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

1.1. Product identifier

Product Name: enhanceU-S

Product form: Mixture

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

Main use category: Professional use, Industrial use

Use of the substance/mixture: Cosmetic raw material, UV filter.

Uses advised against: None.

1.3. Details of the supplier of the safety data sheet

Advanced Dispersed Particles S.L.

Calle del Oro, 45 -nave 14- P. I. Sur;

28770 Colmenar Viejo, Madrid (España).

T: +34910136640

technical@ad-particles.com

1.4. Emergency telephone number

T: +34910136640 (Monday-Thursday (08:00-17:00 h) and Friday (08:00-15:00 h))

Or please contact your local distributor.

SECTION 2: Hazards identification

2.1. Classification of the substance or mixture

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

Aquatic Acute 1 H400
Aquatic Chronic 1 H410

2.2. Label elements

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

Hazard pictograms	Signal word	Hazard statements	Precautionary statements
 GHS09	Warning	H410- Very toxic to aquatic life with long lasting effects	**Prevention**: P273- Avoid release to the environment. **Response**: P391-Collect spillage. **Disposal**: P501-Dispose of contents/ container to an approved waste disposal plant.

2.3. Other hazards

PBT, vPvB: not assessed. The mixture does not meet the classification criteria under REACH Regulation

Component ZnO: It does not meet the classification criteria under REACH Regulation,

Dust may be generated if handling is not appropriate;

SECTION 3: Composition/information on ingredients

3.1. Substances

Not applicable.

3.2. Mixtures

Name	%	CAS No.	EC No.	Index No.	REACH Registration No.	Classification
Zinc oxide	72-78	1314-13-2	215-222-5	030-013-00-7	01-2119463881-32	Aquatic Acute 1, H400 Aquatic Chronic 1, H410
Titanium dioxide	18-24	13463-67-7	236-675-5	-	01-2119489379-17	Not classified
Silicon dioxide	1-5	7631-86-9	231-545-4	-	01-2119379499-16	Not classified

Full text of H-statements: see section 16

SECTION 4: First aid measures

4.1. Description of first aid measures

General information: Remove the victim out of the danger area.

Following inhalation: Go outdoors. In case of breathing difficulties, seek medical advice.

Following skin-contact: Take off contaminated clothing. Wash with soap and water. If skin irritation develops and persists, seek medical advice.

Following eye-contact: Rinse cautiously with water for several minutes. If any discomfort, seek medical advice.

Following ingestion: Rinse mouth thoroughly with water. Seek medical attention. Do not induce vomiting or give anything by mouth to an unconscious person. If a victim vomits when lying on his back or unconscious, place the person on her/his side (recovery position).

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

Symptoms / after inhalation: Sore throat. Headache. Nausea, vomiting Muscular weakness. Effects can be delayed. (ZnO)

Symptoms / after ingestion: Stomach pain. Nausea, vomiting Diarrhoea. (ZnO)

There is no description of toxic symptoms of the mixture.

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

Treat symptomatically.

SECTION 5: Firefighting measures

5.1. Extinguishing media

Suitable extinguishing media: Water spray, foam, dry powder, carbon dioxide (CO_2).

Unsuitable extinguishing media: Strong water jet.

5.2. Special hazards arising from the substance or mixture

Non-combustible. Toxic fumes could be generated in case of fire.

5.3. Advice for firefighters

Firefighting Instructions: Be cautious. Water spray can be used to cool closed containers. Prevent extinguishing wastewater from polluting the environment. Collect firefighting water and residues according to local regulations.

Protection during firefighting: Do not intervene without suitable protective equipment. Self-contained breathing apparatus (SCBA). Complete body protection. Firefighter clothing (including protective helmets, gloves and boots) conforming to European standard EN 469 will provide a basic level of protection for chemical incidents.

SECTION 6: Accidental release measures

6.1. Personal precautions, protective equipment and emergency procedures

6.1.1. For non-emergency personnel:

Wear suitable protective equipment, see section 8. Provide sufficient ventilation. Evacuate the danger area, observe emergency procedures, consult an expert.

6.1.2. For emergency responders

Do not intervene without suitable protective equipment,

6.2. Environmental precautions

Do not release into the environment. Keep away from drains, surface and ground water. Do not pollute the water. Prevent further leaks or spills if it can be done without risk.

If the product contaminates rivers, lakes and / or sewers, inform the respective authorities.

6.3. Methods and material for containment and cleaning up

Containment: Contain the spill. Close drains.

