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

1.1 Product identifier

- Trade name Veradel® PESU 3100P

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

Uses of the Substance/Mixture

- Plastics industry

1.3 Details of the supplier of the safety data sheet

Company

Syensqo (Shanghai) International Trading Co., Ltd.
3966, JINDU RD, XINZHUANG INDUSTRIAL ZONE, MINHANG DISTRICT, SHANGHAI, CHINA 201108
Tel: +86 21 2350 1000

E-mail address

For questions about SDS content: manager.sds@syensqo.com
For all other topics use: www.syensqo.com/en/form/documentation

1.4 Emergency telephone number

400 120 6011 (toll-free, access from China only)
NRCC
CHINA (DOMESTIC ONLY): +86 532 8388 9090 (Qingdao)
MULTI LINGUAL EMERGENCY NUMBER (24/7)
Europe/Latin America/Africa:+44 1235 239 670 (UK)
Middle East/Africa speaking Arabic: +44 1235 239 671 (UK)
Asia Pacific : +65 3158 1074 (Singapore)
China : 400 120 6011 (toll-free, access from China only)
North America : +1 800 424 9300

SECTION 2: Hazards identification

2.1 Emergency overview

Appearance	Form:	powder
	Physical state:	solid
	Colour:	white
	Odour	odourless

May damage fertility or the unborn child.

2.2 Classification of the substance or mixture

GHS Classification and Labeling: Follow GB 15258 and GB 30000 series standard

Reproductive toxicity, Category 1B H360: May damage fertility or the unborn child.

2.3 Label elements

GHS Classification and Labeling: Follow GB 15258 and GB 30000 series standard

Hazardous products which must be listed on the label

- CAS-No. 126-33-0 Sulfolane

Pictogram

Signal word
- Danger

Hazard statements
- H360 May damage fertility or the unborn child.

Precautionary statements

General
- None

Prevention
- P203 Obtain, read and follow all safety instructions before use.
- P280 Wear protective gloves/ protective clothing/ eye protection/ face protection/ hearing protection.

Response
- P318 IF exposed or concerned, get medical advice.

Storage
- P405 Store locked up.

Disposal
- P501 Dispose of contents/ container to an approved waste disposal plant.

2.4 Physical and chemical hazards

- Not classified based on available information.

2.5 Health hazards

May damage fertility or the unborn child.

2.6 Environmental hazards

- Not classified based on available information.

2.7 Other hazards which do not result in classification

None known.

SECTION 3: Composition/information on ingredients

3.1 Substance

Information on Components and Impurities

Chemical name	CAS-No.	Identification number	GHS Classification	Concentration [%]
Polyethersulfone	25608-63-3	Not applicable	Not classified	>= 99
Sulfolane	126-33-0	Not applicable	Acute toxicity, Category 5; H303 Reproductive toxicity, Category 1B; H360	>= 0.5 - < 1

For the full text of the H-Statements mentioned in this Section, see Section 16.

3.2 Mixture

- Not applicable, this product is a substance.

SECTION 4: First aid measures

4.1 Description of first aid measures

In case of inhalation

- Remove to fresh air.
- If symptoms persist, call a physician.

In case of skin contact

- Cool skin rapidly with cold water after contact with hot polymer.
- Do not peel polymer from the skin.
- Obtain medical attention.

In case of eye contact

- Flush eyes with running water for several minutes, while keeping the eyelids wide open.
- If eye irritation persists, consult a specialist.

In case of ingestion

- Never give anything by mouth to an unconscious person.
- If a large amount is swallowed, get medical attention.

4.2 Most important symptoms and effects, both acute and delayed

In case of inhalation

Effects
- Mechanical irritation from the particulates generated by the product.
- Thermal decomposition can lead to release of hazardous gases and vapors

In case of skin contact

Effects
- Mechanical irritation from the particulates generated by the product.

In case of eye contact

Effects
- Mechanical irritation from the particulates generated by the product.

In case of ingestion

Effects
- Low ingestion hazard.

4.3 Indication of any immediate medical attention and special treatment needed

Notes to physician

- None

SECTION 5: Firefighting measures

5.1 Extinguishing media

Suitable extinguishing media

- powder

- Foam
- Water
- Water spray
- Carbon dioxide (CO2)

Unsuitable extinguishing media

- None known.

