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

1.1 Product identifier

- Trade name HALAR® 6914

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

Uses of the Substance / Mixture

- For industrial use only

1.3 Details of the supplier of the safety data sheet

Company

SOLVAY SPECIALTY POLYMERS USA, LLC
4500 McGINNIS FERRY ROAD
30005-3914, ALPHARETTA GA
USA
Tel: +1-770-7728200
Fax: +1-770-7728213
Product Information:
+1-800-2210553

1.4 Emergency telephone

FOR EMERGENCIES INVOLVING A SPILL, LEAK, FIRE, EXPOSURE OR ACCIDENT, CONTACT CHEMTREC (24-Hour Number): +1-800-424-9300 within the United States and Canada, or +1-703-527-3887 for international collect calls.

SECTION 2: Hazards identification

Although OSHA has not adopted the environmental portion of the GHS regulations, this document may include information on environmental effects.

2.1 Classification of the substance or mixture

HCS 2012 (29 CFR 1910.1200)

Combustible dust	May form combustible dust concentrations in air.

2.2 Label elements

HCS 2012 (29 CFR 1910.1200)

Signal Word

- Warning

Hazard Statements

- May form combustible dust concentrations in air.

2.3 Other hazards which do not result in classification

- H400: Very toxic to aquatic life.
- H411: Toxic to aquatic life with long lasting effects.

SECTION 3: Composition/information on ingredients

3.1 Substance

- Not applicable, this product is a mixture.

3.2 Mixture

Hazardous Ingredients and Impurities

Chemical name	Identification number CAS-No.	Concentration [%]
Titanium oxide (TiO2)	13463-67-7	>= 5 - < 10
C.I. Pigment Black 28	68186-91-4	>= 5 - < 10
Zinc oxide (ZnO)	1314-13-2	>= 1 - < 5

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

Non Hazardous Ingredients and Impurities

Chemical name	Identification number CAS-No.	Concentration [%]
1-Propene, 3,3,3-trifluoro-2-(trifluoromethyl)-, polymer with 1-chloro-1,2,2-trifluoroethene and ethene	54302-04-4	>= 80

SECTION 4: First aid measures

4.1 Description of first-aid measures

In case of inhalation

- Remove the subject from dusty environment and let him blow his nose.

Exposure to decomposition products
- Move to fresh air.
- Oxygen or artificial respiration if needed.
- Symptoms of poisoning may develop many hours after exposure.
- Keep under medical supervision for at least 48 hours.

In case of skin contact

- Wash off with soap and water.

Exposure to decomposition products
- Wash off with soap and water.
- Immediately apply calcium gluconate gel 2.5% and massage into the affected area using rubber gloves; continue to massage while repeatedly applying gel until 15 minutes after pain is relieved.
- Consult a physician.

In case of eye contact

- In the case of contact with eyes, rinse immediately with plenty of water and seek medical advice.

Exposure to decomposition products
- Rinse immediately with plenty of water, also under the eyelids.
- Remove contact lenses.

In case of ingestion

- If large quantities of this material are swallowed, call a physician immediately.

4.2 Most important symptoms and effects, both acute and delayed

In case of inhalation

Effects
- May be harmful by inhalation (after often repeated exposure).
- The thermal decomposition vapors of fluorinated polymers may cause polymer fume fever with flu-like symptoms in humans, especially when smoking contaminated tobacco.

Symptoms
- Headache
- Shortness of breath
- Cough

In case of skin contact

Effects
- May be harmful in contact with skin (after often repeated exposure).

Symptoms
Exposure to decomposition products
- Irritation
- Redness
- Burn

In case of eye contact

Effects
- Contact with eyes may cause irritation.

Symptoms
Exposure to decomposition products
- Irritation
- Redness
- Burn

In case of ingestion

Effects
- Ingestion may cause gastrointestinal irritation, nausea, vomiting and diarrhea.

4.3 Indication of any immediate medical attention and special treatment needed

- no data available

SECTION 5: Firefighting measures

Flash point	The product is not flammable.
Autoignition temperature	No data available
Flammability / Explosive limit	No data available

5.1 Extinguishing media

Suitable extinguishing media

- Water
- powder
- Foam
- Dry chemical

- Carbon dioxide (CO2)

Unsuitable extinguishing media

- None.

5.2 Special hazards arising from the substance or mixture

Specific hazards during fire fighting

- The product is not flammable.
- Not explosive
- In case of fire hazardous decomposition products may be produced such as: Gaseous hydrogen fluoride (HF), Fluorophosgene

Hazardous combustion products:

- Gaseous hydrogen fluoride (HF).
- Fluorophosgene
- Gaseous hydrogen chloride (HCl).
- Other hazardous decomposition products may be formed.

