Product name
Safety Data Sheet
According to 29 CFR 1910.1200

Date of issue: 01-05-2019 Supersedes: - Version No: 1.0

1. Identification

Product name X
Other means of identification:
X
X
X
X

Recommended use of the chemical and restrictions on use
For industrial use, for manufacturing of polymers.

The product should only be used in accordance with the use specified above. If the product is used outside the specified usage, contact should be made with the supplier.

Manufacturer/supplier
X

X

X

X

x

Contact person X

Emergency Telephone Number
24hrs CHEMTREC +1 703-741-5970 / 1-800-424-9300.

2. Hazard(s) identification

GHS Classification
This material is considered hazardous by the OSHA Hazard Communication Standard (29 CFR 1910.1200).

Physical hazards	Flammable Solids	Category 1
	Substances and mixtures which, in contact with water, emit flammable gases	Category 3
Health hazards	Skin corrosion/irritation	Category 1B
	Specific target organ toxicity (Single Exposure)	Category 1
	Specific target organ toxicity (Single Exposure) (Respiratory Tract Irritation)	Category 3
	Specific target organ toxicity (Repeated	Category 1

	Exposure)	
Environmental hazards	Aquatic chronic	Category 2
OSHA defined hazards	None known.	

GHS Label elements

Signal word

Danger

Hazard statements

Flammable solid.
In contact with water releases flammable gas.
Causes severe skin burns and eye damage.
Causes damage to lungs via inhalation.
May cause respiratory irritation.
Causes damage to lungs through prolonged or repeated exposure via inhalation.
Toxic to aquatic life with long lasting effects.

Precautionary statements

Prevention

Keep away from heat/sparks/open flames/hot surfaces. - No smoking. Ground/Bond container and receiving equipment. Use explosion-proof electrical/ventilating/ lighting equipment. Wear protective gloves/protective clothing/eye protection/face protection. Handle under inert gas. Protect from moisture. Wash hands thoroughly after handling. Do not breathe dust/fume/gas/mist/ vapors/spray. Do not eat, drink or smoke when using this product. Use only outdoors or in a well ventilated area. Avoid release to the environment.

Response

In case of fire: Use powder to extinguish. If swallowed: Rinse mouth. Do NOT induce vomiting. If on skin (or hair): Take off immediately all contaminated clothing. Rinse skin with water/shower. Wash contaminated clothing before reuse. If inhaled: Remove person to fresh air and keep comfortable for breathing. Immediately call a POISON CENTER or doctor/physician. Specific treatment (see section 4 of this SDS). If in eyes: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing. If exposed: Call a poison center/doctor/physician. Call a poison center/doctor/physician/if you feel unwell. Collect spillage.

Storage

Store in a dry place. Store in a closed container. Store locked up. Store in a well ventilated place. Keep container tightly closed.

Disposal

Dispose of contents/container in accordance with local/regional/national/ international regulations.

Hazard(s) not otherwise classified (HNOC)	If product comes in contact with water, toxic and irritating vapor may be formed.

3. Composition/information on ingredients

Mixtures

Chemical name	CAS number	Percentage (wt/wt)
2-Ethyl-1-hexanol	104-76-7	15-20
Titanium tetrachloride	7550-45-0	5-10
n-Heptane	142-82-5	3-10
Synthetic, amorphous silica	7631-86-9/112926-00-8	50-60
Aluminum hydroxide	21645-51-2	3-10
Magnesium Chloride	7786-30-3	7-9

4. First-aid measures

Description of first aid measures

Inhalation	Supply fresh air and call for a doctor.
Skin contact	Wash skin thoroughly with soap and water. Remove contaminated clothing and shoes. Wash contaminated clothing before use.
Eye contact	Rinse immediately with soft water for at least 15 minutes. Hold eyelids open and remove possible contacts. Seek medical help and continue rinsing during transport.
Ingestion	Rinse mouth with water. Drink a few glasses of water or milk. Never give anything by mouth to an unconscious person. Do not induce vomiting. Consult a physician.

Most important symptoms/effects, both acute and delayed

Burning and irritation of the eyes, skin and respiratory tract.

Indication of immediate medical attention and special treatment needed

Treat symptoms and injuries systematically.

5. Fire-fighting measures

Extinguishing media

Suitable	Dry sand. Extinguishing powder.
Unsuitable	Water or foam if there is risk of contact with product.