5.2 Special hazards arising from the substance or mixture

- Combustible material
- In a fire, the polymer melts, producing droplets which may propagate fire.
- Once started, a fire will tend to self extinguish (see section 9).
- Heating can release hazardous gases.

5.3 Advice for firefighters

Special protective equipment for firefighters

- In the event of fire, wear self-contained breathing apparatus.
- Fire fighters must wear fire resistant personnel protective equipment.

SECTION 6: Accidental release measures

6.1 Personal precautions, protective equipment and emergency procedures

Advice for non-emergency personnel

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

Advice for emergency responders

- Sweep up to prevent slipping hazard.
- Avoid dust formation.
- Refer to protective measures listed in sections 7 and 8.

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.

6.3 Methods and materials for containment and cleaning up

- Sweep up and shovel into suitable containers for disposal.
- Avoid dust formation.
- Keep in properly labelled containers.
- Keep in suitable, closed containers for disposal.
- Treat recovered material as described in the section "Disposal considerations".

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

- Take measures to prevent the build up of electrostatic charge.
- Ensure all equipment is electrically grounded before beginning transfer operations.

- Use only equipment and materials which are compatible with the product.
- To avoid thermal decomposition, do not overheat.

Hygiene measures

- Wash hands before breaks and at the end of workday.
- Handle in accordance with good industrial hygiene and safety practice.

Dust explosion class

- St1

7.2 Conditions for safe storage, including any incompatibilities

Technical measures/Storage conditions

- Keep container tightly closed.
- Keep away from heat and sources of ignition.
- Keep away from open flames, hot surfaces and sources of ignition.
- To avoid thermal decomposition, do not overheat.
- Avoid dust formation.
- Do not smoke.
- Refer to protective measures listed in sections 7 and 8.

7.3 Specific end use(s)

- For further information, please contact:
- Supplier

SECTION 8: Exposure controls/personal protection

8.1 Control parameters

Components with other occupational exposure limits

Components	Value type	Value	Basis
Particles (insoluble or poorly soluble) not otherwise specified	TWA	10 mg/m3	USA. ACGIH Threshold Limit Values (TLV)
	Form of exposure : Inhalable particulate matter		
Particles (insoluble or poorly soluble) not otherwise specified	TWA	3 mg/m3	USA. ACGIH Threshold Limit Values (TLV)
	Form of exposure : Respirable particulate matter		

We are not aware of any national exposure limit.

Components with other occupational exposure limits

Components	Value type	Value	Basis
Sulfolane	TWA	0.37 ppm 1.8 mg/m3	Corporate Acceptable Exposure Limit
	Skin		

8.2 Exposure controls

Control measures

Engineering measures
- Provide local ventilation appropriate to the product decomposition risk (see section 10).
- Provide appropriate exhaust ventilation at places where dust is formed.
- Refer to protective measures listed in sections 7 and 8.

Individual protection measures

Respiratory protection
- When workers are facing concentrations above the exposure limit they must use appropriate certified respirators.
- Use only respiratory protection that conforms to international/ national standards.

Hand protection
- When handling hot material, use heat resistant gloves.

Eye protection
- Safety glasses with side-shields
- Dust proof goggles, if dusty.

Skin and body protection
- Long sleeved clothing

Hygiene measures
- Wash hands before breaks and at the end of workday.
- Handle in accordance with good industrial hygiene and safety practice.

Protective measures
- When using do not eat, drink or smoke.

SECTION 9: Physical and chemical properties

9.1 Information on basic physical and chemical properties

Physical state	solid
Form	powder
Colour	white
Odour	odourless
Odour Threshold	No data available
Melting point/freezing point	Softening point: 220 °C
Initial boiling point and boiling range	Boiling point/boiling range: Not applicable
Flammability (solid, gas)	May form combustible dust concentrations in air, The product is not flammable.
Flammability (liquids)	No data available
Flammability/Explosive limit	No data available
Flash point	Not applicable
Auto-ignition temperature	No data available
Decomposition temperature	> 400 °C Extended period of exposure (ca. 1 hour).
pH	substance/mixture is non-soluble (in water)

Viscosity	No data available
Solubility	Water solubility: negligible
Partition coefficient: n-octanol/water	Not applicable
Vapour pressure	Not applicable
Density	No data available
Relative density	No data available
Relative vapor density	Not applicable
Particle characteristics	No data available
Evaporation rate (Butylacetate = 1)	No data available

9.2 Other information

Dust deflagration index (Kst)	34 m.bar/s
Dust explosion constant	St1
Minimum ignition energy	> 1,000 mJ

SECTION 10: Stability and reactivity

10.1 Reactivity

- No dangerous reaction known under conditions of normal use.