5.3 Advice for firefighters

Special protective equipment for fire-fighters

- Wear self-contained breathing apparatus and protective suit.
- When intervention in close proximity wear acid resistant over suit.

Further information

- Evacuate personnel to safe areas.
- Approach from upwind.
- Protect intervention team with a water spray as they approach the fire.
- Keep containers and surroundings cool with water spray.
- Keep product and empty container away from heat and sources of ignition.

SECTION 6: Accidental release measures

6.1 Personal precautions, protective equipment and emergency procedures

Advice for non-emergency personnel

- Prevent further leakage or spillage if safe to do so.

Advice for emergency responders

- Ensure adequate ventilation.
- Avoid dust formation.
- Material can create slippery conditions.
- Sweep up to prevent slipping hazard.
- Keep away from open flames, hot surfaces and sources of ignition.

6.2 Environmental precautions

- Should not be released into the environment.

- The product should not be allowed to enter drains, water courses or the soil.
- In case of accidental release or spill, immediately notify the appropriate authorities if required by Federal, State/Provincial and local laws and regulations.

6.3 Methods and materials for containment and cleaning up

- Sweep up or vacuum up spillage and collect in suitable container for disposal.

6.4 Reference to other sections

- Refer to protective measures listed in sections 7 and 8.

SECTION 7: Handling and storage

7.1 Precautions for safe handling

- Ensure adequate ventilation.
- Avoid dust formation.
- Use personal protective equipment.
- Do not contaminate tobacco products.
- Keep away from heat and sources of ignition.
- To avoid thermal decomposition, do not overheat.
- Take measures to prevent the build up of electrostatic charge.
- Clean and dry piping circuits and equipment before any operations.
- Ensure all equipment is electrically grounded before beginning transfer operations.

Hygiene measures

- Ensure that eyewash stations and safety showers are close to the workstation location.
- When using do not eat, drink or smoke.
- Wash hands before breaks and at the end of workday.
- Handle in accordance with good industrial hygiene and safety practice.

7.2 Conditions for safe storage, including any incompatibilities

Technical measures/Storage conditions

- Keep in properly labeled containers.
- Keep away from heat and sources of ignition.
- Keep away from combustible material.
- Keep away from incompatible products
- Provide tight electrical equipment well protected against corrosion.
- Refer to protective measures listed in sections 7 and 8.

Packaging material

Suitable material

- glass
- Metals
- Plastic materials.

7.3 Specific end use(s)

- Contact your supplier for additional information

SECTION 8: Exposure controls/personal protection

Introductory Remarks: These recommendations provide general guidance for handling this product. Because specific work environments and material handling practices vary, safety procedures should be developed for each intended application. Assistance with selection, use and maintenance of worker protection equipment is generally available from equipment manufacturers.

8.1 Control parameters

Components with workplace occupational exposure limits

Components	Value type	Value	Basis
C.I. Pigment Black 28	TWA	0.5 mg/m3	Occupational Safety and Health Administration - Table Z-1 Limits for Air Contaminants
	Expressed as :chromium		
C.I. Pigment Black 28	TWA	1 mg/m3	National Institute for Occupational Safety and Health
	Expressed as :Copper		
C.I. Pigment Black 28	TWA	0.5 mg/m3	National Institute for Occupational Safety and Health
	Expressed as :chromium		
Zinc oxide (ZnO)	TWA	2 mg/m3	American Conference of Governmental Industrial Hygienists
	Form of exposure : Respirable particulate matter		
Zinc oxide (ZnO)	STEL	10 mg/m3	American Conference of Governmental Industrial Hygienists
	Form of exposure : Respirable particulate matter		
Zinc oxide (ZnO)	TWA	5 mg/m3	National Institute for Occupational Safety and Health
	Form of exposure : Dust		
Zinc oxide (ZnO)	TWA	5 mg/m3	National Institute for Occupational Safety and Health
	Form of exposure : Fumes		
Zinc oxide (ZnO)	ST	10 mg/m3	National Institute for Occupational Safety and Health
	Form of exposure : Fumes		
Zinc oxide (ZnO)	C	15 mg/m3	National Institute for Occupational Safety and Health
	Form of exposure : Dust		
Zinc oxide (ZnO)	TWA	15 mg/m3	Occupational Safety and Health Administration - Table Z-1 Limits for Air Contaminants
	Form of exposure : total dust		
Zinc oxide (ZnO)	TWA	5 mg/m3	Occupational Safety and Health Administration - Table Z-1 Limits for Air Contaminants

