

Regulation (EC) No. 1907/2006 with its ammendment regulaton 2015/830

Product Trade Name: MetroScan

Current version: 23/03/2023

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

1.1 Product identifier

Trade name

MetroScan

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

Relevant identified uses of the substance or mixture

Optical refractive material for 3D scanning

Uses advised against

No data available.

1.3 Details of the supplier of the safety data sheet

Address

Metrodent Limited

Lowergate Works

Lowergate,

Paddock,

Huddersfield

HD3 4EP

United Kingdom

Telephone no. +44/ 1484 461616

e-mail sales@metrodent.com

1.4 Emergency telephone number

Mon - Fri 9am - 5pm +44/ 1484 461616

SECTION 2: Hazards identification

2.1 Classification of the substance or mixture

Classification information

This product does not meet the classification and labelling criteria given in the Regulation (EC) No 1272/2008 (CLP). This product does not meet the classification and labelling criteria given in the Dangerous Preparations Directive (1999/45/EC; DPD)

2.2 Label elements

Not a hazardous substance or mixture.

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2.3 Other hazards

Handling and/or processing of this material may generate a dust which can cause mechanical irritation of the eyes, skin, nose and throat.

SECTION 3: Composition/information on ingredients

3.1 Substances

Hazardous components

Chemical name	CAS-No	Concentration (% w/w)
Titanium Dioxide	13463-67-7	> 90%

The specific chemical identity and/or exact percentage (concentration) of composition may be withheld as a trade secret.

SECTION 4: First Aid measures

4.1 Description of First Aid measures

General Advice

- Do not leave the victim unattended.
- Treat symptomatically.

If inhaled

- Remove person to fresh air. If signs/symptoms continue, get medical attention.
- If unconscious, place in recovery position and seek medical advice.

In case of skin contact

- Wash off with soap and water.

In case of eye contact

- Rinse immediately with plenty of water, also under the eyelids.
- Remove contact lenses.
- Protect unharmed eye.
- If eye irritation persists, consult a specialist.

If swallowed

- Rinse mouth with water.
- If conscious, make the victim drink the following:
- Give small amounts of water to drink.
- Do not induce vomiting without medical advice.
- Consult a physician if necessary.

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4.2 Most important symptoms and effects, both acute and delayed

- Dust contact with the eyes can lead to mechanical irritation.
- Inhalation of dust may cause shortness of breath, tightness of the chest, a sore throat and cough.
- The product is not irritant but as with all fine powders can absorb moisture and natural oils from the surface of the skin during prolonged exposure.
- Individuals with sensitive skin may experience skin drying on prolonged or repeated exposure.

4.3 Indication of any immediate medical attention and special treatment needed

No data available

SECTION 5: Firefighting measures

5.1 Extinguishing Media

Suitable extinguishing media

Product is compatible with standard fire-fighting agents.

Unsuitable extinguishing media

High volume water jet.

5.2 Special hazards arising from the substance or mixture

Special hazards during firefighting

No information available.

Hazardous combustion products

No hazardous combustion products are known

Specific extinguishing methods

Cool containers/tanks with water spray.

Further information

Standard procedure for chemical fires.

Use extinguishing measures that are appropriate to local circumstances and the surrounding environment.

No action shall be taken involving any personal risk or without suitable training.

5.3 Advice for firefighting

Wear self-contained breathing apparatus for firefighting if necessary.

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SECTION 6: Accidental release measures

6.1 Personal precautions, protective equipment and emergency procedures

- No action shall be taken involving any personal risk or without suitable training.
- Prevent unauthorised persons entering the zone.
- Avoid dust formation.
- Remove all sources of ignition.
- Ventilate the area.
- Avoid breathing dust.
- Keep people away from and upwind of spill/leak.
- Only qualified personnel equipped with suitable protective equipment may intervene.
- Never return spills in original containers for re-use.
- Treat recovered material as described in the section "Disposal considerations".
- For disposal considerations see section 13.
- The danger areas must be delimited and identified using relevant warning and safety signs.

6.2 Enviromental precautions

- Try to prevent the material from entering drains or water courses.
- If the product contaminates rivers and lakes or drains inform respective authorities.

6.3 Methods and materials for containment and cleaning up

Clean-up methods - small spillage

Clean up promptly by sweeping or vacuum.

Keep in suitable, closed containers for disposal.

Clean-up methods - large spillage

Approach release from upwind.

Clean up promptly by sweeping or vacuum.

