

SAFETY DATA SHEET
According to Regulation (EC) No. 1907/2006

SDS Number : PCM10122

Version : 4.0

Issued Date : 19/06/2024

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

1.1 Product identifier

Trade name : X-PURE - X-PAQUE Series

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

Use of Substance/Mixture : Titanium dioxide replacers

Recommended restrictions on use : Do not use for cosmetics, food additives, drug additives, feed additives or permanent implant application. Due to lack of related experience or data, the supplier cannot approve this use.

1.3 Details of the supplier of the safety data sheet

Company : DUOKEM LLC

Address : 2016 Main St, Suite 1604
Houston TX
77002 USA

Telephone : +1-855-7-DUOKEM

E-mail address of person responsible for the SDS : marketing@duokem.com

1.4 Emergency Telephone Number

Emergency telephone number : +1-800-424-9300

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

Not a hazardous substance or mixture.

2.2 Label elements

Not a hazardous substance or mixture.

2.3 Other hazards

This substance/mixture contains no components consider to be either persistent. Bio-accumulative and toxic (PBT), or ver-persistent and very bio-accumulative (vPvB) at level of 0.1% or higher.

SECTION 3: Composition/information on ingredients**3.1 Substances**

Chemical name	CAS-No	Concentration (% w/w)
Contains no hazardous ingredients according to GHS : Substances with a workplace exposure Limit :		
Hybrid Core-Shell Chloride Titanium-based	13463-67-7	> 99.5%

SECTION 4: First aid measures**4.1 Description of first aid measures**

General advice : Do not leave the victim unattended.
Treat symptomatically.

Protection of first aided : No action shall be taken involving any personal risk or without suitable training.

- 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 eyes contact : Rinse immediately with plenty of water, also under the eyelids.
Remove contact lenses.
Protect unharmed eyes.
If eyes irritation persists, consult a specialist.
- If swallowed : Rinse mouth with water.
If conscious, make the victim drink the following:
Give small amount water to drink.
Do not induce vomiting without medical advice.
Consult a physician if necessary.

4.2 Most important symptoms and effects, both acute and delayed

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

4.3 Indication of any immediate medical attention and special treatment needed

- Treatment : No specific measures identified.
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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

Specific hazards for firefighting : No information available.

Hazardous combustion products : No hazardous combustion products are known.

5.3 Advice for firefighting

Special protective equipment for firefighters : Wear self-contained breathing apparatus for firefighting if necessary.

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.

SECTION 6: Accidental release measures

6.1 Personal precautions, protective equipment and emergency procedures

Personal precautions : No action shall be taken involving any personal risk or without suitable training.
Prevent unauthorized 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 spill in original containers for reuse.

Treat recovered material as described in the section “ Disposal Considerations”.
For disposal consideration see section 13.
The danger areas must delimited and identified using relevant warning and safety signs.

6.2 Environment precautions

Environment 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

Methods for cleaning up : Cleans up methods – small spillage.
Clean up promptly by sweeping.
Keep in suitable, closed contains for disposal.

Clean up methods – large spillage
Clean up promptly by sweeping.
Keep in suitable, closed containers for disposal.

6.4 References to other sections

See section 1 for emergency contact information. For personal protection see section 8. For disposal consideration see section 13.

SECTION 7: Handling and storage

7.1 Precaution for safe handling

Technical measures : Ensure that eyewash stations and safety shower are closed to the workstations location.

Local/Total ventilation : Use only with adequate ventilation.

Advise on safe handling : For personal section see section 8.
Smoking, eating and drinking should be prohibited in the application area.
Manual handling guidelines should be adhered to when handling sacks.

Advice on protection against fire and explosion : Normal measures for preventive fire protection.

Hygiene measure : Handle in accordance with good industrial hygiene and safety practice.
Smoking, eating and drinking should be prohibited in the application area. Wash face, hand 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 hand before breaks and at the end of workday.