	Form of exposure : respirable fraction		
Zinc oxide (ZnO)	TWA	5 mg/m3	Occupational Safety and Health Administration - Table Z-1 Limits for Air Contaminants
	Form of exposure : Fumes		

Threshold limit values of by-products from thermal decomposition:

Components with workplace occupational exposure limits

Components	Value type	Value	Basis
Hydrofluoric acid	TWA	0.5 ppm	American Conference of Governmental Industrial Hygienists
	Danger of cutaneous absorption Expressed as :Fluorine		
Hydrofluoric acid	C	2 ppm	American Conference of Governmental Industrial Hygienists
	Danger of cutaneous absorption Expressed as :Fluorine		
Hydrofluoric acid	C	6 ppm 5 mg/m3	National Institute for Occupational Safety and Health
Hydrofluoric acid	TWA	3 ppm 2.5 mg/m3	National Institute for Occupational Safety and Health
Hydrofluoric acid			Occupational Safety and Health Administration - Table Z-1 Limits for Air Contaminants
	Expressed as :Fluorine		
Hydrofluoric acid	TWA	3 ppm	Occupational Safety and Health Administration - Table Z-2
Carbonic difluoride	TWA	2 ppm	American Conference of Governmental Industrial Hygienists
Carbonic difluoride	STEL	5 ppm	American Conference of Governmental Industrial Hygienists
Carbonic difluoride	TWA	2 ppm 5 mg/m3	National Institute for Occupational Safety and Health
Carbonic difluoride	ST	5 ppm 15 mg/m3	National Institute for Occupational Safety and Health
Hydrochloric acid	C	5 ppm 7 mg/m3	National Institute for Occupational Safety and Health
Hydrochloric acid	C	2 ppm	American Conference of Governmental Industrial Hygienists
Hydrochloric acid	C	5 ppm 7 mg/m3	Occupational Safety and Health Administration - Table Z-1 Limits for Air Contaminants

NIOSH IDLH (Immediately Dangerous to Life or Health Concentrations)

Components	CAS-No.	Concentration
Titanium oxide (TiO2)	13463-67-7	5000 mg/m³
C.I. Pigment Black 28	68186-91-4	25 mg/m³
Zinc oxide (ZnO)	1314-13-2	500 mg/m³

8.2 Exposure controls

Control measures

Engineering measures

- Provide appropriate exhaust ventilation at machinery and at places where dust can be generated.
- In case of high-temperature processing
- Provide local ventilation appropriate to the product decomposition risk (see section 10).
- Refer to protective measures listed in sections 7 and 8.
- Apply technical measures to comply with the occupational exposure limits.

- For additional information, consult the current edition of The Guide to the Safe Handling of Fluoropolymers published by the Society of Plastics Industry, Inc. (SPI) Fluoropolymer Division.

Individual protection measures

Respiratory protection

- In case of insufficient ventilation, wear suitable respiratory equipment.
- In the case of vapor formation use a respirator with an approved filter.
- In case of decomposition (see section 10), use an air breathing apparatus with face mask.
- Use only respiratory protection that conforms to international/ national standards.
- When respirators are required, select NIOSH/MSHA approved equipment based on actual or potential airborne concentrations and in accordance with the appropriate regulatory standards and/or industrial recommendations.
- Comply with OSHA respiratory protection requirements.

Hand protection

- Wear protective gloves.
- Protective gloves - impervious chemical resistant:

Suitable material

- Nitrile rubber
- Neoprene gloves

- Take note of the information given by the producer concerning permeability and break through times, and of special workplace conditions (mechanical strain, duration of contact).

Eye protection

- Tightly fitting safety goggles

Skin and body protection

- Wear work overall and safety shoes.

Hygiene measures

- Ensure that eyewash stations and safety showers are close to the workstation location.
- When using do not eat, drink or smoke.
- Wash hands before breaks and at the end of workday.
- Handle in accordance with good industrial hygiene and safety practice.

SECTION 9: Physical and chemical properties

Physical and Chemical properties here represent typical properties of this product. Contact the business area using the Product information phone number in Section 1 for its exact specifications.

9.1 Information on basic physical and chemical properties

Physical state	solid
Form	powder
Color	gray
Odor	odorless
Odor Threshold	No data available
Melting point/freezing point	Melting point/range: 428 - 455 °F (220 - 235 °C)
Initial boiling point and boiling range	Boiling point/boiling range: Not applicable
Flammability (solid, gas)	The product is not flammable. May form combustible dust concentrations in air.
Flammability (liquids)	No data available
Flammability / Explosive limit	No data available
Flash point	The product is not flammable.
Autoignition temperature	No data available
Decomposition temperature	> 572 °F (> 300 °C)
pH	No data available
Viscosity	No data available
Solubility	Water solubility: insoluble
Partition coefficient: n-octanol/water	No data available
Vapor pressure	No data available
Density	No data available
Relative density	1.65 - 1.71 Water = 1
Relative vapor density	No data available
Particle characteristics	No data available

Evaporation rate (Butylacetate = 1)	No data available

9.2 Other information

Oxidizing properties	Not considered as oxidizing.
Impact sensitivity	Not explosive

SECTION 10: Stability and reactivity

10.1 Reactivity

- No dangerous reaction known under conditions of normal use.