Avoid creating dusty conditions and prevent wind dispersal.

Keep in suitable, closed containers for disposal.

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SECTION 7: Handling and storage

7.1 Precautions for safe handling

Technical measures

Ensure that eyewash stations and safety showers are close to the workstation location.

Local/total ventilation

Use only with adequate ventilation.

Advice on protection against fire and explosion

Normal measures for preventive fire protection.

Advice on safe handling

- For personal protection see section 8.
- Avoid creating dust.
- Smoking, eating and drinking should be prohibited in the application area.
- Manual handling guidelines should be adhered to when handling sacks.
- In all cases, the protective cover or wrapping should remain in place during storage and only be removed immediately prior to use.
- Care should be taken to avoid moisture.

7.2 Conditions for safe storage, including any incompatibilities

- Store in accordance with the particular national regulations.
- Keep only in the original container in a cool, well ventilated place away from oxidizing agents.
- Keep in a dry place.
- Keep cool. Protect from sunlight.
- Eliminate all ignition sources if safe to do so.
- Keep container closed when not in use.
- Containers which are opened must be carefully resealed and kept upright to prevent leakage.
- Use appropriate container to avoid environmental contamination.

Further information on storage stability

- Keep in a dry place

7.3 Specific end use(s)

No data available

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SECTION 8: Exposure controls/personal protection

8.1 Control parameters

Components with workplace control parameters

Components	Titanium Dioxide	
CAS-NO	13463-67-7	
Value type (form of exposure)	TWA (total dust)	TWA
Control parameters/permissible concentration	15 mg/m3	10 mg/m3 (Titanium Dioxide)
Basis	UK EH40 WEL	UK EH40 WEL

8.2 Exposure controls

Engineering measures

Ensure adequate ventilation, especially in confined areas.

Use engineering controls to keep exposures below the OEL or DNEL

Personal protective equipment

Respiratory protection

General and local exhaust ventilation is recommended to maintain vapor exposures below recommended limits.

Where concentrations are above recommended limits or are unknown, appropriate respiratory protection should be worn. Follow OSHA respirator regulations (29 CFR 1910.134) or European standard EN 149 and use NIOSH/MSHA or European standard EN 149 approved respirators.

Protection provided by air purifying respirators against exposure to any hazardous chemical is limited. Use a positive pressure air supplied respirator if there is any potential for uncontrolled release, exposure levels are unknown, or any other circumstance where air purifying respirators may not provide adequate protection.

Filter type

P2 filter

Hand protection

Directive: Use gloves approved to relevant standards e.g. EN 374 (Europe), F739 (US).

Eye protection

Safety eyewear complying with an approved standard should be used when a risk assessment indicates this is necessary to avoid exposure to liquid splashes, mists or dusts. Ensure that eyewash stations and safety showers are close to the workstation location.

Skin and body protection

Personal protective equipment for the body should be selected based on the task being performed and the risks involved and should be approved by a specialist before handling this product.

Protective measures

Wear suitable protective equipment.

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Hygiene measures

- Handle in accordance with good industrial hygiene and safety practice.
- Smoking, eating and drinking should be prohibited in the application area.
- Wash face, hands and any exposed skin thoroughly after handling.
- Remove contaminated clothing and protective equipment before entering eating areas.
- Barrier creams may help to protect the exposed areas of skin, they should however not be applied once exposure has occurred.
- Wash hands before breaks and at the end of workday.

SECTION 9: Physical and chemical properties

9.1 Information on basic and physical properties

Appearance	Powder
Colour	White
Odour	None
Odour Threshold	Not relevant
pH	7.5 - 8.5
Melting point/range	> 1,800 °C
Boiling point/boiling range	Not applicable
Flash point	Not applicable
Evaporation rate	No data is available on the product itself.
Flammability (solid, gas)	The product is not flammable.
Flammability (liquids)	No data is available on the product itself.
Upper explosion limit / Upper flammability limit	No data is available on the product itself.
Lower explosion limit / Lower flammability limit	No data is available on the product itself.
Vapour pressure	Not applicable
Relative vapour density	No data is available on the product itself.
Relative density	No data is available on the product itself.
Density	ca. 3.9 g/cm ³ (20 °C) Skeletal density
Solubility(ies) Water solubility	< 0.01 g/l (20 °C)
Solubility in other solvents	No data is available on the product itself.
Partition coefficient: n-octanol/water	Not applicable
Auto-ignition temperature	The product itself does not burn.
Thermal decomposition	No data is available on the product itself.
Self-Accelerating decomposition temperature (SADT)	No data is available on the product itself.
Viscosity, Viscosity, kinematic	Not applicable
Explosive properties	Not explosive
Oxidizing properties	The substance or mixture is not classified as oxidizing.
Molecular weight	Calculation method 79.88 g/mol
Particle size	No data is available on the product itself.