10.2 Chemical stability

- Stable under normal conditions.

10.3 Possibility of hazardous reactions

- No dangerous reaction known under conditions of normal use.

polymerisation

- Hazardous polymerisation does not occur.

10.4 Conditions to avoid

- Heat, flames and sparks.
- To avoid thermal decomposition, do not overheat.
- Avoid dust formation.
- The normal temperature for processing this resin exceeds the decomposition and/or ignition temperature of some other polymeric resins, such as polyacetal, polyvinyl chloride (PVC), polypropylene, etc. If PVC or any other resin with a decomposition temperature below 371°C / 700°F is molded or handled in your equipment, these materials can rapidly decompose and/or react with this resin at the temperatures used to process this resin. Inadvertent contamination of this resin with these materials from the material handling system or other equipment can result in a rapid, possibly violent release of decomposition fumes, when the contaminated material is brought to processing temperature. To avoid, thoroughly clean molding and other processing equipment prior to changeover and prevent cross contamination of material handling systems.

10.5 Incompatible materials

- Polymeric resins

10.6 Hazardous decomposition products

- Carbon monoxide
- Sulphur oxides
- Hydrocarbons
- The release of other hazardous decomposition products is possible.

SECTION 11: Toxicological information

11.1 Information on toxicological effects

Acute toxicity

Acute oral toxicity

Polyethersulfone	By analogy Not classified as hazardous for acute oral toxicity according to GHS. Expert judgement Published data
Sulfolane	LD50 : 2,006 mg/kg - Rat , male Symptoms: Convulsions LD50: 2,130 mg/kg - Rat , female Method: OECD Test Guideline 401 Symptoms: Convulsions The product has a low acute toxicity Unpublished reports

Acute inhalation toxicity

Sulfolane	LC50 - 4 h (dust/mist) : > 12 mg/l - Rat , male and female Method: according to a standardised method Not classified as hazardous for acute inhalation toxicity according to GHS. vapour No mortality observed at this concentration. Published data

Acute dermal toxicity

Sulfolane	LD50 : > 2,000 mg/kg - Rat , male and female Method: Directive 67/548/EEC, Annex V, B.3. Not classified as hazardous for acute dermal toxicity according to GHS. Occlusive No mortality observed at this dose. Unpublished reports
Acute toxicity (other routes of administration)	No data available

Skin corrosion/irritation

Sulfolane	Rabbit No skin irritation Published data

Serious eye damage/eye irritation

Sulfolane	Rabbit slight irritation Method: according to a standardised method Published data

Respiratory or skin sensitisation

Sulfolane	Maximisation Test - Guinea pig Does not cause skin sensitisation. Method: Directive 67/548/EEC, Annex V, B.6. Unpublished reports

Mutagenicity

Genotoxicity in vitro

Sulfolane	Mutagenicity (Salmonella typhimurium - reverse mutation assay) with and without metabolic activation negative Method: OECD Test Guideline 471 Unpublished reports Chromosome aberration test in vitro Strain: Chinese hamster lung cells with and without metabolic activation negative Method: according to a standardised method Unpublished reports Gene mutation assays in mammalian cells. Strain: mouse lymphoma cells with and without metabolic activation Method: OECD Test Guideline 476 Product is not considered to be genotoxic. Unpublished reports
Genotoxicity in vivo	No data available
Carcinogenicity	No data available

Toxicity for reproduction and development

Toxicity to reproduction/Fertility

Sulfolane	Reproduction/developmental toxicity screening test - Rat, male and female, Oral Fertility NOAEL Parent: 200 mg/kg OECD Test Guideline 421 Unpublished reports

Developmental Toxicity/Teratogenicity

Sulfolane	Rat, male and female, Oral General Toxicity Maternal NOAEL: 200 mg/kg Teratogenicity NOAEL:60mg/kg Method: OECD Test Guideline 421 Reproduction/developmental toxicity screening test, foetotoxic effect, Unpublished reports Rat, female, Oral General Toxicity Maternal NOAEL: 100 mg/kg Teratogenicity NOAEL:200mg/kg Method: OECD Test Guideline 414 Unpublished reports

STOT

STOT - single exposure

Sulfolane	The substance or mixture is not classified as specific target organ toxicant, single exposure.

