SAFETY DATA SHEET

This safety data sheet was created pursuant to the requirements of:
Regulation (EC) No. 1907/2006 and Regulation (EC) No. 1272/2008

Issuing Date 15-Jan-2025 **Revision date** 15-Jan-2025 **Revision Number** 1

SECTION 1: Identification of the substance/mixture and of the company/undertaking

1.1. Product identifier

Product Name Titanium Dioxide Pigment:
TiONA® 113, TiONA® 121, TiONA® 122, TiONA® 128, TiONA® 134, TiONA® 592, TiONA® 595, TiONA® 595, TiONA® 696, TiONA® 822 / CR-822, TiONA® 826 / CR-826, TiONA® 828 / CR-828, TiONA® 828E / CR-828E, TiONA® 834 / CR-834, TiONA® 880 / CR-880, TiONA® 8950, TiONA® 41J /41J, TiONA® CR-8 / CR-8, TiONA® R-KB-2, TiONA® R-U-F, TiKON™ 35 / TiKON™ TR-35

Other means of identification

REACH registration number 01-2119489379-17-XXXX (TiO2)

Synonyms Titanium dioxide

Pure substance/mixture Mixture

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

Recommended use Pigment

Uses advised against For industrial use only

1.3. Details of the supplier of the safety data sheet

Supplier
Tronox Pigments (Holland) BV
3197KK Rotterdam-Botlek
The Netherlands
tele: +31 181 246600

For further information, please contact

Contact Point Product Stewardship

E-mail address chemprodsteward@tronox.com

1.4. Emergency telephone number

Emergency Telephone 24 Hour Emergency Phone Number
CHEMTREC (EMEA): +44 20 3885 0382
CHEMTREC (International): +1 703 527 3887

Emergency Telephone - §45 - (EC)1272/2008	
Europe	**112**
Austria	+43 1 3649237
Belgium	+32 2 808 32 37
Denmark	+45 69 91 85 73
Finland	+358 9 42419014

France	+33 9 75 18 14 07
Germany	0800 1817059
Ireland	+353 1 901 4670
Italy	+39 02 4555 7031
Netherlands	+31 85 888 0596
Poland	+48 22 398 80 29
Portugal	+351 308 801 773
Spain	+34 931768511
Sweden	+46 8 525 034 03
Switzerland	+41 435081970
United Kingdom	+44 20 3807 3798

SECTION 2: Hazards identification

2.1. Classification of the substance or mixture

Classification according to Regulation (EC) No. 1272/2008 [CLP]

This mixture is classified as not hazardous according to regulation (EC) 1272/2008 [CLP]

2.2. Label elements

This mixture is classified as not hazardous according to regulation (EC) 1272/2008 [CLP]

Hazard statements

EUH212 - Warning! Hazardous respirable dust may be formed when used. Do not breathe dust
EUH210 - Safety data sheet available on request

2.3. Other hazards

Other hazards None known.

PBT & vPvB The components in this formulation do not meet the criteria for classification as PBT or vPvB.

Endocrine Disruptor Information This product does not contain any known or suspected endocrine disruptors.

SECTION 3: Composition/information on ingredients

3.1 Substances

Not applicable

3.2 Mixtures

Chemical name	Weight-%	REACH registration number	EC No (EU Index No)	Classification according to Regulation (EC) No. 1272/2008 [CLP]	Specific concentration limit (SCL)	M-Factor	M-Factor (long-term)
Titanium dioxide 13463-67-7	> 80	01-2119489379-17-XXXX	236-675-5 (022-006-00-2)	-	-	-	-
Trimethylolpropane (TMP) 77-99-6	< 0.45	01-2119486799-10-XXXX	201-074-9	Rep. Tox (H361d, H361f)	-	-	-

Full text of H- and EUH-phrases: see section 16

Acute Toxicity Estimate If LD50/LC50 data is not available or does not correspond to the classification category, then the appropriate conversion value from CLP Annex I, Table 3.1.2, is used to calculate the acute toxicity estimate (ATEmix) for classifying a mixture based on its components