Cleaning: Avoid dust generation. Collect and transfer correctly to labelled containers suitable for disposal. Use mechanical handling equipment. Do not use compressed air.

Other information: Dispose of materials or solid waste in an authorized centre. Local authorities should be informed if major spills cannot be contained.

6.4. Reference to other sections

Personal protective equipment, see section 8. Disposal considerations, see section 13.

SECTION 7: Handling and storage

7.1. Precautions for safe handling

Work in well-ventilated areas. Use adequate personal protective equipment (see section 8). Avoid inhalation of dusts. Handle carefully to avoid dust generation. Use dust extraction system. Do not breathe the dust. Dispose of rinse water in accordance with national and local regulations.

Respect good occupational hygiene practices: do not eat, drink or smoke in work areas; wash hands after each use, and remove contaminated clothing and protective equipment before entering eating areas. Do not wear contact lenses when handling chemicals.

7.2. Conditions for safe storage, including any incompatibilities

Technical requirements: Store in the original container. Keep the container properly closed in a dry and well-ventilated place. To maintain product quality, do not store in heat or direct sunlight.

Common storage: No special restrictions.

Other information: No decomposition if stored and applied as directed.

7.3. Specific end use(s)

See section 1.2.

SECTION 8: Exposure controls/personal protection

8.1. Control parameters

8.1.1 National occupational exposure limit values

Zinc Oxide (1314-13-2)

Country	Value type	Control parameters	Basis
Austria	TMW respirable dust 8h	5 mg/m³	AT OEL
Belgium	VLE 8h	10 mg/m³	BE OEL
Denmark	TLV 8h	4 mg/m³	DK OEL
France	VME dust 8h	10 mg/m³	FR VME
Germany	AGW inhalable dust	2 mg/m³	DE DFG MAK
	AGW respirable dust	0.1 mg/m³	
Great Britain	TWA OEL respirable dust	5 mg/m³	GB EH40
	TWA STEL respirable dust	2 mg/m³	
Italy	TWA	2 mg/m³	ACGIH
	STEL	10 mg/m³	
USA	TWA	5 mg/m³	NIOSH
	STEL	10 mg/m³	
	Ceiling	15 mg/m³	
	TWA OSHA-PEL total dust	15 mg/m³	
	TWA OSHA-PEL respirable dust	5 mg/m³	

Titanium Dioxide (13463-67-7)

Country	Value type	Control parameters	Basis
Austria	KZW respirable dust/ alveolar fraction	10 mg/m³	AT OEL
	TMW respirable dust/ alveolar fraction	5 mg/m³	
Belgium	VLE 8h	10 mg/m³	BE OEL
Denmark	GV 8h	6 mg/m³	DK OEL
France	VME inhalable dust	10 mg/m³	FR VLE
	VME respirable dust	5 mg/m³	
Germany	AGW inhalable dust 8h	10 mg/m³	DE TRGS 900
	AGW respirable dust 8h	1.25 mg/m³	
Great Britain	TWA LTEL inhalable dust 8h	10 mg/m³	GB EH40
	TWA LTEL respirable dust 8h	4 mg/m³	
Italy	TWA	10 mg/m³	ACGIH
USA	TWA ACGIH-TLV	10 mg/m³	NIOSH
	TWA LTEL OSHA-PEL	15 mg/m³	OSHA

8.1.2. Recommended monitoring procedures:

No information available.

8.1.3. Air contaminants formed:

No information available.

8.1.4. DNEL y PNEC

Zinc Oxide (1314-13-2)

DNEL/DMEL

Workers	Long-term - systemic effects, oral, dermal	83 mg/kg b.w. per day
	Long-term - systemic effects, oral, inhalation	5 mg/m³
	Long-term - local effects, oral, inhalation	0,5 mg/m³
General population	Long-term - systemic effects,oral	0.83 mg/kg b.w. per day
	Long-term - systemic effects,oral, inhalation	2.5 mg/m³
	Long-term - systemic effects,oral, dermal	83 mg/kg b.w. per day

PNEC

Water	PNEC aqua (freshwater)	20,6 µg/l
	PNEC aqua (marine water)	6,1 µg/l
Sediment	PNEC sediment (freshwater)	235,6 mg/kg dry weight
	PNEC sediment (marine water)	113 mg/kg dry weight
Soil	PNEC soil	106,8 mg/kg dry weight
STP	PNEC sewage treatment plant	100 µg/l

