoption of GHS.

Other Information : According to Regulation (EC) No. 1907/2006 (REACH) with its amendment Regulation (EU) 2020/878

Full Text of H- and EUH-statements:

Aquatic Acute 1	Hazardous to the aquatic environment — Acute Hazard, Category 1
Aquatic Chronic 1	Hazardous to the aquatic environment — Chronic Hazard, Category 1
Carc. 1B	Carcinogenicity, Category 1B
Carc. 2	Carcinogenicity, Category 2
EUH212	Warning! Hazardous respirable dust may be formed when used. Do not breathe dust.
H317	May cause an allergic skin reaction.
H350	May cause cancer.
H351	Suspected of causing cancer.
H400	Very toxic to aquatic life.
H410	Very toxic to aquatic life with long lasting effects.
Skin Sens. 1	Skin sensitisation, Category 1

Classification and Procedure Used to Derive the Classification for Mixtures According to Regulation (EC) 1272/2008 [CLP]:

Carc. 2	Calculation method

Indication of Changes

No additional information available

Abbreviations and Acronyms

ACGIH – American Conference of Governmental Industrial Hygienists
ADN – European Agreement Concerning the International Carriage of Dangerous Goods by Inland Waterways
ADR - European Agreement Concerning the International Carriage of Dangerous Goods by Road
ATE - Acute Toxicity Estimate
BCF - Bioconcentration Factor
BEI - Biological Exposure Indices (BEI)
BOD – Biochemical Oxygen Demand
CAS No. - Chemical Abstracts Service Number
CLP – Classification, Labeling and Packaging Regulation (EC) No 1272/2008
COD – Chemical Oxygen Demand
EC – European Community
EC50 - Median Effective Concentration
EEC – European Economic Community
EINECS – European Inventory of Existing Commercial Chemical Substances
EmS-No. (Fire) - IMDG Emergency Schedule Fire
EmS-No. (Spillage) - IMDG Emergency Schedule Spillage
EU – European Union
ErC50 - EC50 in Terms of Reduction Growth Rate
GHS – Globally Harmonized System of Classification and Labeling of Chemicals
IARC - International Agency for Research on Cancer
IATA - International Air Transport Association
NDS - Najwyzsze Dopuszczalne Stezenie
NDSCh - Najwyzsze Dopuszczalne Stezenie Chwilowe
NDSP - Najwyzsze Dopuszczalne Stezenie Pulapowe
NOAEL - No-Observed Adverse Effect Level
NOEC - No-Observed Effect Concentration
NRD - Nevirsytinas Ribinis Dydis
NTP – National Toxicology Program
OEL - Occupational Exposure Limits
PBT - Persistent, Bioaccumulative and Toxic
PEL - Permissible Exposure Limit
pH – Potential Hydrogen
REACH – Registration, Evaluation, Authorisation, and Restriction of Chemicals
RID – Regulations Concerning the International Carriage of Dangerous Goods by Rail
SADT - Self Accelerating Decomposition Temperature
SDS - Safety Data Sheet
STEL - Short Term Exposure Limit
STOT - Specific Target Organ Toxicity
TA-Luft - Technische Anleitung zur Reinhaltung der Luft
TEL TRK – Technical Guidance Concentrations
ThOD – Theoretical Oxygen Demand
TLM - Median Tolerance Limit
TLV - Threshold Limit Value
TPRD - Trumpalaikio Poveikio Ribinis Dydis

