Safety Data Sheet

Siliform™ Resin SF-24S Comp.A

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*Prepared according to GB/T 17519 and GB/T 16483

1 Identification of the chemical and supplier

Product identifier

Product Name	Siliform™ Resin SF-24S Comp.A
CAS No.	Not applicable
EC No.	Not applicable
Molecular Formula	Not applicable

Recommended use of the product and restrictions on use

Relevant identified uses	Municipal Engineering.
Uses advised against	No special note.

Details of the supplier of the Safety Data Sheet

Name of the company	Suzhou Lubin Hi-Tech Material Co.,Ltd.
Address of the company	NO.69 WEXIN RD SUZHOU, CHINA, BUIDING 5, ROOM 202,OET PARK
Post code	215000
Telephone number	+86 18762867422
Fax number	+86 51268186081
E-mail address	service-lubin@hotamail.com

Emergency phone number

Emergency phone number	+86 512 68186081

2 Hazard(s) identification

Emergency overview

Liquid. Harmful if swallowed. Irritating to skin. SENSITISATION by skin contact. Serious irritating to eyes. Harmful by inhalation. Risk of allergy, asthma symptoms or breathing difficulties. Irritating to respiratory system. Slight risk of cancer. Danger of damage to health by prolonged exposure.

Hazard classification according to GHS

Acute Toxicity – Oral	Category 4
Skin Corrosion/Irritation	Category 2
Skin Sensitization	Category 1
Serious Eye Damage/Irritation	Category 2A
Acute Toxicity – Inhalation	Category 4
Respiratory Sensitization	Category 1
Specific Target Organ Toxicity-Single Exposure: Criteria for	Category 3

respiratory tract irritation	
Carcinogenicity	Category 2
Specific Target Organ Toxicity-Repeated Exposure	Category 2

GHS Label elements

Hazard pictograms	
Signal word	**Danger**

Hazard statements

H302	Harmful if swallowed
H315	Causes skin irritation
H317	May cause an allergic skin reaction
H319	Causes serious eye irritation
H332	Harmful if inhaled
H334	May cause allergy or asthma symptoms or breathing difficulties if inhaled
H335	May cause respiratory irritation
H351	Suspected of causing cancer
H373	May cause damage to organs through prolonged or repeated exposure

Precautionary statements

- Prevention

P201	Obtain special instructions before use.
P202	Do not handle until all safety precautions have been read and understood.
P260	Do not breathe gas/mist/vapours/spray.
P261	Avoid breathing gas/mist/vapours/spray.
P264	Wash face and hands thoroughly after handling.
P270	Do not eat, drink or smoke when using this product.
P271	Use only outdoors or in a well-ventilated area.
P272	Contaminated work clothing should not be allowed out of the workplace.
P280	Wear protective gloves/protective clothing/eye protection/face protection.
P285	In case of inadequate ventilation, wear respiratory protection.

- Response

P312	Call a POISON CENTER/doctor, if you feel unwell.
P314	Get medical advice/attention if you feel unwell.
P330	Rinse mouth.
P363	Wash contaminated clothing before reuse.
P301+P310	IF SWALLOWED: Immediately call a POISON CENTER/doctor.
P302+P352	IF ON SKIN: Wash with plenty of water.
P304+P340	IF INHALED: Remove person to fresh air and keep comfortable for breathing.
P308+P313	IF exposed or concerned: Get medical advice/ attention.
P332+P313	If skin irritation occurs: Get medical advice/attention.

P333+P313	If skin irritation or rash occurs: Get medical advice/attention.
P337+P313	If eye irritation persists: Get medical advice/attention.
P342+P311	If experiencing respiratory symptoms: Call a POISONCENTER/doctor.
P362+P364	Take off contaminated clothing and wash it before reuse.
P305+P351+P338	IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing.

◆ Storage

P405	Store locked up.
P403+P233	Store in a well-ventilated place. Keep container tightly closed.

◆ Disposal

P501	Dispose of contents/container in accordance with local/regional/national/ international regulations.

Hazard description

◆ Physical and chemical hazards

	Liquid, toxic smoke/fumes in a fire.

◆ Health hazards

Inhaled	Inhalation of vapours, especially for prolonged periods, may produce respiratory irritation and occasionally, distress. Inhalation of vapours may cause allergy or asthma symptoms or breathing difficulties if inhaled. Inhalation of vapours or aerosols (mists, fumes), generated by the product during the course of normal handling, may produce severely toxic effects; these may be harmful.
Ingestion	Accidental ingestion of the product may be harmful.
Skin Contact	The product may cause an allergic skin reaction following direct contact with the skin. The product can cause skin irritation following direct contact with the skin.
Eye	This product may cause serious eye irritation. Severe inflammation may be expected with pain following direct contact with the eye.