Specific hazards arising from the chemical

Heated product or contact with water may cause strong reaction and emit toxic and corrosive fumes. Titanium

tetrachloride decomposes in water to titanium dioxide and hydrochloric acid.

Special protective equipment and precautions for fire-fighters
Cool exposed containers with water spray if there is no risk of contact with the product. Move containers if this can be done safely. Prevent extinguishing media to reach drains or water ways since water could be contaminated. Use self-sustained breathing mask. Protective suite.

6. Accidental release measures ☐

Personal precautions, protective equipment and emergency procedures
Alarm and evacuate. Avoid direct contact with product. Provide sufficient ventilation. Use personal protective equipment. Remove all ignition sources.

Methods and materials for containment and cleaning up
Use explosion-proof equipment and spark-free tools. Sweep or vacuum spilled material. Avoid dust formation. Cover any drains. Place in a suitable container that is tightly closed and marked and dispose as waste. Avoid release into the environment, sewers or water ways.

7. Handling and storage ☐

Precautions for safe handling
Apply occupational hygiene principles and avoid direct contact with product. Do not eat, drink or smoke when handling chemicals. Provide sufficient ventilation. Avoid formation of dust. Use explosion-proof equipment and spark-free tools.

Conditions for safe storage, including any incompatibilities
Store as flammable product. Store in original containers, tightly closed in a cool and dry place. Protect from heat and direct sunlight. Ground/bond container and receiving equipment. Avoid contact with air/oxygen. Take precautions against electrostatic build-up. Keep separated from incompatible material and substances. See SECTION 10.

8. Exposure controls/personal protection ☐

Occupational exposure limits

US. OSHA Specifically Regulated Substances (29 CFR 1910.1001-1053)
None of the ingredients of this product are listed.

US. OSHA Table Z-1 (29 CFR 1910.1000)

Component	Type	Value
n-Heptane (CAS# 142-82-5)	PEL- TWA	500 ppm (2000 mg/m³)

US. OSHA Table Z-2 (29 CFR 1910.1000)
None of the ingredients of this product are listed.

US. OSHA Table Z-3 (29 CFR 1910.1000)

Component	Type	Value
Synthetic, amorphous silica (CAS#7631-86-9/112926-00-8)	TWA	20 mppcf or (80 mg/m³)/(%SiO2)

US. ACGIH Threshold Limit Values

Component	Type	Value
n-Heptane (CAS# 142-82-5)	TLV- TWA	400 ppm
	TLV-STEL	500 ppm

US. NIOSH: Pocket Guide to Chemical Hazards

Component	Type	Value
n-Heptane (CAS# 142-82-5)	REL-TWA	85 ppm (350 mg/m3)
	REL -C	440 ppm (1800 mg/m3) [15-minute]
Synthetic, amorphous silica (CAS#7631-86-9/112926-00-8)	REL-TWA	6 mg/m3

Appropriate engineering controls
Used in closed processes, no likelihood of exposure. Ventilation shall be effective. Make sure that eye-flashing equipment is installed in proximity to the workplace. Apply occupational hygiene principles.

Individual protection measures, such as personal protective equipment

Eye/face protection Tightly fitted safety goggles.

Skin protection

Hand protection Protective gloves shall be used. Suitable material may be Nitrile- or Viton rubber based on components in the substance. Penetration 480 min (EN 374). For more information of suitable material, contact supplier of protective equipment

Other Protective clothing if necessary.

Respiratory protection Respiratory protection shall be used at insufficient ventilation. Filter for dust (particles), (type P3, EN143) and organic vapor with a boiling point >65 °C, (type A2, EN14389).

General hygiene considerations	Keep away from foodstuff, beverages, and feed. Wash hands before breaks and at the end of work.

9. Physical and chemical properties

Appearance	Powder.
Color	Pale pinkish brown.
Odor	Faint smell of heptane.
Odor threshold	Not applicable.
pH	Not applicable.
Melting point/freezing point	Not applicable.
Initial boiling point/Boiling range	Not applicable.
Flash point	Not applicable.
Evaporation rate	Not applicable.
Flammability (solid, gas)	Flammable solid.
Lower flammability/explosive limit	Not applicable.
Upper flammability/explosive limit	Not applicable.
Vapor pressure	Not applicable.
Vapor density	Not applicable.
Relative Density	0.3 g/cm^3
Solubility	Not soluble in water.
Partition coefficient -n-octanol/water	Not applicable.
Auto-ignition temperature	Not applicable.
Decomposition temperature	Not applicable.
Viscosity	Not applicable.
Explosive properties	Not explosive.
Oxidizing properties	Reacts rather slowly with air and moisture.