IBC Code - International Bulk Chemical Code
IMDG - International Maritime Dangerous Goods
IPRV - Ilgalaikio Poveikio Ribinis Dydis
IOELV – Indicative Occupational Exposure Limit Value
LC50 - Median Lethal Concentration
LD50 - Median Lethal Dose
LOAEL - Lowest Observed Adverse Effect Level
LOEC - Lowest-Observed-Effect Concentration
Log Koc - Soil Organic Carbon-water Partitioning Coefficient
Log Kow - Octanol/water Partition Coefficient
Log Pow - Ratio of the equilibrium concentration (C) of a dissolved substance in a two-phase system consisting of two largely immiscible solvents, in this case octanol and water
MAK – Maximum Workplace Concentration/Maximum Permissible Concentration
MARPOL - International Convention for the Prevention of Pollution
TRGS 510 - Technische Regel für Gefahrstoffe 510 - Lagerung von Gefahrstoffen in ortsbeweglichen Behältern
TRGS 552 – Technische Regeln für Gefahrstoffe - N-Nitrosamine
TRGS 900 - Technische Regel für Gefahrstoffe 900 – Arbeitsplatzgrenzwerte
TRGS 903 - Technische Regel für Gefahrstoffe 903 - Biologische Grenzwerte
TSCA - Toxic Substances Control Act
TWA - Time Weighted Average
VOC – Volatile Organic Compounds
VLA-EC - Valor Límite Ambiental Exposición de Corta Duración
VLA-ED - Valor Límite Ambiental Exposición Diaria
VLE – Valeur Limite D'exposition
VME – Valeur Limite De Moyenne Exposition
vPvB - Very Persistent and Very Bioaccumulative
WEL – Workplace Exposure Limit
WGK - Wassergefährdungsklasse

Limit Value Legal Basis*

*Includes the below and any related regulations/provisions, and subsequent amendements

EU - 2019/1831 EU in accor. with 98/24/EC - Directive 2019/1831/EU of October 24, 2019 establishing a fifth list of indicative occupational exposure limit values pursuant to Council Directive 98/24/EC, and amending Commission Directives 2000/39/EC.

EU - 2019/1243/EU, and 98/24/EC) - Council Directive 98/24/EC on the protection of the health and safety of workers from the risks related to chemical agents at work and amendment Regulation (EU) 2019/1243.

Austria - BGBl. II Nr. 254/2018 - Ordinance on Limit Values for Workplace Substances and on Carcinogens from the Federal Ministry of Economics and Labour, Published in 2003, Appendix 1: Substance List, Published through: Ministry of Economics and Labour of the Republic of Austria amended through the Government Gazette II (BGBL. II) No 119/2004) & BGBl. II No. 242/2006, BGBl. II No. 243/2007, lastly changed through BGBl. I Nr. 51/2011), BGBl. II Nr. 186/2015, BGBl. II Nr. 288/2017 amended by BGBl. II Nr. 254/2018.

Austria - BLV BGBl. II Nr. 254/2018 - Ordinance on health monitoring at the workplace 2008, published through BGBl. II Nr. 224/2007 by Austria Minister for Labor and Social Affairs, Lastly changed through BGBl. II Nr. 254/2018

Belgium - Royal Decree 21/01/2020 - Royal decree amending title 1 relating to chemical agents in Book VI of the code of well-being at work, with regard to the list of limit values of exposure to chemical agents and title 2 relating to carcinogens, mutagens and reprotoxics of Book VI of the code of well-being at work (1)

Bulgaria - Reg. No. 13/10 -
Regulation No. 13 of December 30, 2003 on the Protection of Workers from Hazards Related to Exposure to Chemical Agents at Work Labor Code, Annex No.1 Limit values of chemical agents in the air of the working environment, and Annex № 2 Biological limit values of chemical agents and their metabolites (bio markers of exposure) or bio markers of effect Amended by: 71/2006, 67/2007, 2/2012, 46/2015, 73/2018, 5/2020), and Regulation No.10 of September 26, 2003 on the Protection of Workers from the Risks Associated with Exposure to Carcinogens and Mutagens at Work Annex No.1 Occupational Exposure Limits, Amended by: 8/2004, 46/2015, 5/2020

Croatia - OG No. 91/2018 - Regulation on the Protection of Workers from Exposure to Hazardous Chemicals at Work, the Limit Values of Exposure and the Biological Limit Values. Official Gazette No. 91 of October 12, 2018

Cyprus - KDP 16/2019 - Government of Cyprus Cabinet of Ministers Regulation 268/2001 - Safety and Health in the Working Environment (Chemical Substances) Article 38, As amended by Regulation 16/2019 and Cabinet of Ministers Regulation 153/2001 - Safety and Health in the Working Environment (Chemical Substances-Carcinogens), as amended by Regulation 493/2004 - Safety and Health in the Working Environment (Chemical Substances - Carcinogens) AND Law 47(I) 2000 - Occupational Health and Safety (Asbestos), as amended by Decree 316/2006.

