PE825

Version 4.0
Document no. 130000123947

Revision Date 2021/05/20
Issue Date 2023/07/13

This SDS adheres to the standards and regulatory requirements of China and may not meet the regulatory requirements in other countries.

Section 1 - Chemical and Enterprise Identification

Product name : PE825

Product name in English : PE825

Recommended use of the chemical and restriction on use

Recommended use : For industrial use only.
Paste for electronic industry

Restrictions on use : Do not use product for anything outside of the above specified uses.

Manufacturer, importer, supplier

Company : Celanese (Shanghai) International Trading Co., Ltd
Street address : 4560 Jinke Road, Zhangjiang, Pudong Shanghai, China 201210

E-mail address : HazCom@celanese.com

Emergency telephone number : CHEMTREC International: +1-703-527 3887, +86 532 8388-9090 (China, 24h)

Date of first preparation : 2014/01/29

Section 2 - Hazard Identification

GHS Hazard Category

Flammable liquids : Category 4
Short-term (acute) aquatic hazard : Category 1
Long-term (chronic) aquatic hazard : Category 1
Endpoints which are not classified, cannot be classified or are not applicable are not shown.

Label content

Pictogram :

Signal word : Warning

Hazardous warnings : Combustible liquid.
Very toxic to aquatic life with long lasting effects.

Precautionary statements : **Preventive Measures:**
Keep away from heat/ sparks/ open flames/ hot surfaces. No smoking.
Avoid release to the environment.
Wear protective gloves/ eye protection/ face protection.
Accident Response:
In case of fire: Use dry sand, dry chemical or alcohol-resistant foam to extinguish.
Collect spillage.
Safe Storage:
Store in a well-ventilated place. Keep cool.
Waste Disposal:
Dispose of contents/ container to an approved waste disposal plant.

Main Symptom After Contact
No information available.

Section 3 - Ingredients/Composition Information

Chemical nature : Mixture

Components

Chemical name	CAS-No.	Concentration
Silver powder	7440-22-4	30 - 40%
Copper (powder)	7440-50-8	30 - 40%
Dimethyl glutarate	1119-40-0	10 - 20%
Dimethyl succinate	106-65-0	1 - 10%

Section 4 - First-aid Measures

Inhalation : If inhaled, remove to fresh air. If breathing is difficult, give oxygen. If not breathing, give artificial respiration. Get medical attention.

Skin contact : Wash off with plenty of water. Wash contaminated clothing before re-use. Get medical attention if irritation develops and persists.

Eye contact : Immediately flush eyes for at least 15 minutes. Get medical attention.

Ingestion : Do NOT induce vomiting. Call a physician or poison control centre immediately.

Most important symptoms/effects, acute and delayed : No information available.

Protection of first-aiders : No information available.

Notes to physician : No information available.

Section 5 - Fire-fighting Measures

Suitable extinguishing media	:	Use extinguishing measures that are appropriate to local circumstances and the surrounding environment. Water spray, Dry chemical, Carbon dioxide (CO2)
Specific hazards	:	Hazardous decomposition products formed under fire conditions. (see also section 10) Avoid breathing decomposition products.
Special protective equipment for firefighters	:	Exposure to decomposition products may be a hazard to health. Wear self-contained breathing apparatus for firefighting if necessary.
Specific extinguishing methods	:	No information available.
Further information	:	Evacuate personnel to safe areas. Stop spill/release if it can be done with minimal risk. Do not allow run-off from fire fighting to enter drains or water courses.

Section 6 - Leak Emergency Treatment

Protective measures, devices and emergency treatment procedure for workers	:	Avoid contact with skin, eyes and clothing. Ensure adequate ventilation. Wear suitable protective equipment.
Environmental precautions	:	Prevent further leakage or spillage if safe to do so. Prevent product from entering drains. Clean contaminated floors and objects thoroughly while observing environmental regulations.
Methods and materials for containment and cleaning up	:	Contain spill. Soak up with inert absorbent material. Collect and contain contaminated absorbent and dike material for disposal. Keep in suitable, closed containers for disposal. Ventilate the area. Clean contaminated surface thoroughly.
Prevention of secondary hazards	:	No information available.
Additional advice	:	Dispose of in accordance with local regulations.