10. Stability and reactivity

Reactivity
Titanium tetrachloride: May react violently with water.

Chemical stability
Stable if used and stored as recommended.

Possibility of hazardous reactions
Titanium tetrachloride: May attack metals in the presence of water or moisture and emit flammable hydrogen gas causing risk of fire and explosion.

Conditions to avoid
Heat, sunlight, ignition sources, moisture.

Incompatible materials
Water, strong oxidizers, alcohols.

Hazardous decomposition products
Carbon dioxides. Titanium tetrachloride: Corrosive hydrochloric acid is formed upon contact with water, water vapor or alcohols.

11. Toxicological information

Information on likely routes of exposure

Inhalation	Inhalation of dust may irritate and cause corrosive burns on mucous membranes.
Ingestion	May cause serious injuries to the respiratory tract. Corrode and irritates. May cause nausea, coughing, headache and dizziness.
Skin contact	Redness, burning. Causes severe skin burns.
Eye contact	Redness, burning, pain. Causes serious eye damage.

Symptoms related to the physical, chemical and toxicological characteristics Burning and irritation of the eyes, skin and respiratory tract.

Delayed and immediate effects and chronic effects from short- and long-term exposure No information available.

Numerical measures of toxicity
No data for the mixture as whole.

Toxicity data for the components:

Chemical Name	Oral LD_{50}	Dermal LD_{50}	Inhalation LC_{50}
n-Heptane (CAS# 142-82-5)	>2 000 mg/kg (rat)	3 000 mg/kg (rabbit)	60 mg/l, 4hr, (rat)
Titanium tetrachloride(CAS # 7550-45-0)	464 mg/kg (rat)	3 160 mg/kg (rabbit)	0.46 mg/l, 4 hr, (rat)

Skin corrosion/irritation	Causes severe skin burns.
Serious eye damage/eye irritation	Causes serious eye damage.
Respiratory or skin sensitization	
Respiratory sensitization	Contains no substance known to be sensitizer.
Skin sensitization	Contains no substance known to be sensitizer.
Germ cell mutagenicity	Not classified.
Carcinogenicity	Not classified.

IARC Monographs. Overall Evaluation of Carcinogenicity

Synthetic, amorphous silica (CAS#7631-86-9/ 112926-00-8) 3 Not classifiable as to carcinogenicity to humans.

OSHA Specifically Regulated Substances (29 CFR 1910.1001-1053)
Not listed.

US. National Toxicology Program (NTP) Report on Carcinogens
Not listed.

Reproductive toxicity	Not classified.
Specific target organ toxicity – single exposure	Causes damage to lungs via inhalation. May cause respiratory irritation.
Specific target organ toxicity – repeated exposure	Causes damage to lungs through prolonged or repeated exposure via inhalation.
Aspiration hazard	Not classified.

12. Ecological information ☐

Ecotoxicity
The product is classified as toxic to aquatic life with long-lasting effects.

No data for the mixture as whole.

Ecotoxicity for components:

Chemical Name	Test	Species	Test Results
n-Heptane (CAS# 142-82-5)	Fish LC_{50}	Coho Salmon *(Onchorhyrnchus kisutch)*	> 100 mg/l ,96h
	Crustacea EC_{50}	Water fleas *(Daphnia magna)*	1.5 mg/l, 48h
	Algae IC_{50}	*Scenedesmus quadricauda*	> 200 mg/l, 72h

Persistence and degradability
Titanium tetrachloride – Decomposes, in the presence of water, to titanium dioxide and hydrochloric acid.

Bioaccumulative potential
Titanium tetrachloride – The substance is highly reactive and does not last long in the environment n-Heptane - BCF = 776, 25, log P_{OW} = 4,66. Potentially bioaccumulative.

Mobility in soil
No information available.

Other adverse effects
No other effects known.

13. Disposal considerations

Disposal instructions
Waste characterizations and compliance with applicable laws are the responsibility solely of the waste generator. Dispose of content and/or container in accordance with local, regional, national, and/or international regulations.