◆ Environmental hazards

	Please refer to 12th chapter of SDS.

3 Composition/information on ingredients

Substance/mixture

	Mixture

Component	CAS No.	EC No.	Concentration (wt, %)
Polymethylene polyphenyl polyisocyanate	9016-87-9	618-498-9	30~40
Tris(1-Chloro-2-Propyl) Phosphate	13674-84-5	237-158-7	Commercial secrets
4,4'-methylenediphenyl diisocyanate	101-68-8	202-966-0	15~30

4 First-aid measures

Description of first aid measures

General advice	Immediate medical attention is required. Show this safety data sheet (SDS) to the doctor in attendance.

Eye contact	Rinse thoroughly with plenty of water for at least 15 minutes and consult a physician if feel uncomfortable.
Skin contact	Take off contaminated clothing and shoes immediately. Wash off with plenty of soap and water for at least 15 minutes and consult a physician if feel uncomfortable.
Ingestion	Never give anything by mouth to an unconscious person. Call a physician or Poison Control Center immediately.
Inhalation	Move victim into fresh air. If breathing is difficult, give oxygen. Do not use mouth to mouth resuscitation if victim ingested or inhaled the substance. If not breathing, give artificial respiration and consult a physician immediately.
Protecting of first-aiders	Ensure that medical personnel are aware of the substance involved. Take precautions to protect themselves and prevent spread of contamination.

Most important symptoms, acute and delayed

1	Substance accumulation, in the human body, may occur and may cause some concern following repeated or long-term occupational exposure.

Advice for protecting the rescuer

1	Remove all sources of ignition and increase ventilation.
2	Avoid contact with skin and eyes.
3	Avoid inhalation of vapor or mist.
4	Use personal protective equipment including respirator.

Special note to the doctor

1	Treat symptomatically.
2	Symptoms may be delayed.

5 Fire-fighting measures

Extinguishing media

Suitable extinguishing media	Use extinguishing agent suitable for type of surrounding fire.
Unsuitable extinguishing media	No special notes.

Specific hazards arising from the substance or mixture

1	Development of hazardous combustion gases or vapor possible in the event of fire.
2	Not considered a significant fire risk, however containers may burn.

Fire precautions and protective measures

1	As in any fire, wear self-contained breathing apparatus (MSHA/NIOSH approved or equivalent) and full protective gear.
2	Fight fire from a safe distance, with adequate cover.
3	Prevent fire extinguishing water from contaminating surface water or the ground water system.

6 Accidental release measures

Personal precautions, protective equipment and emergency procedures

1	Use personal protective equipment,do not breathe gas/mist/vapour/spray.
2	Ensure adequate ventilation. Remove all sources of ignition. Take precautionary measures against static discharges.
3	Evacuate personnel to safe areas. Keep people away from and upwind of spill/leak.

Environmental precautions

1	Prevent further leakage or spillage if safe to do so.
2	Discharge into the environment must be avoided.

Methods and materials for containment and cleaning up

1	Absorb spilled material in dry sand or inert absorbent. In case of large amount of spillage, contain a spill by bunding.
2	Adhered or collected material should be promptly disposed of, in accordance with appropriate laws and regulations.
3	Remove all sources of ignition. Use spark-proof tools and explosion-proof equipment.

7 Handling and storage

Handling

1	Handling is performed in a well ventilated place.
2	Wear suitable protective equipment.
3	Avoid contact with skin and eyes.
4	Keep away from heat/sparks/open flames/ hot surfaces.

Storage

1	Keep containers tightly closed.
2	Keep containers in a dry, cool and well-ventilated place.
3	Keep away from heat/sparks/open flames/hot surfaces.
4	Store away from incompatible materials and foodstuff containers.

8 Exposure controls/personal protection

Control parameters

◆ Occupational Exposure limit values（Chemical Harmful Factors）

Component	Standard	OELs	Standard value mg/m³	Critical adverse health effects	Remark
4,4'-methylenediphenyl diisocyanate	GBZ 2.1-2019	PC-TWA	0.05	Eye and upper respiratory tract irritation; asthma.	sensitization
		PC-STEL	0.1		
		MAC	-		

◆ Biological limit values

Biological limit values	No relevant regulations

◆ Monitoring methods

1	EN 14042 Workplace atmospheres. Guide for the application and use of procedures for the assessment of exposure to chemical and biological agents.
2	GBZ/T 300.1~GBZ/T 300.160-2017; GBZ/T 300.161~GBZ/T 300.164-2018 Determination of toxic substances in workplace air (Series standard).

