

SECTION 1: Identification of the substance/mixture and of the company/undertaking**1.1 Product identifier**

- Trade name Radel® R-5100 GY 1037 LF ECHO RP

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**

<u>Appearance</u>	<u>Form:</u>	pellets
	<u>Physical state:</u>	solid
	<u>Colour:</u>	grey
	<u>Odour</u>	odourless

2.2 Classification of the substance or mixture**GHS Classification and Labeling: Follow GB 15258 and GB 30000 series standard**

- Not classified as hazardous product under the regulation above.

2.3 Label elements**GHS Classification and Labeling: Follow GB 15258 and GB 30000 series standard**

- Not required to be labelled under the local regulation including regulation above.



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2.4 Physical and chemical hazards

- Not classified based on available information.

2.5 Health hazards

- Not classified based on available information.

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

- Not applicable, this product is a mixture.

3.2 Mixture

Information on Components and Impurities

Chemical name	CAS-No.	Identification number	GHS Classification	Concentration [%]
Polyphenylsulfone	25608-64-4	Not applicable	Not classified	>= 91 - <= 99
Titanium oxide	13463-67-7	Not applicable	Not classified	>= 1 - < 5
Zinc oxide	1314-13-2	Not applicable	Acute toxicity, Category 5; H303 Short-term (acute) aquatic hazard, Category 1; H400 Long-term (chronic) aquatic hazard, Category 1; H410 M-Factor(Acute) : 10 M-Factor(Chronic) : 1	>= 0.1 - < 0.25

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

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

- Wash off with soap and water.
- Wash contaminated clothing before re-use.
- If symptoms persist, call a physician.
- 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 national occupational exposure limits

Components	Value type	Value	Basis
Titanium oxide	PC-TWA	8 mg/m3	Occupational exposure limits for hazardous agents in the workplace - Chemical hazardous agents.
	Form of exposure : Total dust G2B - Possibly carcinogenic to humans		
Zinc oxide	PC-TWA	3 mg/m3	Occupational exposure limits for hazardous agents in the workplace - Chemical hazardous agents.
Zinc oxide	PC-STEL	5 mg/m3	Occupational exposure limits for hazardous agents in the workplace - Chemical hazardous agents.

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		
Titanium oxide	TWA	2.5 mg/m3	USA. ACGIH Threshold Limit Values (TLV)
	Form of exposure : Respirable particulate matter Expressed as :Titanium dioxide		



Zinc oxide	TWA	2 mg/m3	USA. ACGIH Threshold Limit Values (TLV)
Form of exposure : Respirable particulate matter			
Zinc oxide	STEL	10 mg/m3	USA. ACGIH Threshold Limit Values (TLV)
Form of exposure : Respirable particulate matter			

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	pellets
Colour	grey
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



<u>Flammability (solid, gas)</u>	May form combustible dust concentrations in air, The product is not flammable.
<u>Flammability (liquids)</u>	No data available
<u>Flammability/Explosive limit</u>	No data available
<u>Flash point</u>	Not applicable
<u>Auto-ignition temperature</u>	No data available
<u>Decomposition temperature</u>	> 430 °C Extended period of exposure (ca. 1 hour).
<u>pH</u>	Not applicable
<u>Viscosity</u>	No data available
<u>Solubility</u>	<u>Water solubility</u> : negligible
<u>Partition coefficient: n-octanol/water</u>	Not applicable
<u>Vapour pressure</u>	Not applicable
<u>Density</u>	No data available
<u>Relative density</u>	No data available
<u>Relative vapor density</u>	Not applicable
<u>Particle characteristics</u>	No data available
<u>Evaporation rate (Butylacetate = 1)</u>	No data available
9.2 Other information	
<u>Dust deflagration index (Kst)</u>	34 m.bar/s
<u>Dust explosion constant</u>	St1
<u>Minimum ignition energy</u>	300 - 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	No data available
Acute inhalation toxicity	No data available

Acute dermal toxicity	No data available
Acute toxicity (other routes of administration)	No data available

<u>Skin corrosion/irritation</u>	No data available
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<u>Serious eye damage/eye irritation</u>	No data available
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<u>Respiratory or skin sensitisation</u>	No data available
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Mutagenicity

Genotoxicity in vitro	No data available
Genotoxicity in vivo	No data available
<u>Carcinogenicity</u>	No data available

Toxicity for reproduction and development

Toxicity to reproduction/Fertility	No data available
Developmental Toxicity/Teratogenicity	No data available

STOT

STOT - single exposure	No data available
STOT - repeated exposure	No data available

Experience with human exposure

<u>Aspiration toxicity</u>	No data available
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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.



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SECTION 12: Ecological information**12.1 Toxicity****Aquatic Compartment****Acute toxicity to fish**

By analogy

The mixture is considered not hazardous to fish as analytical monitoring data show that components hazardous for the environment are not released in quantities sufficient to exert adverse acute effects on fish.

No toxicity at the limit of solubility

Unpublished internal reports

Expert judgement

Acute toxicity to daphnia and other aquatic invertebrates

By analogy

The mixture is considered not hazardous to aquatic invertebrates as analytical monitoring data show that components hazardous for the environment are not released in quantities sufficient to exert adverse acute effects on aquatic invertebrates.

No toxicity at the limit of solubility

Unpublished internal reports

Expert judgement

Toxicity to aquatic plants

By analogy

The mixture is considered not hazardous to aquatic plants as analytical monitoring data show that components hazardous for the environment are not released in quantities sufficient to exert adverse acute effects on aquatic plants.

No toxicity at the limit of solubility

Unpublished internal reports

Expert judgement

Toxicity to microorganisms

No data available

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**

No data available

Physical- and photo-chemical elimination

No data available

Biodegradation

No data available

12.3 Bioaccumulative potential**Partition coefficient: n-octanol/water**

No data available

Bioconcentration factor (BCF)

No data available

12.4 Mobility in soil**Adsorption potential (Koc)**

No data available

Known distribution to environmental compartments

No data available



12.5 Results of PBT and vPvB assessment No data available

12.6 Other adverse effects

Ecotoxicity assessment

Short-term (acute) aquatic hazard No toxicity at the limit of solubility

Long-term (chronic) aquatic hazard Not classified due to data which are conclusive although insufficient for classification.

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 responsibility 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



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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
Australian Inventory of Industrial Chemicals (AIIC)	- Listed on Inventory
Japan. CSCL - Inventory of Existing and New Chemical Substances	- Listed on Inventory
Korea. Korean Existing Chemicals Inventory (KECI)	- Listed on Inventory
Philippines Inventory of Chemicals and Chemical Substances (PICCS)	- In compliance with the inventory
China. Inventory of Existing Chemical Substances in China (IECSC)	- Listed on Inventory
Canadian Domestic Substances List (DSL)	- 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.
Taiwan. Chemical Substance Inventory (TCSI)	- Listed on Inventory

SECTION 16: Other information**Full text of H-Statements**

- H303: May be harmful if swallowed.
- H400: Very toxic to aquatic life.
- H410: Very toxic to aquatic life with long lasting effects.

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

- PC-STEL: Permissible concentration - short term exposure limit
- PC-TWA: Permissible concentration - time weighted average
- STEL: Short-term 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.



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