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SECTION 10: Stability and reactivity

10.1 Reactivity

No dangerous reaction known under conditions of normal use.

10.2 Chemical stability

No decomposition if stored and applied as directed.

10.3 Possibility of hazardous reactions

Stable under recommended storage conditions.

No hazards to be specially mentioned.

10.4 Conditions to avoid

No data available

10.5 Incompatible materials

None known.

10.6 Hazardous decomposition products

At high temperature, decomposition products could include trace of alpha-ethyl acrolein and formaldehyde.

SECTION 11: Toxicological information

11.1 Information on toxilological effects

Information on likely routes of exposure

No data is available on the product itself.

Acute toxicity

Components	Titanium Dioxide
Acute oral toxicityComponents	LD50 (Rat, female): > 5,000 mg/kg Method: OECD Test Guideline 425 Assessment: The substance or mixture has no acute oral toxicity
Acute inhalation toxicity	LC50 (Rat, male and female): 3.43 - 5.09 mg/l Exposure time: 4 h Test atmosphere: dust/mist Method: OECD Test Guideline 403 Assessment: The substance or mixture has no acute inhalation toxicity
Acute dermal toxicity	LD50 Dermal (Rabbit): > 10,000 mg/kg
Acute toxicity (other routes of administration)	No data available

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Skin corrosion/irritation

Components	Titanium Dioxide
Species:	Rabbit
Assessment:	No skin irritation
Method:	OECD Test Guideline 404
Result:	Normally reversible injuries

Serious eye damage/eye irritation

Components	Titanium Dioxide
Species:	Rabbit
Result:	Normally reversible injuries
Assessment:	No eye irritation
Method:	OECD Test Guideline 405

Respiratory or skin sensitisation

Components	Titanium Dioxide
Test Type:	Local lymph node assay (LLNA)
Exposure routes:	Skin
Species:	Mouse
Assessment:	Does not cause skin sensitisation.
Method:	OECD Test Guideline 429
Result:	Does not cause skin sensitisation.
Exposure routes:	Skin
Species:	Guinea pig
Assessment:	Does not cause skin sensitisation.
Method:	OECD Test Guideline 406
Result:	Does not cause skin sensitisation.
Assessment:	No skin irritation, No eye irritation Does not cause skin sensitisation., Does not cause respiratory sensitisation.

Germ cell mutagenicity

Components	Titanium Dioxide
Genotoxicity in vitro	Test Type: Ames test Concentration: 100 - 200 ug/plate Metabolic activation: with and without metabolic activation Method: OECD Test Guideline 471 Result: negative
	Test Type: In vitro mammalian cell gene mutation test Concentration: 31 - 500 µg/L Metabolic activation: with and without metabolic activation Method: OECD Test Guideline 476 Result: negative

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Germ cell mutagenicity

Components	Titanium Dioxide
Genotoxicity in vivo	<p>Test Type: Micronucleus test Species: Mouse (males) Application Route: Inhalation Exposure time: 5 consecutive days Dose: 0.8, 7.2, and 28.5 mg/m³ Method: OECD Test Guideline 474 Result: negative</p> <p>Test Type: Micronucleus test Species: Rat (male and female) Application Route: Oral Exposure time: once Dose: 500, 1000, and 2000 mg/kg bw Method: OECD Test Guideline 474 Result: negative</p> <p>Test Type: Chromosome aberration test in vitro Concentration: 125 - 2500 µg/L Metabolic activation: with and without metabolic activation Method: OECD Test Guideline 473 Result: negative</p>
Germ cell mutagenicity- Assessment	<p>Tests on bacterial or mammalian cell cultures did not show mutagenic effects., Animal testing did not show any mutagenic effects. No data available</p>

Carcinogenicity

Components	Titanium Dioxide
Species:	Rat, (male and female)
Application Route:	Oral
Exposure time:	103 weeks
Dose:	0, 25000, 50000 ppm
Frequency of Treatment:	7 days/week
NOAEL:	> 50.000 ppm
Method:	No information available.
Remarks:	<p>Titanium Dioxide: based on the results of chronic inhalation studies (with positive results only in a single species - rat), IARC has concluded that: "There is inadequate evidence in humans for the carcinogenicity of titanium dioxide. " but that : "There is sufficient evidence in experimental animals for carcinogenicity of titanium dioxide". IARCs overall evaluation was that "titanium dioxide is possibly carcinogenic to humans (Group 2B)."</p>