10.2 Chemical stability

- Stable under recommended storage conditions.

10.3 Possibility of hazardous reactions

- Under certain conditions, small dust-particles from the product may form flammable and explosive mixtures with the air.

10.4 Conditions to avoid

- To avoid thermal decomposition, do not overheat.
- Keep away from flames and sparks.

10.5 Incompatible materials

- Combustible material
- Flammable materials
- Alkali metals (molten form)
- Fluorine under pressure
- Strong acids
- Oxidizing agents
- Light metals

10.6 Hazardous decomposition products

- Gaseous hydrogen fluoride (HF).
- Fluorophosgene
- Gaseous hydrogen chloride (HCl).
- Other hazardous decomposition products may be formed.

SECTION 11: Toxicological information

11.1 Information on toxicological effects

Acute toxicity

Acute oral toxicity

C.I. Pigment Black 28	LD50 : > 10,000 mg/kg - Rat , male and female Method: OECD Test Guideline 401 Unpublished reports

Zinc oxide (ZnO)	LD50 : 2,000 - 5,000 mg/kg - Mouse , male and female Method: OECD Test Guideline 401 The product has a low acute toxicity Published data
Acute inhalation toxicity	
Titanium oxide (TiO2)	LC50 - 4 h (dust/mist) : > 6.8 mg/l - Rat , males Not classified as harmful by inhalation Unpublished reports LC50 - 4 h (dust/mist) : > 5.09 mg/l - Rat , for males and females Method: OECD Test Guideline 403 Not classified as harmful by inhalation Published data
C.I. Pigment Black 28	LC50 - 4 h (dust/mist) : > 5.07 mg/l - Rat , male and female Method: OECD Test Guideline 436 Unpublished reports Dust
Zinc oxide (ZnO)	LC50 - 4 h (dust/mist) : > 5.7 mg/l - Rat , male and female Method: OECD Test Guideline 403 Not classified as hazardous for acute inhalation toxicity according to GHS. Unpublished reports
Acute dermal toxicity	
Zinc oxide (ZnO)	By analogy LD50 : > 2,000 mg/kg - Rat , male and female Method: OECD Test Guideline 402 Not classified as hazardous for acute dermal toxicity according to GHS. Semiocclusive No mortality observed at this dose. Unpublished reports
Acute toxicity (other routes of administration)	No data available
Skin corrosion/irritation	
Titanium oxide (TiO2)	Rabbit No skin irritation Method: OECD Test Guideline 404 Unpublished reports
C.I. Pigment Black 28	reconstructed human epidermis (RhE) Not classified as irritating to skin Method: OECD Test Guideline 439 Unpublished reports
Zinc oxide (ZnO)	Rabbit No skin irritation Occlusive Unpublished reports
Serious eye damage/eye irritation	

Titanium oxide (TiO2)	Rabbit No eye irritation Method: OECD Test Guideline 405 Unpublished reports
C.I. Pigment Black 28	Rabbit No eye irritation Method: OECD Test Guideline 405 Unpublished reports
Zinc oxide (ZnO)	Rabbit No eye irritation Method: OECD Test Guideline 405 Unpublished reports

Respiratory or skin sensitization

Titanium oxide (TiO2)	Local lymph node assay - Mouse negative Does not cause skin sensitization. Buehler Test - Guinea pig negative Does not cause skin sensitization.
C.I. Pigment Black 28	Local lymph node assay - Mouse Does not cause skin sensitization. Method: OECD Test Guideline 429 Unpublished reports
Zinc oxide (ZnO)	Maximization Test - Guinea pig Responding animals in GPMT < 30% Method: OECD Test Guideline 406 Unpublished reports

Mutagenicity

Genotoxicity in vitro

Titanium oxide (TiO2)	Chromosome aberration test in vitro Strain: CHO with and without metabolic activation negative Unpublished reports

	Mouse lymphoma test / TK with and without metabolic activation negative Unpublished reports Mutagenicity (Salmonella typhimurium - reverse mutation assay) with and without metabolic activation negative Unpublished reports Mutagenicity (Escherichia coli - reverse mutation assay) with and without metabolic activation negative Unpublished reports In vitro tests did not show mutagenic effects
Zinc oxide (ZnO)	In vitro tests did not show mutagenic effects Expert judgment and weight of evidence determination.