Engineering controls

1	Ensure adequate ventilation, especially in confined areas.
2	Ensure that eyewash stations and safety showers are close to the workstation location.
3	Set up emergency exit and necessary risk-elimination area.

4	Handle in accordance with good industrial hygiene and safety practice.

Personal protection equipment

General requirement	
Eye protection	Tightly fitting safety goggles (approved by EN 166(EU) or NIOSH (US).
Hand protection	Wear protective gloves（such as butyl rubber）, passing the tests according to EN 374(EU), US F739 or AS/NZS 2161.1 standard.
Respiratory protection	In general situation, respiratory protection is not needed. If exposure limits are exceeded or if irritation or other symptoms are experienced, use a full-face respirator with multi-purpose combination (US) or type AXBEK (EN 14387) respirator cartridges.
Skin and body protection	Wear chemical protective clothing.

9 Physical and chemical properties

Physical and chemical properties

Appearance	Dark brown transparent liquid
Odor	No information available
Odor threshold	No information available
pH	No information available
Melting point/freezing point(°C)	-24（Calculated, Polymethylene polyphenyl polyisocyanate）
Initial boiling point and boiling range(°C)	>35
Flash point(Closed cup,°C)	177~227
Evaporation rate	No information available
Flammability	Not flammable
Upper/lower explosive limits[%(v/v)]	Upper limit：No information available；Lower limit：No information available
Vapor pressure	＜0.00001hPa（20°C, Polymethylene polyphenyl polyisocyanate）
Vapor density(Air = 1)	No information available
Relative density(Water=1)	1.24（25°C, Polymethylene polyphenyl polyisocyanate）
Solubility	Insoluble in water
n-octanol/water partition coefficient	No information available
Auto-ignition temperature(°C)	＞400（Polymethylene polyphenyl polyisocyanate）
Decomposition temperature(°C)	No information available
Viscosity	No information available

10 Stability and reactivity

Stability and reactivity

Reactivity	Contact with incompatible substances can cause decomposition or other chemical reactions.
Chemical stability	Stable under proper operation and storage conditions.
Possibility of hazardous	No information available.

reactions	
Conditions to avoid	Incompatible materials, heat, flame and spark.
Incompatible materials	Strong oxidizing agent.
Hazardous decomposition products	Under normal conditions of storage and use, hazardous decomposition products should not be produced.

11 Toxicological information

Acute toxicity

Component	LD_{50}(oral)	LD_{50}(dermal)	LC_{50}(inhalation,4h)
Tris(1-Chloro-2-Propyl) Phosphate	1500mg/kg(Rat)	No information available	No information available
Polymethylene polyphenyl polyisocyanate	49000mg/kg(Rat)	> 9400mg/kg(Rabbit)	No information available
4,4'-methylenediphenyl diisocyanate	9200mg/kg(Rat)	No information available	No information available

Carcinogenicity

Component	List of carcinogens by the IARC Monographs	Report on Carcinogens by NTP
Polymethylene polyphenyl polyisocyanate	Category 3	Not Listed
Tris(1-Chloro-2-Propyl) Phosphate	Not Listed	Not Listed
4,4'-methylenediphenyl diisocyanate	Category 3	Not Listed

Others

Siliform™ Resin SF-24S Comp.A	
Skin corrosion/irritation	Causes skin irritation(Category 2)
Serious eye damage/irritation	Causes serious eye irritation(Category 2A)
Skin sensitization	May cause an allergic skin reaction(Category 1)
Respiratory sensitization	May cause allergy or asthma symptoms or breathing difficulties if inhaled(Category 1)
Reproductive toxicity	Based on available data, the classification criteria are not met
STOT-single exposure	May cause respiratory irritation(Category 3)
STOT-repeated exposure	May cause damage to organs through prolonged or repeated exposure(Category 2)
Aspiration hazard	Based on available data, the classification criteria are not met
Germ cell mutagenicity	Based on available data, the classification criteria are not met
Reproductive toxicity(additional)	Based on available data, the classification criteria are not met