Chemical name	Oral LD50 mg/kg	Dermal LD50 mg/kg	Inhalation LC50 - 4 hour - dust/mist - mg/L	Inhalation LC50 - 4 hour - vapour - mg/L	Inhalation LC50 - 4 hour - gas - ppm
Titanium dioxide 13463-67-7	> 5000	> 2000 (ATEmix)	> 6,82	No data available	No data available
Trimethylolpropane (TMP) 77-99-6	14100	10000	No data available	No data available	No data available

This product does not contain candidate substances of very high concern at a concentration >=0.1% (Regulation (EC) No. 1907/2006 (REACH), Article 59)

Additional information
EU Commission Delegated Regulation (EU) 2020/217 on 4 October 2019 published the 14th ATP to amend the CLP Regulation, specifically Note 10: The classification as a carcinogen (Cat. 2) by inhalation applies only to mixtures in powder form containing 1% or more of titanium dioxide which is in the form of or incorporated in particles with an aerodynamic diameter ≤ 10µm. Testing has confirmed that Tronox's TiONA®, TiKON™ and CristalACTiV™ titanium dioxide products do not contain > 1% particles with an aerodynamic diameter of ≤ 10um and therefore do not meet the criteria for the EU harmonised classification as a carcinogen (Cat. 2) by inhalation.

SECTION 4: First aid measures

4.1. Description of first aid measures

General advice No hazards which require special first aid measures.

Inhalation Remove to fresh air. (Call a doctor if symptoms occur).

Eye contact Rinse thoroughly with plenty of water, also under the eyelids

Skin contact Wash skin with soap and water.

Ingestion Clean mouth with water.

Self-protection of the first aider Use personal protective equipment as required. See section 8 for more information.

4.2. Most important symptoms and effects, both acute and delayed

Symptoms Inhalation of dust in high concentration may cause irritation of respiratory system.

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

Note to doctors Treat symptomatically.

SECTION 5: Firefighting measures

5.1. Extinguishing media

Suitable Extinguishing Media Product itself does not burn. Use extinguishing measures that are appropriate to local circumstances and the surrounding environment. Use extinguishing agent suitable for type of surrounding fire.

Unsuitable extinguishing media Do not scatter spilled material with high pressure water streams.

5.2. Special hazards arising from the substance or mixture

Specific hazards arising from the chemical	None known
Hazardous combustion products	Non-combustible.

5.3. Advice for firefighters

Special protective equipment and precautions for fire-fighters	Protective equipment and precautions for firefighters.

SECTION 6: Accidental release measures

6.1. Personal precautions, protective equipment and emergency procedures

Personal precautions	Ensure adequate ventilation. Avoid contact with skin and eyes. Use personal protective equipment as required.
Other information	Refer to protective measures listed in Sections 7 and 8.
For emergency responders	Use personal protection recommended in Section 8.

6.2. Environmental precautions

Environmental precautions	See Section 12 for additional Ecological Information.

6.3. Methods and material for containment and cleaning up

Methods for containment	Prevent further leakage or spillage if safe to do so.
Methods for cleaning up	Take up mechanically, placing in appropriate containers for disposal.
Prevention of secondary hazards	Clean contaminated objects and areas thoroughly observing environmental regulations.

6.4. Reference to other sections

Reference to other sections	See section 8 for more information. See section 13 for more information.

SECTION 7: Handling and storage

7.1. Precautions for safe handling

Advice on safe handling	Ensure adequate ventilation. Avoid contact with skin and eyes. Use personal protection equipment. Wash hands before breaks and after work.
General hygiene considerations	Do not eat, drink or smoke when using this product. Handle in accordance with good industrial hygiene and safety practice. Regular cleaning of equipment, work area and clothing is recommended. Take off contaminated clothing and wash it before reuse. Wash hands before breaks and after work.

7.2. Conditions for safe storage, including any incompatibilities

Storage Conditions	Keep container tightly closed in a dry and well-ventilated place.
Storage Class (TRGS 510)	Not applicable.