Section 7 - Operation Handling and Storage

Operation Handling

Technical measures/Precautions	:	Avoid inhalation, ingestion and contact with skin and eyes. Do not use in areas without adequate ventilation. Keep container closed when not in use. Take care to avoid waste and spillage when weighing, loading and mixing the product.
Precautions for safe handling	:	Avoid formation of dust and aerosols. Keep away from heat and sources of ignition.

Storage

Suitable storage conditions	:	Store in original container. Keep containers tightly closed in a dry, cool and well-ventilated place. Keep away from sources of ignition - No smoking. Do not store or

consume food, drink or tobacco in areas where they may become contaminated with this material. Keep container closed when not in use. Do not reuse empty container.

Storage period: Stable under normal conditions.

Section 8 - Exposure Control and Personal Protection

Control parameters

Applicable occupational exposure limits are listed below.

Silver powder		
TWA	0.1 mg/m3 (Dust and fume)	ACGIH (2013-03-01)
Copper (powder)		
PC-TWA (Copper)	1 mg/m3 (Dust)	CN OEL (2019-08-27)
PC-TWA (Copper)	0.2 mg/m3 (Fumes)	CN OEL (2019-08-27)
TWA (Copper)	1 mg/m3 (Dust and mist)	ACGIH (2010-03-01)
TWA (Copper)	0.2 mg/m3 (Fumes)	ACGIH (2010-03-01)

Biological occupational exposure limits

No biological exposure limit values are applicable.

Engineering controls : Local exhaust or a laboratory hood should be used when handling the materials. Maintain air concentrations below occupational exposure standards.

Personal protective equipment

Respiratory protection : Provide adequate ventilation. No personal respiratory protective equipment normally required. Where there is potential for airborne exposures in excess of applicable limits, wear approved respiratory protection with dust/mist cartridge. When workers are facing concentrations above the exposure limit they must use appropriate certified respirators. Consult the respirator manufacturer to determine the appropriate type of equipment for a given application. Observe respirator use limitations specified by the manufacturer.
Persons performing maintenance or repairs on exhaust system equipment (e.g. ducts) may need to use respirators and protective clothing to prevent exposure to any accumulated residues.

Hand protection : Material: Impervious gloves
Gloves must be inspected prior to use., Gloves should be discarded and replaced if there is any indication of degradation or chemical breakthrough., The choice of an appropriate glove does not only depend on its material but also on other quality features and is different from one producer to the other., The exact break through time can be obtained from the protective glove producer and this has to be observed., Please observe the instructions regarding permeability and breakthrough time which are provided by the supplier of the gloves. Also take into consideration the specific local conditions under which the product is used, such as the danger of cuts, abrasion, and the contact time.

Eye protection : Wear safety glasses with side shields.

Skin protection	:	Choose body protection in relation to its type, to the concentration and amount of dangerous substances, and to the specific work-place. Lightweight protective clothing Safety shoes
Hygiene measures	:	Handle in accordance with good industrial hygiene and safety practice. Avoid contact with skin, eyes and clothing. Contaminated work clothing should not be allowed out of the workplace. Remove contaminated clothing and protective equipment before entering eating areas. Remove and wash contaminated clothing before re-use.

Section 9 - Physical and Chemical Properties

Appearance (Physical state, form, colour, etc.)

Physical state	:	liquid
Form	:	viscous liquid
Colour	:	silver

Odour	:	fruity
Odour Threshold	:	No information available.
pH	:	No information available.

Melting point/freezing point
No information available.

Boiling point, initial boiling point and boiling range
No information available.

Flash point	:	90 °C Method: closed cup
Evaporation rate	:	No information available.
Flammability (solid, gas)	:	No information available.