Genotoxicity in vivo

Titanium oxide (TiO2)	In vivo micronucleus test - Mouse male Intraperitoneal route negative Published data Chromosome aberration test in vivo - Mouse male Intraperitoneal route negative Published data In vivo tests did not show mutagenic effects
Zinc oxide (ZnO)	By analogy comet assay - Rat male Inhalation Method: OECD Test Guideline 489 negative Unpublished reports

Carcinogenicity

Titanium oxide (TiO2)	Dust causes lung tumors in rats. Lung tumors observed in rat following long-term inhalation exposure to poorly soluble particles of low toxicity are the result of a species-specific mechanism known as “lung overload”. The formation of tumors is not observed in other species under similar exposure conditions and is considered not predictive of the effects in humans. Not classifiable as a human carcinogen. Note: IARC Classification: Group 2B
Zinc oxide (ZnO)	category approach Mouse , male and female Oral No evidence of carcinogenicity in animal studies. drinking water Published data

This product does not contain any ingredient designated as probable or suspected human carcinogens by:

NTP
IARC
OSHA

Toxicity for reproduction and development

Toxicity to reproduction / fertility

Zinc oxide (ZnO)	By analogy Two-generation reproductive toxicity - Rat, male and female, Oral General Toxicity Parent NOAEL: > 7.5 mg/kg bw/day Fertility NOAEL Parent: 15 mg/kg bw/day OECD Test Guideline 416 General Toxicity F1 NOAEL: > 7.5 mg/kg bw/day Fertility NOAEL Parent P1: 15 mg/kg bw/day Gavage, Maternal toxicity, Published data

Developmental Toxicity/Teratogenicity

Titanium oxide (TiO2)	Rat, Gavage General Toxicity Maternal NOAEL: 1,000 mg/kg Teratogenicity NOAEL:1,000mg/kg Method: OECD Test Guideline 414 No effect observed on development
Zinc oxide (ZnO)	No effect observed on development, Expert judgment

STOT

STOT-single exposure

Titanium oxide (TiO2)	The substance or mixture is not classified as specific target organ toxicant, single exposure according to GHS criteria.
Zinc oxide (ZnO)	The substance or mixture is not classified as specific target organ toxicant, single exposure according to GHS criteria. Published data, Unpublished reports

STOT-repeated exposure

Titanium oxide (TiO2)	The substance or mixture is not classified as specific target organ toxicant, repeated exposure according to GHS criteria.

Zinc oxide (ZnO)	The substance or mixture is not classified as specific target organ toxicant, repeated exposure according to GHS criteria. Unpublished reports
Titanium oxide (TiO2)	Oral exposure No irreversible effects were observed during chronic oral toxicity tests. Published data Oral 28 Days - Rat , male NOAEL: 24000 mg/kg bw/day Method: OECD Test Guideline 407 Gavage Unpublished reports Inhalation 2 y - Rat , male NOAEC: 0.01 mg/l Unpublished reports
Zinc oxide (ZnO)	By analogy Oral 90-day - Rat , male and female NOAEL: 25 mg/kg bw/day Target Organs: Pancreas, Stomach, Eyes Method: OECD Test Guideline 408 Gavage No systemic toxicity observed. Unpublished reports Inhalation (dust/mist) 28-day - Rat , male and female NOAEC: 0.5 mg/m3 Target Organs: Respiratory system Method: OECD Test Guideline 412 No systemic toxicity observed. Unpublished reports
Experience with human exposure	No data available

CMR effects

Carcinogenicity

Titanium oxide (TiO2)	Not classified as a carcinogen according to GHS criteria: the mechanism or mode of action of tumour formation is considered not relevant for humans. Considered carcinogenic to animals in certain countries. The classification as a carcinogen 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 aerodynamic diameter <= 10 µm.
Aspiration toxicity	No data available
Further information	Description of possible hazardous to health effects is based on experience and/or toxicological characteristics of several ingredients. Product dust may be irritating to eyes, skin and respiratory system.

The thermal decomposition vapors of fluorinated polymers may cause polymer fume fever with flu-like symptoms in humans, especially when smoking contaminated tobacco.
Thermal decomposition can lead to release of toxic and corrosive gases.
The exposure to decomposition products causes severe irritation of eyes, skin and mucous membranes.