12 Ecological information

Acute aquatic toxicity

Acute aquatic toxicity	No information available

Chronic aquatic toxicity

Chronic aquatic toxicity	No information available

Persistence and degradability

Component	Persistence (water/soil)	Persistence (air)
Polymethylene polyphenyl polyisocyanate	Low(Half-life = 1 days)	Low(Half-life = 0.24 days)
Tris(1-Chloro-2-Propyl) Phosphate	High	High
4,4'-methylenediphenyl diisocyanate	Low(Half-life = 1 days)	Low(Half-life = 0.24 days)

Bioaccumulative potential

Component	Bioaccumulative potential	Comments
Polymethylene polyphenyl polyisocyanate	Low	BCF=15
Tris(1-Chloro-2-Propyl) Phosphate	Low	BCF=8
4,4'-methylenediphenyl diisocyanate	Low	BCF=15

Mobility in soil

Component	Mobility in soil	Soil Organic Carbon-Water Partitioning Coefficient (Koc)
Polymethylene polyphenyl polyisocyanate	Low	376200
Tris(1-Chloro-2-Propyl) Phosphate	Low	1278
4,4'-methylenediphenyl diisocyanate	Low	376200

Results of PBT and vPvB assessment

Component	Results of PBT and vPvB assessment [according to (EC) No 1907/2006]
Tris(1-Chloro-2-Propyl) Phosphate	Not PBT/vPvB
4,4'-methylenediphenyl diisocyanate	Not PBT/vPvB

13 Disposal considerations

Disposal considerations

Waste chemicals	Before disposal should refer to the relevant national and local laws and regulation. Recommend the use of incineration disposal.
Contaminated packaging	Containers may still present chemical hazard when empty. Keep away from hot and ignition source of fire. Return to supplier for recycling if possible.

Disposal recommendations	Refer to section waste chemicals and contaminated packaging.

14 Transport information

Label and Mark

Transporting Label	Not applicable

IMDG-CODE

IMDG-CODE	NOT REGULATED FOR TRANSPORT OF DANGEROUS GOODS

IATA-DGR

IATA-DGR	NOT REGULATED FOR TRANSPORT OF DANGEROUS GOODS

UN-ADR

UN-ADR	NOT REGULATED FOR TRANSPORT OF DANGEROUS GOODS

Others

Methods of packing	Packaging as recommended by manufacturer.
Precautions for transport	Transport vehicles should be equipped with the appropriate variety and quantity of fire equipment and emergency equipment leakage during transport. Before transport, should be preceded by checking whether container integrity, sealing. The transport unit must be placarded and marked in accordance with relevant transporting requirements.

15 Regulatory information

International chemical inventory

Component	EINECS	TSCA	DSL	IECSC	NZIoC	PICCS	KECI	AIIC	ENCS
Polymethylene polyphenyl polyisocyanate	×	√	√	√	√	√	√	√	√
Tris(1-Chloro-2-Propyl) Phosphate	√	√	√	√	√	√	√	√	√
4,4'-methylenediphenyl diisocyanate	√	√	√	√	√	√	√	√	√

[EINECS] European Inventory of Existing Commercial Chemical Substances
[TSCA] United States Toxic Substances Control Act Inventory
[DSL] Canadian Domestic Substances List
[IECSC] China Inventory of Existing Chemical Substances
[NZIoC] New Zealand Inventory of Chemicals
[PICCS] Philippines Inventory of Chemicals and Chemical Substances
[KECI] Korea Existing Chemicals Inventory
[AIIC] Australia. Inventory of Industrial Chemicals (AIIC)
[ENCS] Japan Inventory of Existing & New Chemical Substances

Chinese chemical inventory

Component	A	B	C	D	E	F	G	H	I	J	K	L	M	N	O
Polymethylene polyphenyl polyisocyanate	×	×	×	×	×	×	×	×	×	×	×	×	×	×	×
Tris(1-Chloro-2-Propyl) Phosphate	×	×	×	×	×	×	×	×	×	×	×	×	×	×	×

4,4'-methylenediphenyl diisocyanate	√	×	×	×	×	×	×	×	×	×	×	×	×	×	×

【A】 Catalog of Hazardous Chemicals(2015 Edition), Notice 5th 2015, the former China State Administration of Work Safety together with the Ministry of Industry and Information Technology, etc.

【B】 List of Toxic Chemicals Restricted in China, Notice 60th 2019, the Ministry of Ecology and Environment, Ministry of Commerce, General Administration of Customs.

【C】 List of Ozone Depletion Chemicals Controlled to be Imported/Exported in China（First to Sixth batches）, Notice from 2000 to 2012, the former Ministry of Environmental Protection of PRC.

【D】 Catalog of Hazardous Chemicals for Priority Management（First and Second batches）, Notice 95th, 2011, Notice 12th 2013, China State Administration of Work Safety.