7.3. Specific end use(s)

Risk Management Methods (RMM) The information required is contained in this Safety Data Sheet.

SECTION 8: Exposure controls/personal protection

8.1. Control parameters

Exposure Limits

Chemical name	European Union	Austria	Belgium	Bulgaria	Croatia
Titanium dioxide 13463-67-7	-	TWA: 5 mg/m^3 STEL 10 mg/m^3	TWA: 10 mg/m^3	TWA: 10.0 mg/m^3	TWA: 10 mg/m^3 TWA: 4 mg/m^3
Chemical name	Cyprus	Czech Republic	Denmark	Estonia	Finland
Titanium dioxide 13463-67-7	-	-	TWA: 6 mg/m^3 STEL: 12 mg/m^3	TWA: 5 mg/m^3	-
Chemical name	France	Germany TRGS	Germany DFG	Greece	Hungary
Titanium dioxide 13463-67-7	TWA: 10 mg/m^3 (a,TiO2) TWA: 5 mg/m^3 (a,dust)	TWA: 1.25 mg/m^3 TWA: 10 mg/m^3	TWA: 0.3 mg/m^3 Peak: 2.4 mg/m^3	TWA: 10 mg/m^3 TWA: 5 mg/m^3	-
Chemical name	Ireland	Italy MDLPS	Italy AIDII	Latvia	Lithuania
Titanium dioxide 13463-67-7	TWA: 10 mg/m^3 TWA: 4 mg/m^3 STEL: 30 mg/m^3 STEL: 12 mg/m^3	-	TWA: 10 mg/m^3	TWA: 10 mg/m^3	TWA: 5 mg/m^3
Trimethylolpropane (TMP) 77-99-6	-	-	-	-	Ceiling: 5 ppm
Chemical name	Luxembourg	Malta	Netherlands	Norway	Poland
Titanium dioxide 13463-67-7	-	-	-	TWA: 5 mg/m^3 STEL: 10 mg/m^3	TWA: 10 mg/m^3 STEL: 30 mg/m^3
Chemical name	Portugal	Romania	Slovakia	Slovenia	Spain
Titanium dioxide 13463-67-7	TWA: 10 mg/m^3	TWA: 10 mg/m^3 STEL: 15 mg/m^3	TWA: 5 mg/m^3	-	TWA: 10 mg/m^3

Chemical name	Sweden	Switzerland	United Kingdom
Titanium dioxide 13463-67-7	NGV: 5 mg/m^3	TWA: 3 mg/m^3 TWA: 10 mg/m^3	TWA: 10 mg/m^3 TWA: 4 mg/m^3 STEL: 30 mg/m^3 STEL: 12 mg/m^3
Trimethylolpropane (TMP) 77-99-6	NGV: 5 mg/m^3	-	-

Biological occupational exposure limits
This product, as supplied, does not contain any hazardous materials with biological limits established by the region specific regulatory bodies.

Derived No Effect Level (DNEL) - Workers

Chemical name	Oral	Dermal	Inhalation
Titanium dioxide 13463-67-7	-	-	1.25 mg/m^3
Trimethylolpropane (TMP) 77-99-6	-	0.94 mg/kg bw/day	3.3 mg/m^3

Derived No Effect Level (DNEL) - General Public
No information available.

Predicted No Effect Concentration (PNEC)
No information available.