Titanium Dioxide (13463-67-7)

DNEL/DMEL

Workers	Long-term - local effects, inhalation	10 mg/m³
General population	Long-term - systemic effects, oral	700 mg/kg dry weight

PNEC

Water	PNEC aqua (freshwater)	0,184 mg/l
	PNEC aqua (marine water)	0,0184 mg/l
	PNEC aqua (intermittent, freshwater)	0,193 mg/l
Sediment	PNEC sediment (freshwater)	1000 mg/kg dry weight
	PNEC sediment (marine water)	100 mg/kg dry weight
Soil	PNEC soil	100 mg/kg dry weight
STP	PNEC sewage treatment plant	100 mg/l

8.1.5. Control banding

No more information available.

8.2. Exposure controls

8.2.1. Appropriate engineering controls

Engineering measures: No specific measures. When handling high concentrations of powder, technical measures should be given priority over the use of personal protective equipment.

The workplace must be well ventilated. Install emergency showers and eye wash stations in storage and handling locations.

8.2.2 Individual protection measures, such as personal protective equipment

Eye/ face protection: Use eye protection designed to protect against dust, in accordance with EN 166. Eg: Face shield safety glasses

Hand protection: Wear chemical resistant gloves according to EN ISO 374.

Material	Thickness	Permeation
Nitrile Rubber (NBR)	0.4	6 (> 480 minutes)
Chloroprene rubber	0.5	6 (> 480 minutes)
Butyl gum	0.7	6 (> 480 minutes)

Body protection: Wear suitable protective clothing. Take off contaminated clothing and wash before reuse. EN ISO 13982-1 (type 5)

Hygiene measures: Wash your hands before breaks and immediately after handling the substance.

Respiratory protection: In case of insufficient ventilation, wear suitable respiratory equipment. Dust / aerosol mask with P2 filter, mask EN 149: FFP2. Dust / aerosol mask with P3 filter. Half mask and quarter mask respirators with replaceable filter cartridges must comply with European standard EN 140. Particulate filters must comply with European standard EN 143.

Thermal hazards: Not known.

Symbol/ s of personal protective equipment:

8.2.3 Environmental exposure controls:

See sections 6 and 7.

SECTION 9: Physical and chemical properties

9.1. Information on basic physical and chemical properties

Physical state: Solid. Powder.

Colour: Whitish to white.

Smell: Odourless.

Melting point: ≥ 1975 °C. (ZnO). No exothermic or endothermic peaks are observed. No oxidation or decomposition was observed.

Freezing point: Not applicable.

Boiling point: Not relevant. The sample decomposes before boiling.

Flammability: The product has no flammability, explosive or self-inflammability properties.

Lower and upper explosion limits: Not applicable.

Flash point: Not applicable.

Auto-ignition temperature: Not applicable.

Decomposition temperature: No decomposition was observed until 1975 °C (ZnO).

pH: 7-10 (100 g/l solution at 20°C)

Kinematic viscosity: Not applicable.

Solubility: water ≤ 5%; hydrochloric acid ≤ 80 %.

Partition coefficient: n-octanol/water: Not applicable.

Vapour pressure: Not applicable.

Density and/or relative density: No data available.

Particle size: 5 - 15 µm D50 (% volume, laser diffraction, solid sample).

Particle size distribution: 0.1 - 40 µm (% volume, laser diffraction).

Particle shape/ aspect ratio: Not quantifiable.

Aggregation state of the particles: Particle aggregates are observed (high resolution microscope).

Agglomeration state of the particles: Agglomerates can be found; follow the dispersion advice to maximize the effectiveness of the product in formula.

Specific surface of the particles: Not available.

Dustiness: Follow handling recommendations to avoid dust generation.

9.2. Other data

No further relevant information for the safe use of the mixture

SECTION 10: Stability and reactivity

10.1. Reactivity: No reactive at normal ambient temperatures and when stored, used and transported as recommended.

10.2. Chemical stability: Stable at normal ambient conditions.

10.3. Possibility of hazardous reactions: No dangerous reactions known under conditions of normal use.

10.4. Conditions to avoid: None under recommended storage and handling conditions (section 7).

10.5. Incompatible materials: Strong oxidizing agents. Strong acids. Strong alkalis.

10.6. Hazardous decomposition products: Under normal conditions of storage and use, hazardous decomposition products should not be produced. In case of fire, fumes harmful to health may be produced.