7.2 Conditions for safe storage, including any incompatibilities

Requirement for storage areas and containers	: 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 and cool place. Protect from sunlight. Eliminate all ignition sources is safe to do so. Keep container closed when not in used. Paper bag which are opened must be carefully resealed and kept upright to prevent leakage. Use appropriate container to avoid environmental contamination. When using standard pallets, those containing paper or plastic bags can be stacked to a maximum of 2 high.
Advice on common storage	: No materials to be specially mentioned.
Other data	: Keep in a dry place. No decomposition if stored and applied as directed.

7.3 Specific end use(s)

Specific use(s)	: Consult the technical guidelines for the use of this substance/mixture.
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SECTION 8: Exposure controls/personal protection

8.1 Control parameters

Occupational Exposure Limits

Substance name	End Use	Exposing Routes	Potential health effects	Value
Hybrid Core-Shell Titanium-based	Consumers	Oral	Long term systematic effects	1000 mg/kg Bw/day

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

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 work station location.

Hand protection: directive	Use gloves approved to relevant standards e.g. EN 374 (Europe) F739 (US).
Remarks	: For prolonged or repeated contact use protective gloves.
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.
Respiratory Protection	: Use respiratory protection unless adequate local exhaust ventilation is provided or exposure assessment demonstrates that exposure are within recommended exposure guidelines.
Filter type	: P2 Filter
Protective measures	: Wear suitable protective equipment.

Environmental exposure controls

General advice	: As no environmental hazards was identified no environmental related exposure assessment and risk characterization was performed.
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SECTION 9: Physical and chemical properties

9.1 Information on basic physical and chemical properties

Appearances	: Powder
Colour	: White
Odour	: Odourless
Odour Threshold	: No data is available on the product itself.
pH	: 7.0 ± 0.5 (10% slurry)
Flash point	: Not applicable.
Evaporation rate	: Not applicable.
Flammability (Solid, gas)	: Not applicable.

Burning rate	: Will no burn. No combustible.
Upper explosion limit	: Not applicable.
Lower explosion limit	: Not applicable
Vapour pressure	: No applicable.
Relative vapour density	: No applicable.
Relative density	: 3.51 ± 0.10
Water solubility	: Insoluble.
Solubility in other solvent	: Insoluble.
Partition coefficient n-octanol/water	: Not applicable.
Auto-ignition temperature	: No applicable.
Decomposition temperature	: No data is available on the product itself.
Viscosity	: Not applicable
Explosive properties	: No applicable.
Oxidizing Properties	: Non.

9.2 Other information

Impact sensitivity	: Not impact sensitivity.
Self-ignition	: No applicable.

SECTION 10: Stability and reactivity

10.1 Reactivity

No dangerous reaction known under condition of normal use.

10.2 Chemical stability

No decomposition if stored and applied as directed.

10.3 Possibility of hazardous reaction

Hazardous Reaction : Stable under recommended storage conditions.
No hazards to be specially mentioned.

10.4 Condition to avoid

Condition to avoid : No data available.

10.5 Incompatible material

Material to avoid : None known.

10.6 Hazardous decomposition product

At high temperature, decomposition products could include carbon monoxide and carbon dioxide.

SECTION 11: Toxicological Information

11.1 Information on toxicological effects

Acute toxicity

Acute oral toxicity : LD50 (Rat, female): > 5000 mg/kg
Method: OECD Test Guideline 425
Assessment: The substance or mixture has no acute inhalation toxicity.
Acute dermal toxicity - : Acute toxicity estimate: > 2000 mg/kg
Product Method: Calculation method

Skin corrosion/irritation

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

Serious eye damage/eye irritation

Species: Rabbit
Assessment: No skin irritation.
Method: OECD Test Guideline 405
Result: Normally reversible injuries

Respiratory or skin sensitization

Test Type: LLNA (Local Lymph Node Assay)
Exposure routes: Skin
Species: Mouse
Assessment: Does not cause skin sensitization.
Method: OECD Test Guideline 429
Result: Does not cause skin sensitization.