8.2. Exposure controls

Engineering controls	Showers Eyewash stations Ventilation systems.
Personal protective equipment	
Eye/face protection	Wear safety glasses with side shields (or goggles). Appropriate eye/face protection should be selected and used according to the chemical nature, hazards and use of this product and safety requirements of the local jurisdiction.
Hand protection	No special protective equipment required. Appropriate skin and body protection should be selected and used according to the chemical nature, hazards and use of this product and safety requirements of the local jurisdiction
Skin and body protection	No special protective equipment required. Appropriate skin and body protection should be selected and used according to the chemical nature, hazards and use of this product and safety requirements of the local jurisdiction. .
Respiratory protection	None under normal use conditions. When workers are facing concentrations above the exposure limit they must use appropriate certified respirators. Appropriate respiratory protection should be selected and used according to the chemical nature, hazards and use of this product and safety requirements of the local jurisdiction.
Recommended filter type:	Filtering Half-face mask (DIN EN 149), B2E2P3 according EN141 & 143 format.
Thermal hazards	None under normal processing.
General hygiene considerations	Do not eat, drink or smoke when using this product. Handle in accordance with good industrial hygiene and safety practice. Regular cleaning of equipment, work area and clothing is recommended. Take off contaminated clothing and wash it before reuse. Wash hands before breaks and after work.
Environmental exposure controls	Prevent product from entering drains.

SECTION 9: Physical and chemical properties

9.1. Information on basic physical and chemical properties

Physical state	Solid
Appearance	Powder
Colour	white
Odour	None
Odour threshold	Not applicable

Property	**Values**	**Remarks**
Melting point / freezing point	1830 °C	
Boiling point / boiling range	2972 °C	
Flammability (solid, gas)	No data available	None known
Flammability Limit in Air		Not applicable
Upper flammability or explosive limits	No data available	
Lower flammability or explosive limits	No data available	
Flash point	No data available	Not applicable
Autoignition temperature	375 °C	Not applicable

Decomposition temperature		Not applicable
pH	6-9	10g/100ml aqueous solution
pH (as aqueous solution)	No data available	None known
Kinematic viscosity	No data available	Not applicable
Dynamic viscosity	No data available	Not applicable
Water solubility	Insoluble in water	
Solubility(ies)	Insoluble in common solvents	
Partition coefficient	No data available	No data available
Vapour pressure	No data available	Not applicable
Relative density	3.7-4.1	(water = 1)
Bulk density	0.4 - 0.8 g/cm3	
Liquid Density	No data available	
Vapour density		Not applicable
Particle characteristics		Method: Median equivalent diameter as measured by Laser Diffraction (this value is independent of aerodynamic diameter)
Particle Size	Not applicable	
Particle Size Distribution	0.3 - 0.7 µm	

9.2. Other information

VOC content None

9.2.1. Information with regards to physical hazard classes

Explosives Not an explosive

Oxidising properties None known

9.2.2. Other safety characteristics

None known

SECTION 10: Stability and reactivity

10.1. Reactivity

Reactivity Stable.

10.2. Chemical stability

Stability Stable under normal conditions.

Explosion data

Sensitivity to mechanical impact None.

Sensitivity to static discharge None.

10.3. Possibility of hazardous reactions

Possibility of hazardous reactions None under normal processing.

Hazardous polymerisation None under normal processing.

10.4. Conditions to avoid

Conditions to avoid None known.

10.5. Incompatible materials

Incompatible materials None known based on information supplied.

10.6. Hazardous decomposition products

Hazardous decomposition products None known.

SECTION 11: Toxicological information

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

Information on likely routes of exposure

Product Information

Inhalation Inhalation of dust in high concentration may cause irritation of respiratory system.

Eye contact Inert foreign body hazard only.

Skin contact Repeated exposure may cause skin dryness or cracking.

Ingestion Not an expected route of exposure.

Symptoms related to the physical, chemical and toxicological characteristics

Symptoms Inhalation of dust in high concentration may cause irritation of respiratory system.

Acute toxicity

Based on available data, the classification criteria are not met

Component Information

Chemical name	Oral LD50	Dermal LD50	Inhalation LC50
Titanium dioxide	> 5000 mg/kg (Rat)	-	> 6,82 mg/L (Rat) 4 h
Trimethylolpropane (TMP)	= 14100 mg/kg (Rat)	> 10000 mg/kg (Rabbit)	> 0.85 mg/L (Rat) 4 h

Delayed and immediate effects as well as chronic effects from short and long-term exposure

Skin corrosion/irritation Based on available data, the classification criteria are not met.

Serious eye damage/eye irritation Based on available data, the classification criteria are not met.