SECTION 12: Ecological information

12.1 Toxicity

Aquatic Compartment

Acute toxicity to fish

Titanium oxide (TiO2)	No toxicity at the limit of solubility. Expert judgment and weight of evidence determination.
Zinc oxide (ZnO)	Due to the huge number of available data on the product itself and/or on other compounds of the same metal element, a global ecotoxicity assessment (see below) was preferred to the reporting of ECx/NOEC values.

Acute toxicity to daphnia and other aquatic invertebrates

Titanium oxide (TiO2)	No toxicity at the limit of solubility. Expert judgment and weight of evidence determination.
Zinc oxide (ZnO)	Due to the huge number of available data on the product itself and/or on other compounds of the same metal element, a global ecotoxicity assessment (see below) was preferred to the reporting of ECx/NOEC values.

Toxicity to aquatic plants

Titanium oxide (TiO2)	No toxicity at the limit of solubility. Expert judgment and weight of evidence determination.
Zinc oxide (ZnO)	Due to the huge number of available data on the product itself and/or on other compounds of the same metal element, a global ecotoxicity assessment (see below) was preferred to the reporting of ECx/NOEC values.

Toxicity to microorganisms

Titanium oxide (TiO2)	EC50 - 3 h : > 10,000 mg/l - activated sludge Method: OECD Test Guideline 209 Unpublished reports
Zinc oxide (ZnO)	Due to the huge number of available data on the product itself and/or on other compounds of the same metal element, a global ecotoxicity assessment (see below) was preferred to the reporting of ECx/NOEC values.

Chronic toxicity to fish

Titanium oxide (TiO2)	No toxicity at the limit of solubility. Expert judgment and weight of evidence determination.
Zinc oxide (ZnO)	Due to the huge number of available data on the product itself and/or on other compounds of the same metal element, a global ecotoxicity assessment (see below) was preferred to the reporting of ECx/NOEC values.

Chronic toxicity to daphnia and other aquatic invertebrates

Titanium oxide (TiO2)	No toxicity at the limit of solubility. Expert judgment and weight of evidence determination.
Zinc oxide (ZnO)	Due to the huge number of available data on the product itself and/or on other compounds of the same metal element, a global ecotoxicity assessment (see below) was preferred to the reporting of ECx/NOEC values.

Sediment compartment

Toxicity to benthic organisms

Zinc oxide (ZnO)	Due to the huge number of available data on the product itself and/or on other compounds of the same metal element, a global ecotoxicity assessment (see below) was preferred to the reporting of ECx/NOEC values.

Terrestrial Compartment

Toxicity to soil dwelling organisms

Zinc oxide (ZnO)	Due to the huge number of available data on the product itself and/or on other compounds of the same metal element, a global ecotoxicity assessment (see below) was preferred to the reporting of ECx/NOEC values.

Toxicity to terrestrial plants

Zinc oxide (ZnO)	Due to the huge number of available data on the product itself and/or on other compounds of the same metal element, a global ecotoxicity assessment (see below) was preferred to the reporting of ECx/NOEC values.

M-Factor

Zinc oxide (ZnO)	Acute aquatic toxicity = 10 Chronic aquatic toxicity = 1 (according to the Globally Harmonized System (GHS))

12.2 Persistence and degradability

Abiotic degradation No data available

Physical- and photo-chemical elimination

Physico-chemical removability

Zinc oxide (ZnO)	Rapidly removed from the water column

Biodegradation

Biodegradability

Titanium oxide (TiO2)	Not applicable, inorganic substance
C.I. Pigment Black 28	The substance does not fulfill the criteria for ready biodegradability but fulfills the criteria for ultimate aerobic biodegradability The substance does not fulfill the criteria for inherent biodegradability
Zinc oxide (ZnO)	Not applicable, inorganic substance

Degradability assessment

C.I. Pigment Black 28	The product is not considered to be rapidly degradable in the environment
Zinc oxide (ZnO)	The product is considered to be rapidly transformed in the environment

12.3 Bioaccumulative potential

Partition coefficient: n-octanol/water

C.I. Pigment Black 28	Not applicable, inorganic substance

Bioconcentration factor (BCF)

Titanium oxide (TiO2)	Species: Oncorhynchus mykiss (rainbow trout) Bioconcentration factor (BCF): 200 - 352 Exposure time: 14 Days Concentration: 0.1 mg/l Not potentially bioaccumulable Published data Species: Oncorhynchus mykiss (rainbow trout) Bioconcentration factor (BCF): 43 - 67 Exposure time: 14 Days Concentration: 0.5 mg/l Not potentially bioaccumulable Published data Species: Oncorhynchus mykiss (rainbow trout) Bioconcentration factor (BCF): 19 - 34 Exposure time: 14 Days Concentration: 1 mg/l Not potentially bioaccumulable Published data
C.I. Pigment Black 28	Not applicable, inorganic substance
Zinc oxide (ZnO)	Not applicable, inorganic substance

