Chemical Safety Technical Instructions (SDS)

Polyester resin solution

Version number: V1.0.0.2 Report number: HGNM19NRS7

*** Compiled in accordance with GB/T 17519 and GB/T 16483**

1 Chemical Product and Company Identification

Products information

Chinese Name of Products	Polyester resin solution
English Name of Product	Polyester resin solution
Product model	SKYBON ES660S
CAS No.	not applicable
EC No.	not applicable
Molecular formula	not applicable

Product Recommendation and Restricted Use

Recommended uses of Product	Coatings, inks, adhesives and resin binders.
Limited use of products	No data available.

Safety Technical Specification Provider Information

Enterprise name	SK Chemicals（Yantai）Co.LTd
Enterprise address	#10, Xi'an RD, Yantai Economic and Technological district, Shandong Province,China
Zip code	-
Contact number	+86-5356392008
Fax number	
Enterprise Emergency Telephone	+86-5356392008

2 Hazards Identification

Summary of emergencies

Liquid. Flammable, its vapor and air mix, can form explosive mixtures. If swallowed, it may cause severe lung injury.

GHS Risk Category

Flammable liquid	Category 3
Inhalation hazard	Category 1

GHS Labels

Signal word	DANGER

Risk statement

H226	Flammable liquids and vapors
H304	Swallowing and entering the respiratory tract can be fatal

Precautionary statement

◆ Preventive measure

P210	Keep away from heat source/spark/open flame/hot surface.No Smoking.
P233	Keep the container airtight.
P240	Containers and receiving equipment are grounded/equipotentially connected.
P241	Use explosion-proof electrical/ventilation/lighting equipment.
P242	Only tools that do not spark can be used.
P243	Measures to prevent electrostatic discharge are taken.
P280	Wear protective gloves/protective clothing/protective eye patches/protective masks.

◆ Accident response

P331	No vomiting should be induced.
P301+P310	If swallowed by mistake: Call the detoxification center/doctor immediately.
P370+P378	In case of fire: use the appropriate extinguishing, medium mentioned in Part V of this report to extinguish the fire.
P303+P361+P353	For skin (or hair) contamination: remove/remove all contaminated clothes immediately. Wash skin/shower with water.

◆ Safe storage

P405	Storage must be locked.
P403+P235	Store in a well-ventilated place. Keep low temperature.

◆ Disposal

P501	Disposal of contents/containers in accordance with local/regional/national/international regulations.

Hazard description

◆ Physical and chemical hazards

	Flammable liquids, whose vapors are mixed with air, can form explosive mixtures.

◆ Health hazard

Inhalation	During normal production, swallowing the product and entering the respiratory tract can be fatal.
Ingestion	Accidental ingestion of this product may be harmful to individual health.

Skin contact	Entering the blood through cuts, abrasions or lesions may have harmful effects on the whole body.
Eye	Direct eye contact with this product can cause temporary discomfort.

◆ Environment hazard

	Refer to Chapter 12

3 Composition/Information on Ingredients

Ingredient name	%	CAS number
Solvent naphtha (petroleum), heavy arom.	10 - <25	64742-94-5
n-butyl acetate	10 - <25	123-86-4
dimethyl glutarate	1 - <10	1119-40-0
Solvent naphtha (petroleum), light aromatic	1 - <10	64742-95-6
n-butanol	1 - <10	71-36-3
dimethyl adipate	1 - <10	627-93-0
1,2,4-trimethylbenzene	1 - <10	95-63-6
dimethyl succinate	1 - <10	106-65-0

There are no additional ingredients present which, within the current knowledge of the supplier and in the concentrations applicable, are classified as hazardous to health or the environment and hence require reporting in this section.

4 First aid Measures

Description of first aid measures

ordinary suggestion	Emergency measures are usually required. Please show this SDS to the doctor who arrives at the scene.
Eye contact	Rinse thoroughly with plenty of water for at least 15 minutes. If you have any discomfort, see a doctor.
Skin contact	Take off the contaminated clothes immediately. Wash your skin with plenty of soapy water and clean water. If you have any discomfort, see a doctor.
Ingestion	No vomiting. Don’t feed anything to the unconscious. Call the doctor or poisoning control center immediately.
inhalation	Immediately move the patient to fresh air to keep the breath open. If breathing is difficult, give oxygen. If the patient ingests or inhales the substance, mouth-to-mouth artificial respiration is not allowed. If breathing stops. Cardiopulmonary resuscitation was performed immediately. Seek medical treatment immediately.
Protection of Emergency Personnel	To ensure that health care workers understand the hazard characteristics of products and take their own protective measures to protect themselves and prevent the spread of pollution.