Upper/lower flammability or explosive limits

Upper explosion limit	:	No information available.
Lower explosion limit	:	No information available.

Vapour pressure	:	No information available.
Vapour density	:	No information available.

Density

Density	:	2.5 g/cm3

Solubility(ies)

Water solubility	:	insoluble
Partition coefficient: n-	:	No information available.

octanol/water

Auto-ignition temperature
No information available.

Decomposition temperature	:	No information available.

Viscosity

Viscosity, kinematic	:	> 20.5 mm2/s (40 °C) estimated
Viscosity, dynamic	:	no data available

Molecular weight	:	No information available.
Oxidizing properties	:	No information available.

Section 10 - Stability and Reactivity

Reactivity	:	No information available.
Chemical stability	:	Stable at normal temperatures and storage conditions.
Possibility of hazardous reactions	:	Polymerization will not occur.
Conditions to avoid	:	None reasonably foreseeable.
Materials to avoid	:	Acids, bases and strong oxidizing agents
Hazardous decomposition products	:	No decomposition if stored and applied as directed. Under fire conditions: Carbon monoxide, carbon dioxide and unburned hydrocarbons (smoke)., Metal oxides, Hydrogen chloride

Section 11 - Toxicological Information

Acute toxicity

Oral

Silver powder	:	LD50/Rat: > 2,000 mg/kg Method: OECD Test Guideline 401 The substance or mixture has no acute oral toxicity
Copper (powder)	:	LD50/Rat: > 2,000 mg/kg Method: OECD Test Guideline 423 The substance or mixture has no acute oral toxicity Information given is based on data obtained from similar substances.
Dimethyl glutarate	:	LD50/Rat: > 5,000 mg/kg Method: OECD Test Guideline 423 The substance or mixture has no acute oral toxicity Information given is based on data obtained from similar substances.
Dimethyl succinate	:	LD50/Rat: 6,892 mg/kg

The substance or mixture has no acute oral toxicity

Inhalation

Silver powder : LC50/4 h/Rat(dust/mist): > 5.16 mg/l
Method: OECD Test Guideline 436
The substance or mixture has no acute inhalation toxicity

Copper (powder) : LC50/4 h/Rat(dust/mist): > 5.11 mg/l
Method: OECD Test Guideline 436
The substance or mixture has no acute inhalation toxicity
Central nervous system effects, Respiratory effects

Dimethyl glutarate : LC50/4 h/Rat(dust/mist): > 11 mg/l
Method: OECD Test Guideline 403
The substance or mixture has no acute inhalation toxicity

Dimethyl succinate : LC50/4 h/Rat(dust/mist): > 5.9 mg/l
The substance or mixture has no acute inhalation toxicity
Information given is based on data obtained from similar substances.

Dermal

Silver powder : LD50/Rat: > 2,000 mg/kg
Method: OECD Test Guideline 402
The substance or mixture has no acute dermal toxicity
Information given is based on data obtained from similar substances.

Copper (powder) : LD50/Rat: > 2,000 mg/kg
Method: OECD Test Guideline 402
The substance or mixture has no acute dermal toxicity
Information given is based on data obtained from similar substances.

Dimethyl glutarate : LD50/Rat: > 2,000 mg/kg
Method: OECD Test Guideline 402
The substance or mixture has no acute dermal toxicity
Information given is based on data obtained from similar substances.

Dimethyl succinate : LD50/Rat: > 2,000 mg/kg
Method: OECD Test Guideline 402
The substance or mixture has no acute dermal toxicity

Skin corrosion/irritation

Silver powder : Species: Rabbit
Result: No skin irritation
Classification: No skin irritation
Method: OECD Test Guideline 404

Copper (powder) : Species: Rabbit
Result: No skin irritation
Classification: No skin irritation
Method: OECD Test Guideline 404
Information given is based on data obtained from similar substances.

Dimethyl glutarate : Species: Rabbit
Result: Slight or no skin irritation
Classification: No skin irritation
Method: OECD Test Guideline 404
Minimal effects that do not meet the threshold for classification.
Information given is based on data obtained from similar substances.