12.4 Mobility in soil

Adsorption potential (Koc)

Zinc oxide (ZnO)	Adsorption Soil log Kd: 3.24 Slightly mobile in soils Published data
Known distribution to environmental compartments	No data available

12.5 Results of PBT and vPvB assessment

Titanium oxide (TiO2)	Not applicable, inorganic substance
C.I. Pigment Black 28	Not applicable, inorganic substance
Zinc oxide (ZnO)	Not applicable, inorganic substance

12.6 Other adverse effects

Ecotoxicity assessment

Short-term (acute) aquatic hazard

Titanium oxide (TiO2)	No toxicity at the limit of solubility.
C.I. Pigment Black 28	Not classified due to lack of data.
Zinc oxide (ZnO)	Very toxic to aquatic life.

Long-term (chronic) aquatic hazard

Titanium oxide (TiO2)	No toxicity at the limit of solubility.
C.I. Pigment Black 28	Not classified due to lack of data.
Zinc oxide (ZnO)	Very toxic to aquatic life with long lasting effects.
Remarks	Avoid release to the environment.

SECTION 13: Disposal considerations

13.1 Waste treatment methods

Product Disposal

- Do not dump into any sewers, on the ground, or into any body of water. All disposal methods must be in compliance with all Federal, State/Provincial and local laws and regulations. Regulations may vary in different locations.
- Waste characterizations and compliance with applicable laws and regulations are the responsibility of the waste generator.
- Can be incinerated, when in compliance with local regulations.
- The incinerator must be equipped with a system for the neutralization or recovery of HF.

Advice on cleaning and disposal of packaging

- Empty containers can be landfilled, when in accordance with the local regulations.

SECTION 14: Transport information

Transportation status: IMPORTANT! Statements below provide additional data on listed transport classification.
The listed Transportation Classification does not address regulatory variations due to changes in package size, mode of shipment or other regulatory descriptors.

49 CFR

14.1 UN number	UN 3077
14.2 Proper shipping name	ENVIRONMENTALLY HAZARDOUS SUBSTANCE, SOLID, N.O.S. (Zinc oxide)
14.3 Transport hazard class	9
Label(s)	9
14.4 Packing group	
Packing group	III
ERG No	171
14.5 Environmental hazards	YES
Marine pollutant	Marine Pollutant

TDG

14.1 UN number	UN 3077
14.2 Proper shipping name	ENVIRONMENTALLY HAZARDOUS SUBSTANCE, SOLID, N.O.S. (Zinc oxide)

14.3 Transport hazard class	9
Label(s)	9
14.4 Packing group	
Packing group	III
ERG No	171
14.5 Environmental hazards	YES
Marine pollutant	Marine Pollutant

NOM

14.1 UN number	UN 3077
14.2 Proper shipping name	ENVIRONMENTALLY HAZARDOUS SUBSTANCE, SOLID, N.O.S. (Zinc oxide)
14.3 Transport hazard class	9
Label(s)	9
14.4 Packing group	
Packing group	III
ERG No	171
14.5 Environmental hazards	YES
Marine pollutant	

IMDG

14.1 UN number	UN 3077
14.2 Proper shipping name	ENVIRONMENTALLY HAZARDOUS SUBSTANCE, SOLID, N.O.S. (Zinc oxide)
14.3 Transport hazard class	9
Label(s)	9
14.4 Packing group	
Packing group	III
14.5 Environmental hazards	YES
Marine pollutant	
14.6 Special precautions for user	
EmS	F-A , S-F

For personal protection see section 8.

14.7 Transport in bulk vessels according to IMO instruments

No data available

IATA

14.1 UN number	UN 3077
14.2 Proper shipping name	ENVIRONMENTALLY HAZARDOUS SUBSTANCE, SOLID, N.O.S. (Zinc oxide)
14.3 Transport hazard class	9
Label(s):	9
14.4 Packing group	
Packing group	III
Packing instruction (cargo aircraft)	956
Max net qty / pkg	400.00 kg
Packing instruction (passenger aircraft)	956
Max net qty / pkg	400.00 kg
14.5 Environmental hazards	YES

14.6 Special precautions for user
For personal protection see section 8.

Note: The above regulatory prescriptions are those valid on the date of publication of this sheet. Given the possible evolution of transportation regulations for hazardous materials, it would be advisable to check their validity with your sales office.