Advice for the protection of rescuers

1	Clear all fire sources and enhance ventilation.
2	Avoid contact with skin and eyes.

3	Avoid inhaling steam.
4	Use protective equipment, including breathing masks.

Special tips for doctors

1	According to the symptoms, we should deal with them pertinently.
2	Note that symptoms may be delayed.

5 Firefighting measures

Extinguishing medium

Suitable fire extinguishing medium	Small fire: dry chemical fire extinguishing agent, carbon dioxide, water or anti foam fire extinguishing agent; fire: water, water mist or anti foam fire extinguishing agent.
Improper fire extinguishing medium	Avoid using too strong water vapor to extinguish fire, because it may spread and disperse the flames.

Special hazards arising from this substance or mixture

1	It can form explosive mixtures with air.
2	Containers exposed to fire may leak content through pressure relief valves, thereby increasing fire and/or vapor concentration.
3	Steam may move to the ignition source and flash back.
4	Liquids and vapors are flammable. When heated, the container may explode.
5	Expansion or explosive decomposition may occur when heated or exposed to flame.

Fire extinguishing precautions and protective measures

1	When extinguishing a fire, you should wear a breathing mask (which meets the requirements of MSHA/NIOSH or equivalent) and a full-body protective clothing.
2	Fire extinguishing at a safe distance with adequate protection.
3	Prevent fire water from polluting surface and groundwater systems.

6 Accidental release measures

Operators protective measures, protective equipment and emergency handling procedures

1	Avoid inhaling steam, touching skin and eyes.
2	Beware of vapor accumulation to explosive concentrations.
3	Steam can accumulate in low-lying areas.
4	It is suggested that emergency personnel wear positive pressure self-contained breathing apparatus, anti-virus and anti-static clothing and chemical anti-permeability gloves.
5	Ensure adequate ventilation. Clear all ignition sources. Take anti-static measures.
6	Quickly evacuate the personnel to the safe area, away from the leakage area and in the upwind direction.

7	Use personal protective equipment. Avoid inhaling steam, smoke or gas.

Environmental protection measures

1	To ensure safety, take measures to prevent further leakage or spillover.
2	Avoid discharging into the surrounding environment.

Containment, Clearance and Disposal Materials of Leakage Chemicals

1	Clear all ignition sources and use fire-proof tools and riot-proof equipment.
2	When a small amount of leakage occurs, dry sand or inert adsorbent material can be used to absorb the leakage. When a large amount of leakage occurs, dyke construction is needed to control it.
3	Attachments or collections should be stored in appropriate sealed containers and disposed of in accordance with relevant local laws and regulations.

7 Handling and storage

Operational considerations

1	Avoid inhaling steam.
2	Only tools that do not spark can be used.
3	In order to prevent the vapor ignition caused by electrostatic discharge, all metal parts on the equipment should be grounded.
4	Use explosion-proof equipment.
5	Operate in a well-ventilated area.
6	Wear appropriate personal protective gear.
7	Avoid contact with skin and eyes.
8	Keep away from heat

Storage considerations

1	Keep the container airtight.
2	Store in a dry, cool and ventilated place.
3	Keep away from heat sources, sparks, open fires and hot surfaces.
4	Store away from incompatible materials and food containers.
5	Opened containers must be carefully re-sealed and kept upright to prevent leakage.

8 Exposure controls/personal protection

Control parameter

Occupational exposure limits

No data

Biological limit

Biological limit	No data

◆ Monitoring method

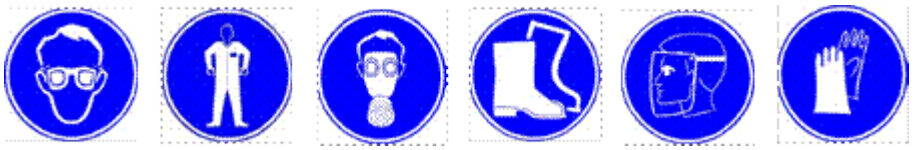
1	EN 14042 Workplace Air Procedure Guide for Assessing Exposure to Chemical or Biological Reagents.