STOT - repeated exposure

Sulfolane	The substance or mixture is not classified as specific target organ toxicant, repeated exposure.
Sulfolane	Oral 28-day - Rat , male and female NOAEL: 200 mg/l Method: according to a standardised method Effects on the kidney not relevant for humans. Unpublished reports

Inhalation (aerosol) 90 - 110 Days - Rat , male and female
NOAEC: 0.02 mg/kg
Method: according to a standardised method
Not considered to cause serious damage to health on repeated exposure
Published data

Experience with human exposure No data available

CMR effects

Mutagenicity
Sulfolane — Tests on bacterial or mammalian cell cultures did not show mutagenic effects.

Teratogenicity
Sulfolane — Classified as toxic for the reproduction in Category 1B (development) according to GHS criteria

Aspiration toxicity
Sulfolane — No aspiration toxicity classification

Further information Because the components are encapsulated in the resin and may not be bioavailable in the body, they may not exert the above mentioned health effects. Description of possible hazardous to health effects is based on experience and/or toxicological characteristics of several components.

SECTION 12: Ecological information

12.1 Toxicity

Aquatic Compartment

Acute toxicity to fish
Sulfolane — LC50 - 96 h : > 100 mg/l - Oryzias latipes (Orange-red killifish)
static test
Analytical monitoring: yes

Method: OECD Test Guideline 203
Not harmful to fish (LC/LL50 > 100 mg/L)
Unpublished reports

Acute toxicity to daphnia and other aquatic invertebrates

Sulfolane — EC50 - 48 h : 852 mg/l - Daphnia magna (Water flea)
static test
Analytical monitoring: yes
Method: OECD Test Guideline 202
Not harmful to aquatic invertebrates. (EC/EL50 > 100 mg/L)
Unpublished reports

Toxicity to aquatic plants
Sulfolane — ErC50 - 72 h : 500 mg/l - Algae : Pseudokirchneriella subcapitata (Selenastrum capricornutum)
static test
Analytical monitoring: yes
Method: OECD Test Guideline 201
Not harmful to algae (EC/EL50 > 100 mg/L)
Growth rate
(nominal concentrations)
Unpublished reports

NOEC - 72 h : 171 mg/l - Algae : Pseudokirchneriella subcapitata (Selenastrum capricornutum)
static test
Analytical monitoring: yes
Method: OECD Test Guideline 201
No adverse chronic effect observed up to and including the threshold of 1 mg/L.
Growth rate
(nominal concentrations)
Unpublished reports

Toxicity to microorganisms
Sulfolane

NOEC - 14 Days : 100 mg/l - activated sludge
semi-static test
Analytical monitoring: no
Method: OECD Test Guideline 301
Unpublished reports

Chronic toxicity to fish — No data available

Chronic toxicity to daphnia and other aquatic invertebrates — No data available

12.2 Persistence and degradability

Abiotic degradation

Stability in water
Sulfolane

pH: 4.0
Temperature of hydrolysis: 50 °C
Degree of hydrolysis: 0 %
Hydrolysis time: 5 Days
Method: OECD Test Guideline 111
Unpublished reports

pH: 7.0
Temperature of hydrolysis: 50 °C
Degree of hydrolysis: 0 %
Hydrolysis time: 5 Days
Method: OECD Test Guideline 111
Unpublished reports

pH: 9.0
Temperature of hydrolysis: 50 °C
Degree of hydrolysis: 0 %
Hydrolysis time: 5 Days
Method: OECD Test Guideline 111
Unpublished reports

Physical- and photo-chemical elimination — No data available

Biodegradation

Biodegradability
Sulfolane

Ready biodegradability study:
Method: OECD Test Guideline 301C
10.1 % - 14 Days
The substance does not fulfill the criteria for ready biodegradability and ultimate

aerobic biodegradability
O2 consumption
Inoculum: activated sludge
Conc. in standard unit mg/l: 100 mg/l
Unpublished reports

Ready biodegradability study:
Method: OECD Test Guideline 306
19 % - 28 Days
not rapidly degradable
O2 consumption
Inoculum: Marine water
Conc. in standard unit mg/l: 2 mg/l
Unpublished reports

Ready biodegradability study:
Method: OECD Test Guideline 306
7 % - 28 Days
not rapidly degradable
O2 consumption
Inoculum: Marine water
Conc. in standard unit mg/l: 4 mg/l
Unpublished reports