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Carcinogenicity

Components	Titanium Dioxide
Carcinogenicity - Assessment	Not classifiable as a human carcinogen.
IARC	Group 2B: Possibly carcinogenic to humans titanium dioxide
ACGIH	No component of this product present at levels greater than or equal to 0.1% is identified as a carcinogen or potential carcinogen by ACGIH.
OSHA	No component of this product present at levels greater than or equal to 0.1% is on OSHA's list of regulated carcinogens.
NTP	No component of this product present at levels greater than or equal to 0.1% is identified as a known or anticipated carcinogen by NTP.

Reproductive toxicity

Components	Titanium Dioxide
Effects on fertility	No data available
Effects on foetal development	Species: Rat, male and female Application Route: Oral Dose: 100, 300, and 1000 mg/kg bw/ Duration of Single Treatment: 20 d Frequency of Treatment: 7 days/week General Toxicity Maternal: No observed adverse effect level: 1,000 mg/kg body weight Developmental Toxicity: No observed adverse effect level: 1,000 mg/kg body weight Method: OECD Test Guideline 414 Result: No adverse effects
Reproductive toxicity - Assessment	No evidence of adverse effects on sexual function and fertility, or on development, based on animal experiments.
STOT - single exposure	No data available
STOT - repeated exposure	No data available

Repeated dose toxicity

Components	Titanium Dioxide
Species:	Rat, male and female: 3500 mg/m3
Application Route:	Ingestion
Test atmosphere:	dust/mist
Exposure time:	2 yr
Number of exposures:	5 d
Method:	Chronic toxicity
Species: Rat,	male and female: 10 - 50 mg/m3
Application Route:	Inhalation
Exposure time:	2 yr
Number of exposures:	6 hours/day, 5 days/week
Method:	Chronic toxicity

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Reproductive toxicity

Components	Titanium Dioxide
Repeated dose toxicity - Assessment	No skin irritation, No eye irritation No adverse effect has been observed in chronic toxicity tests.

Aspiration toxicity

No data available

Experince with human exposure

General Information:	No data available
Inhalation:	No data available
Skin contact:	No data available
Eye contact:	No data available
Ingestion:	No data available

Toxicology, Metabolism, Distribution

No data available

Neurological effects

No data available

Further information

Ingestion:	No data available
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SECTION 12: Ecological information

12.1 Toxicity

Ecotoxicity

Components	Titanium Dioxide
Toxicity to fish	LC50 (Cyprinodon variegatus (sheepshead minnow)): > 10,000 mg/l Exposure time: 96 h Test Type: semi-static test Test substance: Marine water Method: OECD Test Guideline 203
Toxicity to daphnia and other aquatic invertebrates	No data available
Toxicity to algae	No data available
M-Factor (Acute aquatic toxicity)	No data available
Toxicity to fish (Chronic toxicity)	No data available
Toxicity to daphnia and other aquatic invertebrates (Chronic toxicity)	No data available
M-Factor (Chronic aquatic toxicity)	No data available
Toxicity to microorganisms	No data available
Toxicity to soil dwelling organisms	No data available
Plant toxicity	NOEC: 100,000 mg/kg Exposure time: 480 h
Sediment toxicity	(Gammarus pulex (Amphipod)): > 100000 mg/kgsedimentdw Study: Acute Test Type: semi-static test Water: Fresh water Exposure duration: 28 d Method: ASTM Method, other
	(Gammarus pulex (Amphipod)): 100000 mg/kgsedimentdw Study: Chronic Test Type: semi-static test Water: Fresh water Exposure duration: 28 d Method: ASTM Method, other
	(Gammarus pulex (Amphipod)): 14989 mg/kgsedimentdw Study: Acute Test Type: semi-static test Water: Marine water Exposure duration: 10 d
Toxicity to terrestrial organisms	NOEC: 10,000 mg/kg Exposure time: 672 h

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Ecotoxicology Assesment

Acute aquatic toxicity	No data available
Chronic aquatic toxicity	No data available
Toxicity Data on Soil	No data available
Other organisms relevant to the environment	No data available