Germ cell mutagenicity

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

Carcinogenicity

Species: Rat, (male and female)
Application Route: Oral
Exposure time: 103 weeks
Dose: 0, 25000,50000 ppm
Frequency of treatment: 7 days/week
No observed adverse effect level: > 50000 ppm
Carcinogenicity- : Not classifiable as a human carcinogen.
Assessment

Reproductive toxicity

Effects on fertility : No data available

SECTION 12: Ecological information**12.1 Toxicity**

Toxicity to fish	: LC50 (Cyprinodont variegates (sheepshead minnow)): >10000 mg/l Exposure time: 96 hours Test time: semi-static test Test substance: Marine water Method: OECD Test Guideline 203
Plant toxicity	: NOEC: 100000 mg/kg Exposure time: 480 hours
Sediment toxicity	: > 100000 mg/kg sediment tdw Study: Acute Test Type: Semi-static test Water: Fresh water Exposure duration: 28 d Species: Gammarus pulex (Amphipod) Method: ASTM 100000 mg/kg sediment tdw Study: Chronic Test Type: Semi-static test Water: Fresh water Exposure duration: 28 d Species: Gammarus pulex (Amphipod) Method: ASTM
Toxicity of terrestrial organism	: NOEC: 10000 mg/kg Exposure time: 672 h

12.2 Persistence and degradability**Product:**

Biodegradability : Remarks: the method to determining biodegradability
Are not applicable to inorganic substances.

12.3 Bio accumulative potential

Bioaccumulation : Species: Oncorhynchus mykiss (rainbow trout)
Exposure time: 14 d
Bioconcentration factor (BCF): 19 – 352
Method: semi-static test
Remarks: Does not bio-accumulate.

12.4 Mobility in soil

Distribution among environmental compartments : Remarks: No data available

12.5 Results of PBT and vPvB assessment

Assessment : This substance/mixture contains no components considered to be either persistent, bio accumulative and toxic (PBT), or very persistent and very bio accumulative (vPvB) at levels of 0.1% or higher.

12.6 Other adverse effects

Additional ecological Information : No data available

SECTION 13: Disposal considerations**13.1 Waste treatment methods**

Product : 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.
Disposal of wastes in an approved waste disposal facility.
If recycling is no practicable, dispose of in compliance with local regulations

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

SECTION 14: Transport information**IATA**

Not regulated as dangerous goods

IMDG

Not regulated as dangerous goods

ADR

Not regulated as dangerous goods

RID

Not regulated as dangerous goods

SECTION 14: Regulatory information**14.1 Safety, health and environmental regulations/legislation specific for the substance or mixture**

REACH – Candidate List of Substance of Very High Concern for Authorization (Article 59)	: This product does not contain substance of very high concern (Regulation (EC) No 1907/2006 (REACH), Article 57).
REACH – List of substance subject to authorization (Annex XIV)	: Not applicable

14.2 Chemical safety assessment

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

SECTION 16: Other information**Further information**

Other information	: 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 test.
Sources of key data used to compile the Safety Data Sheet	: Information taken from reference works and the literature. Information derived from practical experience.

While the information and recommendations in this publication are to the best of our knowledge, information and belief accurate at the date of publication, **NOTHING HEREIN IS TO BE CONSTRUED AS A WARRANTY, EXPRESS OR OTHERWISE.**

IN ALL CASES, IT IS THE RESPONSIBILITY OF THE USER TO DETERMINE THE APPLICABILITY OF SUCH INFORMATION AND RECOMMENDATIONS AND THE SUITABILITY OF ANY PRODUCT FOR ITS OWN PARTICULAR PURPOSE.

Hazards, toxicity and behavior of the products may differ when used with other materials and are dependent upon the manufacturing circumstances or other processes. Such hazards, toxicity and behavior should be determined by the user and made know to handlers, processors and end users.

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