2	GBZ/T 160.1~GBZ/T 160.81-2004 Workplace Air Toxic Substances Determination (Series Standards).

engineering control

1	Maintain adequate ventilation, especially in enclosed areas.
2	Make sure that there are eyewash and shower facilities near the workplace.
3	Use explosion-proof electrical appliances, ventilation, lighting and other equipment.
4	Set up emergency evacuation corridor and necessary risk relief area.
5	Operate according to good industrial hygiene and safety standards.

Personal protective equipment

General requirements	
Eye protection	Wear chemical goggles (in line with EU EN 166 or US NIOSH standards).
Hand protection	Wear chemical protective gloves (e.g. butyl rubber gloves).Suggestions for selection via EU EN 374, US F739 or Protective gloves tested by AS/NZS 2161.1 standard.
respiratory system protection	If the vapor concentration exceeds the occupational exposure limit or when symptoms such as irritation occur, use a full-face multi-function gas mask. (US) or AXBEK (EN 14387) gas mask barrel.
Skin and physical protection	Wear flame retardant and anti-static protective clothing and anti-static protective boots.

9 Physical and chemical properties

Physicochemical properties

Appearance and Character	Colorless to yellowish transparent viscous liquid
smell	Irritating taste
Odor threshold	No data
PH value	7(neutral)
Melting Point/Solidification Point (C)	No data
Initial Boiling Point and Boiling Range (C)	>37.78°
Flash point (closed cup, C)	Closed cup: 23°C (73.4°F)
Evaporation rate	No data
Upper/lower explosion limit [(v/v)]	Greatest known range: Lower: 1.4% Upper: 11.3% (butan-1-ol)
Relative density (water = 1)	0.98 (25 degrees Celsius)
Solubility (mg/L)	Insoluble in water
Octanol/water partition coefficient	No data
Spontaneous Combustion Temperature (?)	No data

Decomposition temperature	No data
Viscosity (mm2/s)	Kinematic (40°C): >0.21 cm2/s

10 Stability and reactivity

Reactivity	Decomposition or other chemical reactions may occur in contact with incompatible substances.
chemical stability	It is stable under the correct use and storage conditions.
Possibility of dangerous reactions	Contact with oxidizer is prone to ignition or explosion.
Conditions for avoiding contact	Incompatible substances, heat, flame and sparks.
Prohibited substance	Oxidants, chloroform, bromoform and other organic solvents.
Dangerous decomposition products	Under normal storage and use conditions, there will be no dangerous decomposition products.

11 Toxicological information

Acute toxicity

Product/ingredient name	Result	Species	Dose	Exposure
Solvent naphtha (petroleum), heavy arom.	LC50 Inhalation Dusts and mists	Rat	>5.2 mg/l	4 hours
	LD50 Oral	Rat	>5 g/kg	-
n-butyl acetate	LC50 Inhalation Vapor	Rat	>21.1 mg/l	4 hours
	LC50 Inhalation Vapor	Rat	2000 ppm	4 hours
	LD50 Dermal	Rabbit	>17600 mg/kg	-
	LD50 Oral	Rat	10.768 g/kg	-
dimethyl glutarate	LC50 Inhalation Dusts and mists	Rat	>11 mg/l	4 hours
	LD50 Dermal	Rabbit	>5000 mg/kg	-
	LD50 Oral	Rat	>5000 mg/kg	-
Solvent naphtha (petroleum), light aromatic	LD50 Dermal	Rabbit	3.48 g/kg	-
	LD50 Oral	Rat	8400 mg/kg	-
n-butanol	LC50 Inhalation Vapor	Rat	24000 mg/m³	4 hours
	LC50 Inhalation Vapor	Rat	8000 ppm	4 hours
	LD50 Dermal	Rabbit	3400 mg/kg	-
	LD50 Oral	Rat	790 mg/kg	-
dimethyl adipate	LC50 Inhalation Dusts and mists	Rat	>11 mg/l	4 hours
	LD50 Dermal	Rabbit	>5000 mg/kg	-
	LD50 Oral	Rat	11300 mg/kg	-
1,2,4-trimethylbenzene	LC50 Inhalation Vapor	Rat	18000 mg/m³	4 hours
	LD50 Oral	Rat	5 g/kg	-
dimethyl succinate	LC50 Inhalation Dusts and mists	Rat	>5900 mg/m³	4 hours
	LD50 Dermal	Rabbit	>5000 mg/kg	-
	LD50 Oral	Rat	>5 g/kg	-

Irritation/Corrosion

Not available.