SECTION 15: Regulatory information

15.1 Notification status

Inventory Information	Status
United States TSCA Inventory	- Listed as active on the TSCA inventory.
Canadian Domestic Substances List (DSL)	- One or more components not listed on inventory
Canadian Non-Domestic Substances List (NDSL)	- In compliance with the inventory
Australian Inventory of Industrial Chemicals (AIIC)	- Listed on Inventory
Korea. Korean Existing Chemicals Inventory (KECI)	- Listed on Inventory
China. Inventory of Existing Chemical Substances in China (IECSC)	- Listed on Inventory
Japan. ISHL - Inventory of Chemical Substances	- Listed on Inventory
Japan. CSCL - Inventory of Existing and New Chemical Substances	- Listed on Inventory
Philippines Inventory of Chemicals and Chemical Substances (PICCS)	- One or more components not listed on inventory
New Zealand. Inventory of Chemical Substances	- Listed on Inventory
Taiwan. Chemical Substance Inventory (TCSI)	- Listed on Inventory

EU. European Registration, Evaluation, Authorization and Restriction of Chemical (REACH)	- If product is purchased from Syensqo in Europe it is in compliance with REACH, if not please contact the supplier.

15.2 Federal Regulations

US. EPA EPCRA SARA Title III

SARA HAZARD DESIGNATION SECTIONS 311/312 (40 CFR 370)

Combustible dust	Yes

The categories not mentioned are not relevant for the product.

Section 313 Toxic Chemicals (40 CFR 372.65)
The following components are subject to reporting levels established by SARA Title III, Section 313. This information must be included in all SDSs that are copied and distributed for this material.

Components	CAS-No.	Concentration
C.I. Pigment Black 28	68186-91-4	5- 10%
Zinc oxide (ZnO)	1314-13-2	1- 5%
Hexanoic acid, 2-ethyl-, zinc salt (2:1)	136-53-8	< 0.1%

Section 302 Emergency Planning Extremely Hazardous Substance Threshold Planning Quantity (40 CFR 355)
This material does not contain any components with a section 302 EHS TPQ.

Section 302 Emergency Planning Extremely Hazardous Substance Reportable Quantity (40 CFR 355)
This material does not contain any components with a SARA 302 RQ.

Section 304 Emergency Release Notification Reportable Quantity (40 CFR 355)
This material does not contain any components with a section 304 EHS RQ.

US. EPA CERCLA Hazardous Substances and Reportable Quantities (40 CFR 302.4)

This material does not contain any components with a CERCLA RQ.

15.3 State Regulations

- no data available

SECTION 16: Other information

Further information

- Product evaluated under the US GHS format.
- Distribute new edition to clients

Date Prepared: 03/04/2024

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

- C: Ceiling limit
- PEL: Permissible exposure limit
- ST: STEL - 15-minute TWA exposure that should not be exceeded at any time during a workday
- STEL: Short term exposure limit
- TWA: 8-hour, time-weighted average
- ACGIH: American Conference of Governmental Industrial Hygienists

- OSHA: Occupational Safety and Health Administration
- NTP: National Toxicology Program
- IARC: International Agency for Research on Cancer
- NIOSH: National Institute for Occupational Safety and Health
- ADR: European Agreement on International Carriage of Dangerous Goods by Road.
- ADN: European Agreement on the International Carriage of Dangerous Goods by Inland Waterways.
- RID: European Agreement concerning the International Carriage of Dangerous Goods by Rail.
- IATA: International Air Transport Association.
- ICAO-TI: Technical Specification for Safe Transport of Dangerous Goods by Air.
- IMDG: International Maritime Dangerous Goods.
- TWA: Time weighted average
- ATE: Estimated value of acute toxicity
- EC: European Community number
- CAS: Chemical Abstracts Service.
- LD50: Substance that causes 50% (half) death in the test animals group (Median Fatal Dose).
- LC50: Substance concentration causing 50% (half) death in the test animals group.
- EC50: Effective Concentration of the substance causing the maximum of 50%.
- PBT: Persistent, Bioaccumulative and Toxic substance.
- vPvB: Very Persistent and Very Bioaccumulative.
- SEA: Classification, labeling, packaging regulation
- DNEL: Derived No Effect Level
- PNEC: Predicted No Effect Concentration
- STOT: Specific Target Organ Toxicity

Not all acronyms listed above are referenced in this SDS.

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. Such information is only given as a guidance to help the user handle, use, process, store, transport, dispose, and release the product in satisfactory safety conditions and is not to be considered as a warranty or quality specification. It should be used in conjunction with technical sheets but do not replace them. Thus, the information only relates to the designated specific product and may not be applicable if such product is used in combination with other materials or in any other manufacturing process, unless otherwise specifically indicated. It does not release the user from ensuring he is in conformity with all regulations linked to its activity.