SECTION 11: Toxicological information

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

Acute toxicity (oral, dermal, inhalation)

Product: Not classified (Based on available data, the classification criteria are not met).

Main component Zinc Oxide 1314-13-2:

Oral LD50	Inhalation LC50
Rat: > 5000 mg/kg (OECD TG 401)	Rat: > 5,7 mg/L, (OECD TG 403)

Acute dermal toxicity LD50 : Not available.

Component Titanium dioxide 13463-67-7:

Oral LD50	Inhalation LC50
Rat: > 5000 mg/kg (ECHA – endpoint summary)	Rat: > 6,82 mg/L, 4h (ECHA – endpoint summary)

Acute dermal toxicity LD50 : Not available.

Skin corrosion/ irritation

Product: Not classified (Based on available data, the classification criteria are not met).

Main component Zinc Oxide 1314-13-2: Non irritant (Löser, 1977; Lansdown, 1991).

Component Titanium Dioxide 13463-67-7: Non irritant (Rabbit, OECD TG 404).

Serious eye damage/ irritation

Product: Not classified (Based on available data, the classification criteria are not met). Dust particles may cause (mechanical) irritation.

Main component Zinc Oxide 1314-13-2: Non irritant (OECD TG 405, Van Huygevoort 1999).

Component Titanium Dioxide 13463-67-7: Non irritant (Rabbit, OECD TG 405).

Respiratory sensitisation

Product: Not classified (Based on available data, the classification criteria are not met).

Main component Zinc Oxide 1314-13-2: There is no evidence that the material can cause respiratory hypersensitivity.

Component Titanium Dioxide 13463-67-7: Not sensitizing (ECHA, endpoint summary).

Skin sensitisation

Product: Not classified (Based on available data, the classification criteria are not met).

Main component Zinc Oxide 1314-13-2: Not sensitizing (Guinea pig, OECD TG 406, Van Huygevoort 1999).

Component Titanium Dioxide 13463-67-7: Not sensitizing (ECHA, endpoint summary).

Germ Cell Mutagenicity

Product: Not classified (Based on available data, the classification criteria are not met).

Main component Zinc Oxide 1314-13-2: Not mutagenic (OECD 471. OECD 474)).

Component Titanium Dioxide 13463-67-7: Not mutagenic (ECHA, endpoint summary))

Carcinogenicity

Product: Not classified (Based on available data, the classification criteria are not met).

Main component Zinc Oxide 1314-13-2:: Not classified (No experimental or epidemiological evidence exists to justify classification of zinc compounds for carcinogenic activity (based on cross-reading

between Zn compounds; no classification for carcinogenicity required) (Chemical Safety Report (CSR) zinc oxide. 2010)).

Component Titanium Dioxide 13463-67-7: Not classified (ECHA, endpoint summary). Under review.

Reproductive Toxicity

Product: Not classified (Based on available data, the classification criteria are not met).

Main component Zinc Oxide 1314-13-2: Not classified (No experimental or epidemiological evidence exists to justify classification of zinc compounds for carcinogenic activity-based on cross-reading between Zn compounds; no classification for carcinogenicity required-(Chemical Safety Report (CSR) zinc oxide. 2010)).

Component Titanium Dioxide 13463-67-7: No reproductive hazard (ECHA, endpoint summary).

STOT- single exposure

Product: Not classified (Based on available data, the classification criteria are not met).

Main component Zinc Oxide 1314-13-2: Not classified (No experimental or epidemiological sufficient evidence for specific target organ toxicity-single exposure-; no classification for target organ toxicity -single exposure: STOT-SE- required) (Heydon and Kagan, 1990; Gordon, 1992; Mueller and Seger, 1985 [Cited in Chemical Safety report (CSR) zinc oxide. 2010)]).

Component Titanium Dioxide 13463-67-7: Not classified.

STOT- repeated exposure

Product: Not classified (Based on available data, the classification criteria are not met).

Main component Zinc Oxide 1314-13-2: Not sensitizing (No experimental or epidemiological sufficient evidence for specific target organ toxicity -repeated exposure-; no classification for specific target organ toxicity -repeated exposure: STOT-RE- required) (Lam et al, 1985, 1988; Conner, 1988 [Cited in Chemical Safety report (CSR) for zinc(s). 2010)]).

Component Titanium Dioxide 13463-67-7: Not classified (ECHA, endpoint summary)

Aspiration Hazard.

Product: No data available.