Sensitization

Not available.

Mutagenicity

Not available.

Carcinogenicity

Not available.

Reproductive toxicity

Not available.

Teratogenicity

Not available.

Specific target organ toxicity (single exposure)

Name	Category	Route of exposure	Target organs
Solvent naphtha (petroleum), heavy arom.	Category 3	-	Narcotic effects
n-butyl acetate	Category 3	-	Narcotic effects
Solvent naphtha (petroleum), light aromatic	Category 3	-	Respiratory tract irritation
	Category 3		Narcotic effects
n-butanol	Category 3	-	Respiratory tract irritation
	Category 3		Narcotic effects
1,2,4-trimethylbenzene	Category 3	-	Respiratory tract irritation

Specific target organ toxicity (repeated exposure)

Not available.

Aspiration hazard

Name	Result
Solvent naphtha (petroleum), heavy arom. Solvent naphtha (petroleum), light aromatic	ASPIRATION HAZARD - Category 1 ASPIRATION HAZARD - Category 1

Information on the likelyroutes of exposure	Not available.
Potential acute health effects	
Eye contact	Causes serious eye damage.
Inhalation	Can cause central nervous system (CNS) depression. May cause drowsiness or dizziness.
Skin contact	Causes mild skin irritation. Defatting to the skin.
Ingestion	Can cause central nervous system (CNS) depression.
Symptoms related to the physical, chemical and toxicological characteristics	
Eye contact	Adverse symptoms may include the following:pain; watering, Redness
Inhalation	Adverse symptoms may include the following:nausea or vomiting headache drowsiness/fatiguedizziness/vertigo unconsciousness
Skin contact Ingestion	Adverse symptoms may include the following: pain or irritation redness dryness cracking; blistering may occur. Adverse symptoms may include the following: stomach pains
Delayed and immediate effects and also chronic effects from short and long term exposure	

Short term exposure	
Potential immediate effects	Not available.
Potential delayed effects	Not available.
Long term exposure	
Potential immediate effects	Not available.
Potential delayed effects	Not available.
Potential chronic health effects	
General	Prolonged or repeated contact can defat the skin and lead to irritation, cracking and/ or dermatitis.
Carcinogenicity	No known significant effects or critical hazards
Mutagenicity	No known significant effects or critical hazards
Reproductive toxicity	No known significant effects or critical hazards

Other information :

Prolonged or repeated contact may dry skin and cause irritation. Repeated exposure to high vapor concentrations may cause irritation of the respiratory system and permanent brain and nervous system damage. Inhalation of vapor/aerosol concentrations above the recommended exposure limits causes headaches, drowsiness and nausea and may lead to nconsciousness or death. Avoid contact with skin and clothing.

12 Ecological information

Toxicity

Product/ingredient name	Result	Species	Exposure
Solvent naphtha (petroleum), heavy arom.	NOEL 0.48 mg/l Fresh water	Daphnia	21 days
n-butyl acetate	Acute LC50 18 mg/l	Fish	96 hours
Solvent naphtha (petroleum), light aromatic	Acute LC50 8.2 mg/l	Fish	96 hours
n-butanol	Acute LC50 1376 mg/l	Fish	96 hours

Persistence/degradability

Product/ingredient name	Test	Result	Dose	Inoculum
n-butyl acetate	TEPA and OECD 301D	83 % - Readily - 28 days	-	-

Product/ingredient name	Aquatic half-life	Photolysis	Biodegradability
n-butyl acetate	-	-	Readily

Bioaccumulative potential

Product/ingredient name	$LogP_{ow}$	BCF	Potential
n-butyl acetate	1.78	-	low
dimethyl glutarate	0.62	-	low
n-butanol	0.88	-	low
dimethyl adipate	1.03	-	low
1,2,4-trimethylbenzene	3.63	120.23	low
dimethyl succinate	0.35	-	low

Mobility in Soil

Mobility in Soil

Soil/water partitioncoefficient (K_{OC}) Not available.

Other adverse effects	No known significant effects or critical hazards.