Respiratory or skin sensitisation Based on available data, the classification criteria are not met.

Germ cell mutagenicity Based on available data, the classification criteria are not met.

Carcinogenicity Based on available data, the classification criteria are not met.
See section 3 for more information.

Reproductive toxicity Based on available data, the classification criteria are not met.

Developmental toxicity Based on available data, the classification criteria are not met.

Teratogenicity None known.

STOT - single exposure Based on available data, the classification criteria are not met.

STOT - repeated exposure Based on available data, the classification criteria are not met.

Aspiration hazard Based on available data, the classification criteria are not met.

11.2. Information on other hazards

11.2.1. Endocrine disrupting properties

Endocrine disrupting properties None known.

11.2.2. Other information

Other adverse effects None known.

SECTION 12: Ecological information

12.1. Toxicity

Ecotoxicity Not considered to be harmful to aquatic life.

Chemical name	Algae/aquatic plants	Fish	Toxicity to microorganisms	Crustacea
Titanium dioxide	ErC50: >100 mg/l (72h, Pseudokirchneriella subcapitata	LC50: >1000 mg/l (96h, Pimephales promelas)	-	-
Trimethylolpropane (TMP)	-	-	-	EC50: =13000mg/L (48h, Daphnia species) EC50: 10330 - 16360mg/L (48h, Daphnia magna)

12.2. Persistence and degradability

Persistence and degradability Titanium Dioxide, is an inorganic metal oxide, therefore this does not apply. Trimethylolpropane is readily biodegradable and does not bioaccumulate.

12.3. Bioaccumulative potential

Bioaccumulation None known.

Component Information

Chemical name	Partition coefficient
Trimethylolpropane (TMP)	-0.47

12.4. Mobility in soil

Mobility in soil Not mobile.

Mobility Not mobile.

12.5. Results of PBT and vPvB assessment

PBT and vPvB assessment The product does not contain any substance(s) classified as PBT or vPvB.

12.6. Endocrine disrupting properties

Endocrine disrupting properties This product does not contain any known or suspected endocrine disruptors.

12.7. Other adverse effects

Other adverse effects None known.

PMT or vPvM properties The product does not contain any substance(s) classified as PMT or vPvM.

SECTION 13: Disposal considerations

13.1. Waste treatment methods

Waste from residues/unused products Dispose of in accordance with local regulations. Dispose of waste in accordance with environmental legislation.

Contaminated packaging Empty containers should be taken to an approved waste handling site for recycling or disposal.

Waste codes / waste designations according to EWC / AVV Waste codes should be assigned by the user based on the application for which the product was used.

SECTION 14: Transport information

IATA

14.1 UN number or ID number Not regulated
14.2
14.3 Transport hazard class(es) Not regulated
14.4 Packing group Not regulated
14.5 Environmental hazards Not applicable
14.6 Special Precautions for Users
Special Provisions None

IMDG

14.1 UN number or ID number Not regulated
14.2
14.3 Transport hazard class(es) Not regulated
14.4 Packing group Not regulated
14.5 Environmental hazards Not applicable
14.6 Special Precautions for Users
Special Provisions None
14.7 Maritime transport in bulk according to IMO instruments Not applicable

RID

14.1 UN number or ID number Not regulated
14.2
14.3 Transport hazard class(es) Not regulated
14.4 Packing group Not regulated
14.5 Environmental hazards Not applicable
14.6 Special Precautions for Users
Special Provisions None

ADR

14.1 UN number or ID number Not regulated
14.2 UN proper shipping name Not regulated
14.3 Transport hazard class(es) Not regulated
14.4 Packing group Not regulated
14.5 Environmental hazards Not applicable

14.6 Special Precautions for Users

Special Provisions None

SECTION 15: Regulatory information

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

National regulations

Germany

Water hazard class (WGK) non-hazardous to water (nwg)

European Union

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

Authorisations and/or restrictions on use:

This product does not contain substances subject to authorisation (Regulation (EC) No. 1907/2006 (REACH), Annex XIV) This product does not contain substances subject to restriction (Regulation (EC) No. 1907/2006 (REACH), Annex XVII)