Main component Zinc Oxide 1314-13-2: Not relevant.

Component Titanium Dioxide 13463-67-7: Not classified. Under revision.

11.2. Information on other hazards

Endocrine disrupting properties: No evidence.

Other information: Inhalation of dusts should be avoided. Even inert dusts may impair respiratory organ functions,

SECTION 12: Ecological information

12.1. Toxicity

Experimental data not available for the mixture. Toxicity data for main component Zinc oxide 1314-13-2 is here included (Titanium Dioxide 13463-67-7 is not classified (ECHA, endpoint summary).)

Ecotoxicity: Very toxic to aquatic organisms with long lasting effects.

Acute Aquatic toxicity (Component Zinc oxide 1314-13-2)

LE(C)50: 0,1 < L(E)C50 ≤ 1

M-factor: 1.

The Acute aquatic toxicity database on zinc contains data on 11 standard species obtained under standard testing conditions at different pH and hardness. The transformation/dissolution of zinc metal is pH dependent,therefore 2 pH ranges have been considered.

The reference values for acute aquatic toxicity, based on the lowest observed EC50 values of the corresponding databases at different pH and expressed as Zn2+ ion concentration are the following:

- for pH<7: 0.413 mg Zn^{2+}/l (48h, *Ceriodaphnia dubia* , US EPA 821-R-02-012 standard test protocol)

- for pH>7-8.5: 0.136 mg Zn^{2+}/l (72h, *Selenastrum capricornutum* (=*Pseudokircherniella subcapitata*) test according to OECD 201 standard protocol)

As demonstrated by transformation/dissolution (T/D) testing according to OECD guidelines, zinc oxide is less soluble than soluble zinc compounds. Applying the molecular weight correction and the results of the T/D testing (CSR), the specific reference values for acute aquatic toxicity of zinc oxide are (based on 62% solubilization capacity on finest powders at most conservative loading of 1mg/l at pH 8 (RA zinc oxide, ECB 2008)):

- for pH<7: 0.67 mg Zn/l (based on 48h *Ceriodaphnia dubia* test above)

- for pH>7-8.5: 0.21 mg Zn/l (based on 72h *Selenastrum capricornutum* test above).

Chronic aquatic toxicity (Component Zinc oxide 1314-13-2):

M-factor: 1.

The chronic aquatic toxicity database on zinc contains NOEC/EC10 values on 23 species (8 taxonomic groups) obtained under different conditions. These data, outlined in the CSR, were compiled in a species sensitivity distribution, from which the PNEC was derived (expressed as Zn^{2+}ion concentration).

The general reference value for chronic aquatic toxicity due to the Zn^{2+}ion (relevant for pH> 7 – 8.5) is a species average of 34 NOEC/EC10 values obtained on the standard *species Pseudokircherniella subcapitata* (unicellular algae) and is expressed as Zn^{2+} ion concentration: 19µg Zn/l (CSR zinc oxide), 2010).

The reference value for chronic aquatic toxicity at pH 6 (calculated from the same chronic ecotoxicity database) for the standard species at each taxonomic level:

-for algae, the NOEC of the BLM- species *Pseudokircherniella subcapitata* is the lowest of the SSD at pH 8 (19 µg/l – see above). This value corresponds to a water of pH 8.0, hardness 24 mg $CaCO_3$ and DOC 2.0 mg/l. With the BLM, a corresponding species NOEC of 142 µg/l was calculated for this species at pH 6 (other water conditions kept the same).

-for invertebrates, the BLM-species *Daphnia magna* gives a species mean at pH 8 of 98 µg/l, corresponding to a water of pH 8, hardness 24 mg $CaCO_3$/l and DOC 1.2 mg/l. The Daphnia magna-BLM predicts at pH 6 (other water conditions same) a species NOEC of 82 µg/l.

-for fish, *Oncorrhynchus Mykiss*, the species mean at pH 8 is 146 µg/l (hardness 45 mg/l, DOC 2 mg/l). Using the corresponding fish BLM gives a species NOEC of 146 µg/l at pH 6 (other conditions same).

From this analysis, the reference value for chronic aquatic effect for zinc at pH 6.0 was set at 82µg Zn/l (Daphnia magna) (Chemical safety report zinc oxide), 2010).