Sediment
not rapidly degradable
Conc. in standard unit mg/l: 200 mg/l
Published data

Degradability assessment

Sulfolane	The product is not considered to be rapidly degradable in the environment

12.3 Bioaccumulative potential

Partition coefficient: n-octanol/water

Sulfolane	Not potentially bioaccumulable

Bioconcentration factor (BCF)

Sulfolane	Species: Cyprinus carpio (Carp) Bioconcentration factor (BCF): < 1.3 Exposure time: 6 Weeks Temperature: 25 °C Concentration: 2.5 mg/l Not potentially bioaccumulable Unpublished reports

12.4 Mobility in soil

Adsorption potential (Koc)

Sulfolane	Adsorption Koc: 3.35 Method: Calculation method Unpublished reports

Known distribution to environmental compartments

Sulfolane	Ultimate destination of the product : Water/soil Predicted distribution to environmental compartments Structure-activity relationship (SAR)

12.5 Results of PBT and vPvB assessment

Sulfolane	Not persistent, bioaccumulative, and toxic (PBT). Not very persistent and very bioaccumulative (vPvB).

12.6 Other adverse effects

Ecotoxicity assessment

Short-term (acute) aquatic hazard

Polyethersulfone	Not classified due to lack of data.
Sulfolane	The product does not have any known adverse effects on the aquatic organisms tested

Long-term (chronic) aquatic hazard

Polyethersulfone	Not classified due to lack of data.
Sulfolane	Does not have any known long-term adverse effects on the aquatic organisms tested

SECTION 13: Disposal considerations

13.1 Waste treatment methods

Product Disposal

- In accordance with local and national regulations.
- Waste characterizations and compliance with applicable laws and regulations are the responsiblity of the waste generator.
- Must be incinerated in a suitable incineration plant holding a permit delivered by the competent authorities.
- Can be landfilled or incinerated, when in compliance with local regulations.

- Do not dispose of waste product into drains or watercourses.

Advice on cleaning and disposal of packaging

- Empty containers.
- Dispose of as unused product.
- For unused and uncontaminated product, the preferred options include sending to a licensed, permitted: recycler, reclaimer, incinerator or other thermal destruction device or industrial landfill.

SECTION 14: Transport information

CN_DG
not regulated

IMDG
not regulated

IATA
not regulated

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

SECTION 15: Regulatory information

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

Following last version of regulations are applicable for the chemical classification, SDS and label:

- Specification for classification and labelling of chemicals, GB 30000 series standard
- General rules for preparation of precautionary label for chemicals, GB 15258
- Safety data sheet for chemical products—Content and order of sections, GB/T 16483
- GB/T 17519 Guidance on the compilation of safety data sheet for chemical products
- Decree No. 591 of the State Council of the People's Republic of China:Regulations on the Control over Safety of Hazardous Chemicals
- List of dangerous goods GB 12268
- Classification and code of dangerous goods GB 6944

Other regulations

- Law on the Prevention and Control of Occupational Diseases

Notification status

Inventory Information	Status
United States TSCA Inventory	- Listed as active on the TSCA inventory
Canadian Domestic Substances List (DSL)	- Listed on Inventory
Japan. CSCL - Inventory of Existing and New Chemical Substances	- Listed on Inventory
Korea. Korean Existing Chemicals Inventory (KECI)	- Listed on Inventory
Australian Inventory of Industrial Chemicals (AIIC)	- Listed on Inventory
Philippines Inventory of Chemicals and Chemical Substances (PICCS)	- Listed on Inventory
China. Inventory of Existing Chemical Substances in China (IECSC)	- Listed on Inventory
EU. European Registration, Evaluation, Authorization and Restriction of Chemical (REACH)	- When purchased from a Syensqo legal entity based in the EEA (""European" "Economic Area""), this product is compliant with the registration" provisions of the REACH Regulation (EC) No. 1907/2006 as all its components are either excluded, exempt, and/or registered. When purchased from a legal entity outside of the EEA, please contact your local representative for additional information.

SECTION 16: Other information

Full text of H-Statements

- H303: May be harmful if swallowed.
- H360: May damage fertility or the unborn child.

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

- : Corporate Acceptable Exposure Limit
- TWA: 8-hour, time-weighted average
- 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 Instructions 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.
- GHS/CLP/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.

Further information

- Distribute new edition to clients

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.