Persistent Organic Pollutants

Not applicable

Ozone-depleting substances (ODS) regulation (EC) 1005/2009

Not applicable

International Inventories

TSCA	Complies
DSL/NDSL	Complies
EINECS/ELINCS	Complies
ENCS	Complies
IECSC	Complies
KECL	Complies
PICCS	Complies
AIIC	Complies
NZIoC	Complies

Legend:

TSCA - United States Toxic Substances Control Act Section 8(b) Inventory
DSL/NDSL - Canadian Domestic Substances List/Non-Domestic Substances List
EINECS/ELINCS - European Inventory of Existing Chemical Substances/European List of Notified Chemical Substances
ENCS - Japan Existing and New Chemical Substances
IECSC - China Inventory of Existing Chemical Substances
KECL - Korean Existing and Evaluated Chemical Substances
PICCS - Philippines Inventory of Chemicals and Chemical Substances
AICS - Australian Inventory of Chemical Substances
NZIoC - New Zealand Inventory of Chemicals

15.2. Chemical safety assessment

Chemical Safety Report A Chemical Safety Assessment has been carried out for this substance

SECTION 16: Other information

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

Legend
SVHC: Substances of Very High Concern for Authorisation:
PBT: Persistent, Bioaccumulative, and Toxic (PBT) Substances
vPvB: Very Persistent and very Bioaccumulative (vPvB) Substances

Legend Section 8: Exposure controls/personal protection

TWA	TWA (time-weighted average)	STEL	STEL (Short Term Exposure Limit)
Ceiling	Maximum limit value	Sk*	Skin designation
+	Sensitisers		

Key literature references and sources for data used to compile the SDS
Agency for Toxic Substances and Disease Registry (ATSDR)
U.S. Environmental Protection Agency ChemView Database
European Food Safety Authority (EFSA)
European Chemicals Agency (ECHA) Committee for Risk Assessment (ECHA_RAC)
European Chemicals Agency (ECHA) (ECHA_API)
Environmental Protection Agency
Acute Exposure Guideline Level(s) (AEGL(s))
U.S. Environmental Protection Agency Federal Insecticide, Fungicide, and Rodenticide Act
U.S. Environmental Protection Agency High Production Volume Chemicals
Food Research Journal
Hazardous Substance Database
International Uniform Chemical Information Database (IUCLID)
National Institute of Technology and Evaluation (NITE)
Australian National Industrial Chemicals Notification and Assessment Scheme (NICNAS)
NIOSH (National Institute for Occupational Safety and Health)
National Library of Medicine's ChemID Plus (NLM CIP)
National Library of Medicine’s PubMed database (NLM PUBMED)
U.S. National Toxicology Program (NTP)
New Zealand's Chemical Classification and Information Database (CCID)
Organisation for Economic Co-operation and Development Environment, Health, and Safety Publications
Organisation for Economic Co-operation and Development High Production Volume Chemicals Programme
Organisation for Economic Co-operation and Development Screening Information Data Set
World Health Organization

Prepared By	Product Stewardship
Issuing Date	15-Jan-2025
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Reason for revision	Not applicable
Restrictions on use	This product is not intended for consumption, cosmetic, pharmaceutical or medical end use. Tronox will not knowingly sell product for use into these applications.
Training Advice	This document contains important information to ensure the safe storage, handling and use of this product. It is the responsibility of your organization to ensure that the information contained within this document is communicated to the end user and that all necessary training to enable the product to be used correctly has been given.

This material safety data sheet complies with the requirements of Regulation (EC) No. 1907/2006
Disclaimer
The information provided in this Safety Data Sheet is correct to the best of our knowledge, information and belief at the date of its publication. The information given is designed only as a guidance for safe handling, use, processing, storage, transportation, disposal and release and is not to be considered a warranty or quality specification. The information

relates only to the specific material designated and may not be valid for such material used in combination with any other materials or in any process, unless specified in the text.

End of Safety Data Sheet