Czech Republic - Reg. 41/2020 - Regulation 41/2020 amending Regulation 361/2007 of Coll. establishing Occupation Exposure Limits as amended

Czech Republic - Decree No. 107/2013 - Decree No. 107/2013 Coll., amending Decree No. 432/2003 Coll., laying down the conditions for the application of the work into categories, limit values for the parameters of biological exposure tests, collection of biological material conditions for the implementation of biological exposure tests and requirements for reporting work with asbestos and biological agents

Denmark - BEK No. 698 of 28/05/2020 - Order on Limit Values for Substances and Materials, The Statutory Order No. 507 of May 17, 2011,

Greece - PWHSE - Occupational Exposure Limits - Protection of workers' health and safety from exposure to certain chemical substances during the workday, (latest amendment 82/2018) and Occupation Exposure Limits - Protection of workers' health and safety from exposure to certain carcinogenic and mutagenic chemical substances (latest amendment 26/2020), and Presidential Decree 212/2006 - Protection of workers that are exposed to asbestos.

Hungary - Decree 05/2020 - 5/2020. (II. 6.) ITM decree on the protection of the health and safety of workers from the risks related to chemical agents

Ireland - 2020 COP - 2020 Code of Practice for the Chemical Agents Regulations, Schedule 1

Italy - Decree 81 - Title IX, Annex XLIII and XXXVIII, Professional Exposure Limits and Annex XXXIX Mandatory Biological Limit Values and Health Monitoring, Article 1, Law 123 of August 3, 2007, Legislative Decree 81 of April 9, 2008, Last amended: January 2020

Latvia - Reg. No. 325 - Cabinet of Ministers Regulation No. 325 - Labour Protection Requirements when Coming in Contact with Chemical Substances at Workplaces, Amended by Cabinet of Ministers Regulation No. 92, 163, 407 and No. 11.

Lithuania - HN 23:2011 - Lithuanian Hygiene Standard HN 23:2011 Occupational Exposure Limit Values, Amended by Order V-695/A1-272.

Luxembourg - A-N 684 - Grand-Ducal Regulation of 20 July 2018 amending the Grand-Ducal Regulation of 14 November 2016 concerning the protection of the safety and health of employees against the risks associated with chemical agents in the workplace. Official journal of the Grand-Duke of Luxembourg, A-N°684 of 2018

Malta - MOSHAA Ch. 424 - Malta Occupational Health and Safety Authority Act: Chapter 424 as amended by: Legal Notice 353, 53, 198, and 57.

Netherlands- OWCRLV - Occupational Working Conditions Regulation, Limit Values for substances harmful to health, Annex XVIII, Updated from August 1, 2020.

Norway - FOR-2020-04-060695 - Regulations concerning action and limit values for physical and chemical agents in the working environment and classified biological agents, FOR-2011-12-06-1358, Updated by: FOR-2020-04-06-695, FOR-2020-03-23-402, FOR-2018-12-20-2186, FOR-2018-08-21-1255, FOR-2017-12-20-2353.

Poland - Dz. U. 2020 Nr. 61 - Regulation of the Minister of Family, Labor and Social Policy of June 12, 2018 on the Highest Allowable Concentrations and Intensities of Factors Harmful to Health in the Work Environment Dz.U. 2018 Nr. 1286 of June 12, 2018, Annex 1 - List of values of the highest permissible chemical concentrations and dust factors harmful to health in the work environment, amended by: Dz. U. 2020 Nr. 61.