13 Disposal considerations

Waste disposal

Disposal methods	The generation of waste should be avoided or minimized wherever possible. Disposal of this product, solutions and any by-products should at all times comply with the requirements of environmental protection and waste disposal legislation and any regional local authority requirements. Dispose of surplus and non- recyclable products via a licensed waste disposal contractor. Waste should not be disposed of untreated to the sewer unless fully compliant with the requirements of all authorities with jurisdiction. Waste packaging should be recycled. Incineration or landfill should only be considered when recycling is not feasible. This material and its container must be disposed of in a safe way. Care should be taken when handling emptied containers that have not been cleaned or rinsed out. Empty containers or liners may retain some product residues. Vapor from product residues may create a highly flammable or explosive atmosphere inside the container. Do not cut, weld or grind used containers unless they have been cleaned thoroughly internally. Avoid dispersal of spilled material and runoff and contact with soil, waterways, drains and sewers.

14 Transport information

	China	UN	IMDG	IATA
UN number	UN1263	UN1263	UN1263	UN1263
UN proper shipping name	PAINT	PAINT	PAINT	PAINT
Transport hazard class(es)	3	3	3	3
Packing group	III	III	III	III
Environmental hazards	Yes. The environmentally hazardous substance mark is not required.	Yes. The environmentally hazardous substance mark is not required.	Yes.	Yes. The environmentally hazardous substance mark is not required.
Marine pollutant substances	Not applicable.	Not applicable.	(Solvent naphtha (petroleum), light aromatic, 1,2,4-trimethylbenzene)	Not applicable.

Additional information

CN	None identified.
UN	None identified.
IMDG	The marine pollutant mark is not required when transported in sizes of ≤5 L or ≤5 kg.
IATA	The environmentally hazardous substance mark may appear if required by other transportation regulations
Special precautions for user	**Transport within user's premises:** always transport in closed containers that are upright and secure. Ensure that persons transporting the product know what to do in the event of an accident or spillage.
Transport in bulk according to IMO instruments	Not applicable.

15 Regulatory information

China inventory (IECSC): All components are listed or exempted.

References

Production Safety Law of the People's Republic of China
Code of Occupational Disease Prevention of the People's Republic of ChinaEnvironmental Protection Law of the People's Republic of China
Fire Control Law of the People's Republic of China
Regulations on the Control over Safety of Dangerous Chemicals Occupational exposure limits for hazardous agents in the workplace chemicalhazardous agents (GBZ2.1)
General rule for classification and hazard communication of chemicals (GB13690)Safety data sheet for chemical products - Content and order of sections (GB/ T16483)
Guidance on the compilation of safety data sheet for chemical products (GB/T17519)
General rule for preparation of precautionary label for chemicals (GB15258) Safety rules for classification, precautionary labeling and precautionary statementsof chemicals (GB30000.2-29)

16 Other information

Revised information

Date of establishment	2021/07/16
Revision date	2023/01/01
Reasons for revision	-

Reference

[1] International Programme for Chemical Safety: International Chemical Safety Card (ICSC), at http://www.ilo.org/dyn/icsc/showcard.home.
[2] International Agency for Research on Cancer, http://www.iarc.fr/.
[3] OECD Global Chemicals Information Platform, web site:
Http://www.echemportal.org/echemportal/index?PageID=0&request_locale=en.
[4] CAMEO Chemical Substances Database, USA, at http://cameochemicals.noaa.gov/search/simple.
[5] American Medical Library: Chemical Identification Database, web site: http://chem.sis.nlm.nih.gov/chemidplus/chemidlite.jsp.
[6] EPA: Integrated Hazard Information System, http://cfpub.epa.gov/iris/.
[7] U.S. Department of Transportation: Emergency Response Guidelines, at http://www.phmsa.dot.gov/hazmat/library/erg.
[8] GESTIS-Hazardous Substances Database, Germany, at http://gestis-en.itrust.de/.

Abbreviation

CAS - Chemical Abstracts No. TSCA - List of Chemical Substances of TSCA, USA
PC-STEL-Short-term Permissible Contact Concentration PC-TWA-Time Weighted Average
DNEL - Derived Influenceless Level IARC - International Agency for Cancer Research RPE-
PNEC-Predicted Invalid Response Concentration of Respiratory Protection Equipment LC50-
50% lethal concentration LD50-50% lethal dose
NOEC - Effective Concentration EC50 - 50%