Dimethyl succinate : Species: Rabbit
Result: No skin irritation
Classification: No skin irritation
Method: OECD Test Guideline 404

Serious eye damage/eye irritation

Silver powder	:	Species: Rabbit Result: No eye irritation Classification: No eye irritation Method: OECD Test Guideline 405
Copper (powder)	:	Species: Rabbit Result: No eye irritation Classification: No eye irritation Method: OECD Test Guideline 405 Minimal effects that do not meet the threshold for classification. Information given is based on data obtained from similar substances.
Dimethyl glutarate	:	Species: Rabbit Result: Slight or no eye irritation Classification: No eye irritation Minimal effects that do not meet the threshold for classification.
Dimethyl succinate	:	Species: Rabbit Result: Slight or no eye irritation Classification: No eye irritation Method: OECD Test Guideline 405 Minimal effects that do not meet the threshold for classification.

Respiratory or skin sensitisation

Silver powder	:	Species: Guinea pig Result: Does not cause skin sensitisation. Classification: Does not cause skin sensitisation. Method: OECD Test Guideline 406 Information given is based on data obtained from similar substances.
Copper (powder)	:	Species: Guinea pig Result: Does not cause skin sensitisation. Classification: Does not cause skin sensitisation. Method: OECD Test Guideline 406 Information given is based on data obtained from similar substances.
Dimethyl glutarate	:	Species: Mouse Result: Does not cause skin sensitisation. Classification: Does not cause skin sensitisation. Method: OECD Test Guideline 429 Information given is based on data obtained from similar substances.
Dimethyl succinate	:	Species: Mouse Result: Does not cause skin sensitisation. Classification: Does not cause skin sensitisation. Method: OECD Test Guideline 429

Germ cell mutagenicity

Silver powder	:	Weight of evidence does not support classification as a germ cell mutagen. Overall weight of evidence indicates that the substance is not mutagenic. Information given is based on data obtained from similar substances.
Copper (powder)	:	Animal testing did not show any mutagenic effects. Did not cause genetic damage in cultured bacterial cells. Information given is based on data obtained from similar substances.
Dimethyl glutarate	:	Animal testing did not show any mutagenic effects. Tests on bacterial or mammalian cell cultures did not show mutagenic effects. Information given is based on data obtained from similar substances.

Dimethyl succinate : Tests on bacterial or mammalian cell cultures did not show mutagenic effects.

Carcinogenicity

Silver powder : Weight of evidence does not support classification as a carcinogen
Overall weight of evidence indicates that the substance is not carcinogenic.

Copper (powder) : Weight of evidence does not support classification as a carcinogen
Overall weight of evidence indicates that the substance is not carcinogenic.

Reproductive toxicity

Silver powder : Teratogenicity: Animal testing showed no developmental toxicity.
Information given is based on data obtained from similar substances.

Copper (powder) : Reproductive toxicity: No toxicity to reproduction
Animal testing showed no reproductive toxicity.
No effects on or via lactation
Information given is based on data obtained from similar substances.
Teratogenicity: Animal testing showed effects on embryo-fetal development at levels equal to or above those causing maternal toxicity.
Information given is based on data obtained from similar substances.

Dimethyl glutarate : Reproductive toxicity: No toxicity to reproduction
Animal testing showed no reproductive toxicity.
Information given is based on data obtained from similar substances.
Teratogenicity: Animal testing showed no developmental toxicity.

Dimethyl succinate : Reproductive toxicity: No toxicity to reproduction
Animal testing showed no reproductive toxicity.
Information given is based on data obtained from similar substances.
Teratogenicity: Animal testing showed no developmental toxicity.
Information given is based on data obtained from similar substances.

Specific Target Organ Toxicity

Specific target organ toxicity - single exposure

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

Copper (powder) : The substance or mixture is not classified as specific target organ toxicant, single exposure.

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

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

Specific target organ toxicity - repeated exposure

Silver powder : The substance or mixture is not classified as specific target organ toxicant, repeated exposure.