Portugal - Portuguese Norm NP 1796:2014 - Occupational exposure limits and biological exposure indices to chemical agents. Table 1 - Occupational exposure limits and biological exposure indices to chemical agents (OELs), Law Decree 35/2020.

Romania - Gov. Dec. No 1.218 - Governmental Decision No. 1.218 from 06/09/2006 on the minimum health and safety requirements for protection of workers from the risks related to exposure to chemical agents, Annex No. 1 Mandatory National Occupational Exposure Limit Values for Chemical Agents. Amended by Decision no. 157, 584, 359, and 1.

Slovakia - Gov. Decree 33/2018 - Government Decree of Slovak Republic 33/2018 on January 17, 2018 amending Government Decree of Slovak Republic 355/2006 about protection of health of employees when working

Appendix 1 - Limits for air pollution, etc. and Appendix 3 - Biological Exposure Values, Amended by: No. 986 of October 11, 2012, No. 655 of May 31, 2018, No. 1458 December 13, 2019, No. 698 of May 28, 2020

Estonia - Regulation No. 105 - Health and Safety Requirements for the Use of Dangerous Chemicals and Materials Containing Them and Occupational Exposure Limits to Chemical Agents
Government of the Republic, Regulation No. 105 of 20 March 2001, Amended 17 October 2019, and 17 January, 2020.

Finland - HTP-ARVOT 2020 - Concentrations Known to be Hazardous, 654/2020 OEL values 2020 Publications of Ministry of Social Affairs and Health 2020:24 Annexes1, 2 and 3.

France - INRS ED 984 - Occupational Exposure Limit Values to Chemical Agents in France Published 2016 by the INRS National Institute of Research and Safety Health and safety of work, revised, updated by: Decree 2016-344, JORF No 0119, and Decree 2019-1487.

France - Decree 2009-1570 - Decree 2009-1570 of December 15, 2009, relative to the control of chemical risk on workplaces.

Germany - TRGS 900 - Occupational Exposure Limits, Technical Rules for Dangerous Substances, latest amendment March, 2020

Germany - TRGS 903 - Biological Threshold Limits (BGW-Values), Technical Rules for Dangerous Substances, latest amendment March, 2020

Gibraltar - LN. 2018/131 - Factories (Control of Chemical Agents at Work) Regulations 2003 LN. 2003/035, amended by LN. 2008/035, LN. 2008/050, LN. 2012/021, LN. 2015/143, LN. 2018/181.

Slovenia - No. 79/19 - Regulation for protection of workers against risks related to carcinogenic or mutagenic substances exposure. Annex III - Classification and binding levels of carcinogenic or mutagenic substances for occupational exposure. The Official Journal of the Republic of Slovenia, No. 101/2005. Amended by 38/15, 79/19. Regulation for protection of workers against risks related to exposure to chemical substances at the workplace. Republic of Slovenia, No. 100/2001 . Annex I - List of Binding Occupational Exposure Limit Values. Amended by 39/05, 53/07, 102/10, 38/15, 78/18, 78/19

Spain - AFS 2018:1 - NATIONAL INSTITUTE FOR HEALTH AND SAFETY AT WORK. Occupational exposure limits for chemical agents in Spain. Tables 1 and 3. Latest edition Feb. 2019

Sweden - AFS 2018:1 - Statute Book of the Swedish Work Environment Authority, AFS 2018:1
The Swedish Work Environment Authority's Ordinance and General Guidance on Hygienic Limit Values

Switzerland - OLVSNAIF - Occupational Limit Values 2020 Swiss National Accident Insurance Fund. List of Biological Limit Values (BAT-Werte) and List of MAK Values.

EU GHS SDS (2020/878)

This information is based on our current knowledge and is intended to describe the product for the purposes of health, safety and environmental requirements only. It should not therefore be construed as guaranteeing any specific property of the product.