【E】 Catalog of Hazardous Chemicals for Environmental Management, Notice 33th 2014, The former Ministry of Environmental Protection.

【F】 List of Various Monitoring Chemicals, 52th 2020, the Ministry of Industry and Information Technology.

【G】 List of Priority Controlled Chemicals (the First batch), 83th 2017, the former Ministry of Environmental Protection, Ministry of Industry and Information Technology, the former National Health And Family Planning Commission.

【H】 Catalog of Specially Controlled Hazardous Chemicals (First Edition), 1st 2020, the Ministry of Emergency Management, Ministry of Industry and Information Technology, Ministry of Public Security, Ministry of Transport.

【I】 List of Toxic and Harmful Water Pollutants (First batch), 28th 2019, the Ministry of Ecology and Environment, National Health Commission.

【J】 Catalog of Highly Toxic Chemicals, Notice 142th 2003, the former Ministry of Health of P.R.China.

【K】 Dangerous Chemicals Directory Used to Manufacure Exploder (2017 Edition), Notice 11th May. 2017, Ministry of Public Security of P.R.China.

【L】 Catalog of Stupefacient and Psychotropic Substances(2013 Edition), Notice 230th 2013, China Food and Drug Administration.

【M】 Catalog of Classification and Varieties of Precursor Chemicals, 120th 2017, series of announcements issued by the Ministry of Public Security and other ministries and commissions.

【N】 Catalog of Import and Export Management of Precursor Chemicals, 7th 2006, the Ministry of Commerce.

【O】 International Verification of Precursor Chemicals Management Catalog, 8th 2006, the Ministry of Commerce, Ministry of Public Security.

Note:

"√" Indicates that the substance included in the regulations.

"×" No data or not inlcuded in the regulations.

16 Other information

Information on revision

Creation Date	2022/03/06
Revision Date	2022/03/06
Reason for revision	-

Reference

[1] IPCS: The International Chemical Safety Cards (ICSC), website: http://www.ilo.org/dyn/icsc/showcard.home。

[2] IARC, website: http://www.iarc.fr/。

[3] OECD: The Global Portal to Information on Chemical Substances, website: https://www.echemportal.org/echemportal/substancesearch/index.action。

[4] CAMEO Chemicals, website: http://cameochemicals.noaa.gov/search/simple。

[5] NLM: ChemIDplus, website: http://chem.sis.nlm.nih.gov/chemidplus/chemidlite.jsp。

[6] EPA: Integrated Risk Information System, website: http://cfpub.epa.gov/iris/。

[7] U.S. Department of Transportation: ERG, website: http://www.phmsa.dot.gov/hazmat/library/erg。

[8] Germany GESTIS-database on hazard substance, website: http://gestis-en.itrust.de/。

Abbreviations and acronyms

CAS	Chemical Abstracts Service	UN	The United Nations
PC-STEL	Short term exposure limit	OECD	Organization for Economic Co-operation and Development
PC-TWA	Time Weighted Average	IMDG	International Maritime Dangerous Goods
MAC	Maximum Allowable Concentration	IARC	International Agency for Research on Cancer
DNEL	Derived No Effect Level	ICAO	International Civil Aviation Organization

PNEC	Predicted No Effect Concentration	IATA	International Air Transportation Association
NOEC	No Observed Effect Concentration	ACGIH	American Conference of Governmental Industrial Hygienists
LC_{50}	Lethal Concentration 50%	NFPA	National Fire Protection Association
LD_{50}	Lethal Dose 50%	NTP	National Toxicology Program
EC_{50}	Effective Concentration 50%	PBT	Persistent, Bioaccumulative, Toxic
EC_X	Effective Concentration X%	vPvB	very Persistent, very Bioaccumulative
P_{OW}	Partition coefficient Octanol: Water	CMR	Carcinogens, mutagens or substances toxic to reproduction
BCF	Bioconcentration factor	RPE	Respiratory Protective Equipment
ED	Endocrine disruptor		

Disclaimer

This Safety Data Sheet (SDS) was prepared according to GB/T 16483 and GB/T 17519. The data included was derived from international authoritative database and provided by the enterprise. Other information was based on the present state of our knowledge. We try to ensure the correctness of all information. However, due to the diversity of information sources and the limitations of our knowledge, this document is only for user's reference. Users should make their independent judgment of suitability of this information for their particular purposes. We do not assume responsibility for loss, damage or expense arising out of or in any way connected with the handling, storage, use or disposal of the product.