The specific reference values for chronic aquatic toxicity of zinc oxide are calculated by applying the correction for the ZnO/Zn molecular weight ratio (1.25) since no transformation/dissolution data over 28 days testing are available on ZnO (also considering the solubility of Zn in ZnO after 8d, see acute aquatic toxicity):

-for pH 6 - <7: 0.082 mg Zn/l x 1.25 = 102.1 µg/l (*Daphnia magna*)

-for pH >7 - 8.5: 0.019 mg Zn/l x 1.25 = 23.8 µg/l (*Pseudokircherniella subcapitata*)

In addition, for determination of the chronic aquatic effects classification according to the 2nd ATP CLP criteria, it has to be considered further if the substance is rapidly degradable or not: Zinc and zinc compounds are considered as 'rapidly degradable" in the context of classification for chronic aquatic effects The concept of "Degradability" was developed for organic substances and is not applicable as such to inorganic substances like zinc. Instead, the concept of "removal from the water column" is used to assess whether or not a given metal ion would remain present in the water column upon addition (and thus be able to exert a chronic effect) or would be rapidly removed from the water column. In this concept, "rapid removal from the water column" (defined as >70%

removal within 28 days) is considered as equivalent to "rapidly degradable". The rapid removal of zinc from the water column is documented (Chemical safety report ZnO 2012).

Toxicity to Soil (Component Zinc oxide 1314-13-2):

The chronic toxicity of zinc to soil organisms was assessed based on a database containing chronic NOEC/EC10 values on 18 plant species, 8 invertebrate species and 17 microbial processes, obtained under a variety of conditions. These data, outlined in the CSR, were compiled in a species sensitivity distribution, from which the PNEC was derived (expressed as total Zn contained in the soil).

Chronic toxicity – Freshwater sediment (Component Zinc oxide 1314-13-2):

The chronic toxicity of zinc to sediment organisms in the freshwater was assessed based on a database containing chronic NOEC/EC10 values on 7 benthic species obtained under a variety of conditions. These data, outlined in the CSR, were compiled in a species sensitivity distribution, from which the PNEC was derived (expressed as total Zn contained in the sediment).

For marine sediments, a PNEC was derived using the equilibrium partitioning approach.

Toxicity – Sewage Treatment Plant, STP (Component Zinc oxide 1314-13-2):

The PNEC for STP was derived by applying an assessment factor to the lowest relevant toxicity value (5.2mg Zn/l). (Dutka , 1983).

12.2. Persistence and degradability

The product contains only inorganic substances that are not biodegradable. The "persistence" criterion does not apply to inorganic substances as it would apply to organic substances.

12.3. Bioaccumulative potential

Product: Partition coefficient: n-octanol/water: Not applicable

Component Zinc Oxide 1314-13-2: Partition coefficient: n-octanol/water: < -4

Component Titanium Dioxide 13463-67-7: Low potential for bioaccumulation. No data available.

12.4. Mobility in soil

Product: No data available

Component Zinc Oxide 1314-13-2: Solids-water partitioning coefficient of 158.5 l/kg (log value 2.2) for zinc in soils (CSR zinc 2010).

Component Titanium Dioxide 13463-67-7: Low mobility. No data available.

12.5. Results of PBT and vPvB assessment

Neither the product nor its components meet the PBT or vPvB criteria of the REACH regulation.

12.6. Endocrine disrupting properties

Neither the product nor its components are identified as endocrine disruptors.

12.7 Other adverse effects

None known

SECTION 13: Disposal considerations

13.1. Waste treatment methods:

Waste must be disposed of in accordance with the Directive 2008/98 /EC on waste, as amended by Directive (EU) 2018/851 of the European Parliament and of the Council, and with national and regional regulations. Keep the remains in their original containers. Dispose of contaminated containers in the same way as the product. Avoid release to the environment.

SECTION 14: Transport Information

14.1. UN number or ID number

UN 3077 (ADR / IMDG / IATA / ADN / RID)

14.2. UN proper shipping name

ADR, RID, IMDG, ADN: ENVIRONMENTALLY HAZARDOUS SUBSTANCE, SOLID, N.O.S.

IATA : Environmentally hazardous substances, solid, n.o.s

Description of the transport document
ADR, ADN, RID: UN 3077 **ENVIRONMENTALLY HAZARDOUS SUBSTANCES, SOLID, N.O.S (Zinc oxide),** 9, III, (-)
IMDG: UN 3077 **ENVIRONMENTALLY HAZARDOUS SUBSTANCES, SOLID, N.O.S (Zinc oxide),** 9, III, **MARINE POLLUTANT**
IATA: UN 3077 Environmentally hazardous substance, solid, n.o.s. (zinc oxide), 9, III

14.3. Transport hazard class(es)

ADR, IMDG, IATA, ADN, RID: 9

14.4. Packing group

ADR, IMDG, IATA, ADN, RID: III

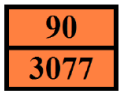
14.5. Environmental hazards

ADR, IATA, ADN, RID: hazardous to the aquatic environment.