12.2 Persistence and degradability

Ecotoxicity

Biodegradability - Product	Remarks: The methods for determining biodegradability are not applicable to inorganic substances.
Biochemical Oxygen Demand (BOD)	No data available
Chemical Oxygen Demand (COD)	No data available
BOD/COD	No data available
ThOD	No data available
BOD/ThOD	No data available
Dissolved organic carbon (DOC)	No data available
Physico-chemical removability	No data available
Stability in water	No data available
Photodegradation	No data available
Impact on Sewage Treatment	No data available

12.3 Bioaccumulative potential

Components	Titanium Dioxide
Bioaccumulation	Species: Oncorhynchus mykiss (rainbow trout)
	Bioconcentration factor (BCF): 19 - 352
	Exposure time: 14 d
	Test substance: Fresh water
	Method: semi-static test
	Remarks: Does not bioaccumulate.
Partition coefficient: n-octanol/water - Product	Remarks: Not applicable

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12.4 Mobility in soil

Mobility No data available

Components	Titanium Dioxide
Distribution among environmental compartments	Remarks: No data available
Stability in soil	No data available

12.5 Results of PBT and vPvB assessment

No data available

12.6 Endocrine disrupting potential

No data available

12.7 Other adverse effects

No data available

SECTION 13: Disposal considerations

13.1 Waster treatment methods

Waste from residues	The product should not be allowed to enter drains, water courses or the soil. This material and its container must be disposed of in a safe way. In accordance with local and national regulations. Dispose of wastes in an approved waste disposal facility. If recycling is not practicable, dispose of in compliance with local regulations.
Contaminated packaging	Empty containers should be taken to an approved waste handling site for recycling or disposal.

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SECTION 14: Transport information

14.1 UN number

Not classified

14.2 UN proper shipping name

Not classified

14.3 Transport hazard class(es)

Not classified

14.4 Packing group

Not classified

14.5 Enviromental hazards

Enviromentally hazardous substance/marine pollutant - No

14.6 Special precautions for user

Not classified

14.7 Transport in bulk according to annex II of Marpol and the IBC code

Not applicable

SECTION 15: Regulatory information

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

National regulations

Health and Safety at Work etc. Act 1974 (as amended). The Carriage of Dangerous Goods and Use of Transportable Pressure Equipment Regulations 2009 (SI 2009 No. 1348) (as amended) ["CDG 2009"]. EH40/2005 Workplace exposure limits.

EU legislation

Regulation (EC) No 1907/2006 of the European Parliament and of the Council of 18 December 2006 concerning the Registration, Evaluation, Authorisation and Restriction of Chemicals (REACH) (as amended). Commission Regulation (EU) No 2015/830 of 28 May 2015. Regulation (EC) No 1272/2008 of the European Parliament and of the Council of 16 December 2008 on classification, labelling and packaging of substances and mixtures (as amended).

Guidance

ECHA Guidance on the Compilation of Safety Datasheets Workplace Exposure Limits EH40.

15.2 Chemical safety assessment

No chemical safety assessment has been carried out.

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SECTION 16: Other information

Abbreviations and acronyms used in the safety data sheet

ACGIH	American Conference of Governmental Industrial Hygienists.
CAS	Chemical Abstracts Service.
CLP	Classification, Labelling & Packaging.
DNEL	Derived No-Effect Level.
EC	European Commission.
IARC	International Agency for Research on Cancer.
LC50	Lethal Concentration to 50 % of a test population.
LD50	Lethal Dose to 50% of a test population (Median Lethal Dose).
MSHA	Mine Safety and Health Administration.
NIOSH	National Institute for Occupational Safety and Health.
NOAEL	No Observed Adverse Effect Level.
NOEC	No Observed Effect Concentration.
NTP	National Toxicology Program.
OECD	Organization for Economic Cooperation and Development.
OEL	Occupational Exposure Limits.
OSHA	Occupational Safety and Health Administration.
PBT	Persistent, Bioaccumulative and Toxic substance.
STOT	Specific Target Organ Toxicity.
TWA	Time Weighted Average.
vPvB	Very Persistent and Very Bioaccumulative.

General information

This datasheet is not intended to be a replacement for a full risk assessment, these should always be carried out by competent persons.

Key literature references and sources for data

Source: European Chemicals Agency, <http://echa.europa.eu/>

Training advice

Read and follow manufacturer's recommendations. Only trained personnel should use this material.

Revision comments	First Issue
Revision date	23/03/2023
Revision	1
Supersedes date	N/A