Copper (powder) : The substance or mixture is not classified as specific target organ toxicant, repeated exposure.

Dimethyl glutarate : The substance or mixture is not classified as specific target organ toxicant, repeated exposure.

Dimethyl succinate : The substance or mixture is not classified as specific target organ toxicant, repeated exposure.

Aspiration hazard

Silver powder : No aspiration toxicity classification
Copper (powder) : No aspiration toxicity classification
Dimethyl glutarate : No aspiration toxicity classification
Dimethyl succinate : No aspiration toxicity classification

Other

Silver powder : Repeated dose toxicity:
Ingestion/Rat 30 d
NOAEL: 150 mg/kg
No toxicologically significant effects were found., Information given is based on data obtained from similar substances.

Copper (powder) : Repeated dose toxicity:
Inhalation/Rat 28 d dust/mist
Method: OECD Test Guideline 412
No toxicological effects warranting significant target organ toxicity classification were seen below the recommended guidance values for classification., Information given is based on data obtained from similar substances.

Dimethyl glutarate : Repeated dose toxicity:
Inhalation/Rat 90 d dust/mist
Method: OECD Test Guideline 413
No toxicological effects warranting significant target organ toxicity classification were seen below the recommended guidance values for classification.

Dimethyl succinate : Repeated dose toxicity:
Inhalation/Rat 90 d dust/mist
Method: OECD Test Guideline 413
No toxicological effects warranting significant target organ toxicity classification were seen below the recommended guidance values for classification., Information given is based on data obtained from similar substances.

Section 12 - Ecological Information

Ecotoxicity effects

Acute and prolonged toxicity to fish

Silver powder : LC50/96 h/Fish (unspecified species): 0.107 mg/l
Method: OECD Test Guideline 203
Information given is based on data obtained from similar substances.
Copper (powder) : LC50/96 h/Oncorhynchus mykiss (rainbow trout): 0.068 mg/l
Dimethyl glutarate : LC50/96 h/Lepomis macrochirus (Bluegill sunfish): 30.9 mg/l
Method: EPA OTS 797.1400

Toxicity to aquatic plants

Silver powder	:	EC50/96 h/Pseudokirchneriella subcapitata (green algae): 0.19 mg/l Information given is based on data obtained from similar substances. NOEC/14 d/Algae: 0.0012 mg/l Information given is based on data obtained from similar substances.
Copper (powder)	:	EC50/72 h/Pseudokirchneriella subcapitata (green algae): 0.03 mg/l Method: OECD Test Guideline 201 Information given is based on data obtained from similar substances. NOEC/10 d/Algae Method: OECD Test Guideline 201 Information given is based on data obtained from similar substances.
Dimethyl glutarate	:	EC50/72 h/Pseudokirchneriella subcapitata (green algae): > 85 mg/l Method: OECD Test Guideline 201 NOEC/72 h/Pseudokirchneriella subcapitata (green algae): 36 mg/l Method: OECD Test Guideline 201
Dimethyl succinate	:	EC50/72 h/Pseudokirchneriella subcapitata (green algae): > 100 mg/l Method: OECD Test Guideline 201 NOEC/72 h/Pseudokirchneriella subcapitata (green algae): 100 mg/l Method: OECD Test Guideline 201

Acute toxicity to aquatic invertebrates

Silver powder	:	EC50/48 h/Ceriodaphnia dubia (water flea): 0.16 mg/l Information given is based on data obtained from similar substances.
Copper (powder)	:	EC50/48 h/Daphnia magna (Water flea): 0.034 mg/l Method: OECD Test Guideline 202
Dimethyl glutarate	:	EC50/48 h/Daphnia magna (Water flea): 112 mg/l Method: EPA OTS 797.1300 Information given is based on data obtained from similar substances.
Dimethyl succinate	:	EC50/48 h/Daphnia magna (Water flea): > 100 mg/l Method: OECD Test Guideline 202