IMDG: Environmentally hazardous. Marine pollutant.

14.6. Special precautions for user

Transport of dangerous goods by road (ADR)
Classification Code: M7
Special provisions (SP): 274, 335, 375, 601
Limited quantities (LQ): 5kg
Excepted quantities (EQ): E1
Packaging instructions: P002, IBC08, LP02, R001
Special packaging provisions: PP12, B3
Provisions for mixed packaging: MP10
Instructions for containers and portable tanks for bulk: T1, BK1, BK2, BK3
Special provisions for containers and portable tanks for bulk: TP33
Container Code: SGAV, LGBV
Vehicle for container transport: AT
Transport category (TC): 3
Special provisions for transport - Packages: V13
Special provisions for transport - Bulk: VC1, VC2
Special provisions for transport – Loading, unloading and handling: CV13
Hazard identification number (Kemler code): 90
Orange panel:



Tunnel restriction code (TRC): -

International Maritime Dangerous Goods Code (IMDG)
Special provisions (SP): 274, 335, 966, 967, 969
Limited quantities (LQ): 5 kg
Excepted quantities (EQ): E1
Packaging instructions: LP02, P002
Special packaging provisions: PP12
IBC packaging instructions: IBC08
IBC special provisions: B3
Instructions for tanks: BK1, BK2, BK3, T1
Special provisions for tanks: TP33
No. FS (Fire): F-A
No. FS (Spillover): S-F
Stowage category: A
Stowage and handling: SW23

International Civil Aviation Organization (ICAO-IATA/DGR)
Excepted quantities for passenger and cargo aircraft: E1
Limited quantities for passenger and cargo aircraft: Y956
Maximum net quantity for limited quantity in passenger and cargo aircraft: 30kgG
Packing Instructions for Passenger and Cargo Aircraft: 956
Maximum net quantity for passenger and cargo aircraft: 400kg
Packing Instructions For Cargo Aircraft Only: 956
Max quantity net exclusively for cargo aircraft: 400kg
Special provisions: A97, A158, A179, A197
GRE code: 9L

Transport of dangerous goods by inland waterway (ADN)
Classification Code: M7
Special provisions (SP): 274, 335, 375, 601
Limited quantities (LQ): 5kg
Excepted quantities (EQ): E1
Required equipment: PP, A
No. of cones / blue lights: 0
Additional Provisions / Observations: * Only in molten state. ** For transport in bulk, see also 7.1.4.1. *** Only in the case of bulk transport.

Transport of dangerous goods by rail (RID)
Classification Code: M7
Special provisions (SP): 274, 335, 375, 601
Limited quantities (LQ): 5kg
Excepted quantities (EQ): E1
Packaging instructions: P002, IBC08, LP02, R001
Special packaging provisions: PP12, B3
Provisions for mixed packaging: MP10
Instructions for containers and portable tanks for bulk: T1, BK1, BK2, BK3
Special provisions for containers and portable tanks for bulk: TP33
Container Code: SGAV, LGBV
Transport category (TC): 3
Special provisions for transport - Packages: V13
Special provisions for transport - Bulk: VC1, VC2
Special provisions for transport – Loading, unloading and handling: CW13, CW31
Express packages: CE11
Hazard identification number: 90

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

This mixture contains no substances:

- subject to restrictions according to Annex XVII of REACH

- included in the REACH Candidate List

- listed in REACH Annex XIV

- subject to Regulation (EU) No. 649/2012 of the European Parliament and of the Council, of July 4, 2012, regarding the export and import of dangerous chemical products.

- subject to Regulation (EU) n ° 2019/1021 of the European Parliament and of the Council, of June 20, 2019, on persistent organic pollutants.

Real Decreto (Spanish Royal Decree) 840/2015, of September 21, approving measures to control the risks inherent in serious accidents involving dangerous substances (transposes Directive 2012/18 / EU, Directive SEVESO III). Annex 1, E1 Hazardous to the aquatic environment in categories acute 1 or chronic 1 (Threshold quantities: 100ton-200ton)

National Regulation (Germany):

Risk classification according to BetrSichV: Not applicable

Water contaminating class: WGK 2 (water endangering), 2187 VwVwS Annex 3

The components of this mixture are listed in the following inventories: EINECS, TSCA, ENCS, AICS, DSL, PICCS, IECSC, KECI.