14. Transport information

	DOT	IATA	IMDG
UN Number	3396	3396	3396
UN Proper shipping name	ORGANOMETALLIC SUBSTANCE, SOLID, WATERREACTIVE, FLAMMABLE (metal alcoholate, n-heptane)	ORGANOMETALLIC SUBSTANCE, SOLID, WATERREACTIVE, FLAMMABLE (metal alcoholate, n-heptane)	ORGANOMETALLIC SUBSTANCE, SOLID, WATERREACTIVE, FLAMMABLE (metal alcoholate, n-heptane)
Transport hazard class (es)	4.3 (4.1)	4.3 (4.1)	4.3 (4.1)
Packaging group	II	II	II
Environmental hazard	Yes	Yes	Marine Pollutant-Yes
Additional information	-	Packing Instruction P489 Max. 50kg net Cargo aircraft only Packing Instruction P483 Max. 15kg net Passenger and Cargo aircraft	EmS: F-G, S-N

Transport in bulk according to Annex II of MARPOL 73/78 and the IBC Code
Not available.

15. Regulatory information

US federal regulations
This product is a “Hazardous Chemical” as defined by the OSHA Hazard Communication Standard, 29 CFR 1910.1200. All the ingredients are listed on the U.S. EPA TSCA Inventory List.

TSCA Section 12(b) Export Notification (40 CFR 707, Subpt. D)

Not listed.

US. OSHA Specifically Regulated Substances (29 CFR 1910.1001-1053)
Not listed.

CERCLA Hazardous Substance List (40 CFR 302.4)
Titanium tetrachloride (CAS# 7550-45-0)-Listed

SARA Section 311/312 (40 CFR 370 Subparts B and C) reporting categories
Flammable solid, In contact with water emits flammable gas, Skin corrosion, Specific target organ toxicity (Single and Repeated exposure)

SARA 313 (TRI reporting)
Titanium tetrachloride (CAS# 7550-45-0)-Listed

Other federal regulations

Clean Air Act (CAA) Section 112 Hazardous Air Pollutants (HAPs) List
Titanium tetrachloride (CAS# 7550-45-0)-Listed

Clean Air Act (CAA) Section 112(r) Accidental Release Prevention (40 CFR 68.130)
Titanium tetrachloride (CAS# 7550-45-0)-Listed

Safe Drinking Water Act (SDWA)
Not listed.

US state regulations

US. New Jersey Worker and Community Right-to-Know Act
n-Heptane (CAS# 142-82-5)-Listed
Titanium tetrachloride (CAS# 7550-45-0)-Listed

US. Pennsylvania Worker and Community Right-to-Know Law
2-Ethyl-1-hexanol (CAS# 104-76-7) –Listed
Titanium tetrachloride (CAS# 7550-45-0)-Listed
n-Heptane (CAS# 142-82-5)-Listed
Synthetic, amorphous silica (CAS# 7631-86-9)- Listed

US. California Proposition 65
US - California Proposition 65 - Carcinogens & Reproductive Toxicity (CRT): Listed substance
Not listed.

Carcinogenic categories

EPA (Environmental Protection Agency)

142-82-5 n-Heptane

TLV (Threshold Limit Value established by ACGIH

142-82-5 n-Heptane

NIOSH-Ca (National Institute for Occupational Safety and health)

None of the ingredients is listed

International Inventories

Australia - AICS
All the ingredients are listed.
Canada -DSL/NDSL
All the ingredients are listed in DSL.

China - IECSC
All the ingredients are listed.
Europe- EINECS/ELINCS/NLP
All the ingredients are listed in EINECS.
Japan- ENCS
All the ingredients are listed.
Korea-ECL
All the ingredients are listed.
New Zealand- NZIoC
All the ingredients are listed.
Philippines – PICCS
All the ingredients are listed.
US - TSCA
All the ingredients are listed.

16.Other Information ☐

Once the information in the safety data sheet changes, this is shown in the checkbox located to the right of each chapter heading. This means that certain hazard or safety information has changed in the current section. The detailed changes are not showed. A supplier of a substance or preparation is required to provide an explanation of the changes on request.

Information sources	According to 29 CFR 1910.1200
Revision date	01-05-2019
Revision	1

Disclaimer

The information provided in this Safety Data Sheet is correct to the best of our knowledge, information and belief at the

date of its publication. The information given is designed only as guidance for safe handling, use, processing, storage, transportation, disposal and release and is not to be considered a warranty or quality specification. The information relates only to the specific material designated and may not be valid for such material used in combination with any other materials or in any process, unless specified in the text.