Chronic toxicity to fish

Silver powder	:	NOEC/32 d/Oncorhynchus mykiss (rainbow trout): 0.0012 mg/l Information given is based on data obtained from similar substances.
Copper (powder)	:	NOEC/61 d/Oncorhynchus mykiss (rainbow trout) Method: OECD Test Guideline 204

Chronic toxicity to aquatic Invertebrates

Silver powder	:	NOEC/21 d/Daphnia magna (Water flea): 0.00327 mg/l Information given is based on data obtained from similar substances.
Copper (powder)	:	NOEC/21 d/Daphnia magna (Water flea)
Dimethyl succinate	:	no data available

Persistence and degradability

Silver powder	:	Result: Not biodegradable
Copper (powder)	:	Result: Not biodegradable
Dimethyl glutarate	:	Result: Biodegradable
Dimethyl succinate	:	Result: Biodegradable

Bioaccumulation

Copper (powder)	:	The substance has the potential to bioaccumulate.

Dimethyl glutarate : Bioaccumulation is unlikely.
Dimethyl succinate : Bioaccumulation is unlikely.

Mobility in soil
No information available.

Other adverse effects
No information available.

Section 13 - Waste Disposal

Waste disposal methods : If recycling is not practicable, dispose of in compliance with local regulations. Never place unused product down any indoor or out door drain. Do not reuse empty container. Contaminated/not cleaned containers should be treated/handled like product waste. Dispose of container properly. Refer to applicable Local, State/Provincial, and Federal Regulations, as well as industry Standards.

Contaminated packaging : Dispose of in accordance with local regulations.

Section 14 - Transport Information

China Dangerous Goods Regulation

UN number	:	3082
Proper shipping name	:	ENVIRONMENTALLY HAZARDOUS SUBSTANCE, LIQUID, N.O.S. (Silver, Copper powder)
Class	:	9
Packing group	:	III

IMDG

UN number	:	3082
UN proper shipping name	:	ENVIRONMENTALLY HAZARDOUS SUBSTANCE, LIQUID, N.O.S. (Silver, Copper powder)
Transport hazard class	:	9
Packing group	:	III
Marine pollutant	:	yes

IATA

UN number	:	3082
UN proper shipping name	:	ENVIRONMENTALLY HAZARDOUS SUBSTANCE, LIQUID, N.O.S. (Silver, Copper powder) (Silver, Copper powder)
Transport hazard class	:	9
Packing group	:	III

Matters needing attention for transportation : Not applicable

Section 15 - Regulatory Information

Regulation on the Safety Management of Hazardous Chemicals

Production Safety Law of the People's Republic of China
Law of the People's Republic of China on Prevention and Treatment of Occupational Disease
Environmental Protection Law of the People's Republic of China
Law of the People's Republic of China on the Prevention and Control of Atmospheric Pollution
Marine Environment Protection Law of the People's Republic of China
Fire Protection Law of the People's Republic of China
Law of the People's Republic of China on the Prevention and Control of Environmental Pollution by Solid Wastes
Occupational exposure limits for hazardous agents in the workplace Part 1 Chemical hazardous agents (GBZ2.1)
Occupational exposure limits for hazardous agents in the workplace Part 2 Physical agents (GBZ2.2)
General rule for classification and hazard communication of chemicals (GB13690)
Lists of Dangerous Goods (GB12268)
Dangerous goods classification (GB6944)
Common dangerous chemical storage rules (GB15603)
Packaging Symbols of Dangerous Goods (GB190)
National Hazardous Waste Inventory

Section 16 - Other Information

References

SDS Number: 130000123947

Revision Date/Version

Date of first preparation	:	2014/01/29
Revision Date	:	2021/05/20
Version	:	4.0

Significant change from previous version is denoted with a double bar.

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 a guide for safe handling, use, processing, storage, transportation, disposal and release and is not to be considered a warranty or quality specification. The above information relates only to the specific material(s) designated herein and may not be valid for such material(s) used in combination with any other materials or in any process or if the material is altered or processed, unless specified in the text.