15.2 Chemical Safety Assessment:

Chemical Safety Assessment has been carried out for the following substances in this mixture: zinc oxide, titanium dioxide.

SECTION 16: Other information

Changes compared to previous versions

All sections revision. Up-date of information relative to the product and components.

Abbreviations and acronyms

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; AICS - Australian Inventory of Chemical Substances; ATE: Acute Toxicity Estimate; ATP: adaptation to scientific and technical progress; BCF: Bioconcentration Factor; CAS - Chemical Abstracts Service; CLP: Classification, Labelling and Packaging; CMR - Carcinogenic, Mutagenic or toxic to Reproduction; CSR: Chemical Safety Report; DNEL: Derived No Effect Level; DSL-Canada Domestic Substance List; EC50- Half maximal effective concentration; ENCS - Inventory of Existing and New Chemical Substances in Japan; GHS Global Harmonized System; IATA - International Air Transport; IBC - International code for the construction and equipment of ships carrying dangerous chemicals in bulk; ICAO: Technical Instructions for the Safe Transport of Dangerous Goods by Air; IECSC - Inventory of Existing Chemical Substance in China; IMDG - International Maritime Dangerous Goods; INCI- International Nomenclature of Cosmetic Ingredients; ISO - International Organization for Standardization; KECI - Korea Existing Chemicals Inventory; LC50 - Lethal Concentration required to kill 50% of the population; LD50 - Lethal dose at which 50% of the population if killed in a given period of time; LEV: Local Exhaust Ventilation; LTEL: Long-term exposure limit (8-hr TWA reference period; the maximum exposure permitted over an 8-hour period); MARPOL - International Convention for the Prevention of Pollution from Ships; NOAEC - No Observed Adverse Effect Concentration; NOAEL - No Observed Adverse Effect Level; N.O.S.- Not Otherwise Specified; OECD - Organisation for Economic Co-operation and Development; PBT - Persistent, bioaccumulative and toxic substance; PICCS - Philippine Inventory of Chemicals and

Chemical Substances; PNEC: Predicted No effect concentration; REACH – 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; RID: Regulations concerning the International Carriage of Dangerous Goods by Rail; SDS – Safey Data Sheet; STEL: Short-term exposure limit (the maximum exposure permitted over a short period of time); STOT specific target organ toxicity; TCSI - Taiwan Chemical Substance Inventory; TLV: Threshold Limit Value;TWA- Time Weighted Average; TSCA - Toxic Substances Control Act (US); UN – United Nations; vPvB - very Persistent and very Bioaccumulative;

Literature references and sources for data

REGULATION (EC) N ° 1272/2008 OF THE EUROPEAN PARLIAMENT AND OF THE COUNCIL, of December 16, 2008, on classification, labelling and packaging of substances and mixtures, and by which Directives 67/548 / EEC and 1999/45 / EC and Regulation (EC) No. 1907/2006 are amended.
EU SDS format according to Commission Regulation (EU) 2020/878.

Directive 2014/27/ EU of the European Parliament and of the Council, of February 26, 2014, amending Directives 92/58/EEC, 92/85/EEC, 94/33/EC, 98/24/EC of the Council and Directive 2004/37 / EC of the European Parliament and of the Council, in order to adapt them to Regulation (EC) No. 1272/2008 on classification, labelling and packaging of substances and mixtures.

List of relevant hazard statements and/or precautionary 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
H400	Toxic to aquatic life.
H410	Very toxic to aquatic life with long lasting effects

Classification and procedure used to derive the classification of mixtures according to Regulation (EC) 1272/2008 [CLP]:

Aquatic Acute 1	H400	Calculation method
Aquatic Chronic 1	H410	Calculation method

Advices on workers' training:

Consult the safety data sheet before handling or disposal. This mixture should be handled by workers with sufficient practical training and with the necessary information to do so.

Responsability:

The information provided in this Safety Data Sheet is the most correct that we have at the date of publication. The information is intended as a guide to safe handling, use, processing, storage, transportation, disposal, and discharge, and should not be construed as a guarantee or specification of quality. The information refers to the specified product: if used in combination with other materials or processed, it may not be valid.

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