

0004A

Version 8.0

Issue Date : 01/26/2023
Revision Date : 04/21/2025

Ref. 130000001521

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

SECTION 1. PRODUCT AND COMPANY IDENTIFICATION

Product name : 0004A
Product 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/Supplier : Celanese Sales U.S. Ltd.
222 West Las Colinas Boulevard Suite 900N
Irving, TX 75039

Product Information : +1 972-443-4000
Transport Emergency : HazCom@celanese.com

SECTION 2. HAZARDS IDENTIFICATION**Product hazard category**

Flammable liquids	Category 4
Skin irritation	Category 2
Serious eye damage/eye irritation	Category 2A
Skin sensitisation	Category 1
Germ cell mutagenicity	Category 2
Carcinogenicity	Category 2
Reproductive toxicity	Category 1A
Specific target organ toxicity - repeated exposure	Category 1

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Label content

Pictogram :



Signal word : Danger

Hazardous warnings : Combustible liquid.
Causes skin irritation.
May cause an allergic skin reaction.
Causes serious eye irritation.
Suspected of causing genetic defects.
Suspected of causing cancer.
May damage fertility or the unborn child.
Causes damage to organs through prolonged or repeated exposure. (Blood)

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Hazardous prevention measures : Obtain special instructions before use.
Do not handle until all safety precautions have been read and understood.
Keep away from heat/sparks/open flames/hot surfaces. No smoking.
Do not breathe dust/ fume/ gas/ mist/ vapours/ spray.
Wash skin thoroughly after handling.
Do not eat, drink or smoke when using this product.
Contaminated work clothing should not be allowed out of the workplace.
Wear protective gloves/ protective clothing/ eye protection/ face protection.
IF ON SKIN: Wash with plenty of soap and water.
IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing.
IF exposed or concerned: Get medical advice/ attention.
If skin irritation or rash occurs: Get medical advice/ attention.
If eye irritation persists: Get medical advice/ attention.
Take off contaminated clothing and wash before reuse.
In case of fire: Use dry sand, dry chemical or alcohol-resistant foam to extinguish.
Store in a well-ventilated place. Keep cool.
Store locked up.
Dispose of contents/ container to an approved waste disposal plant.

Other hazards

The following percentage of the mixture consists of ingredient(s) with unknown acute toxicity: 65 - 75 %

SECTION 3. COMPOSITION/INFORMATION ON INGREDIENTS

Component	CAS-No.	Concentration
Terpineol	8000-41-7	20 - 30 %
Silver powder	7440-22-4	10 - 20 %
Modified Epichlorohydrin Resin	25068-38-6	1 - 10 %
Nonylphenol Ethoxylate	68412-53-3	1 - 10 %

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The specific chemical identity and/or exact percentage (concentration) of composition has been withheld as a trade secret.

Glass or Ceramic ingredient(s) Lead.		10 - 20 %
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SECTION 4. FIRST AID MEASURES

General advice : No applicable data available.

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 soap and water. Get medical attention if irritation develops and persists. Wash contaminated clothing before re-use.

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

Ingestion : If swallowed Rinse mouth with water. Call a physician or poison control centre immediately. DO NOT induce vomiting unless directed to do so by a physician or poison control center.

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

Protection of first-aiders : No applicable data available.

Notes to physician : No applicable data available.

SECTION 5. FIREFIGHTING MEASURES

Suitable extinguishing media : Use extinguishing measures that are appropriate to local circumstances and the surrounding environment.
Water spray, Dry chemical, Carbon dioxide (CO₂)

Unsuitable extinguishing media : No applicable data available.

Specific hazards : Hazardous decomposition products formed under fire conditions. (see also section 10) Avoid breathing decomposition products.

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Special protective equipment for firefighters : Exposure to decomposition products may be a hazard to health. Wear self-contained breathing apparatus for firefighting if necessary.

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. ACCIDENTAL RELEASE MEASURES

NOTE: Review FIRE FIGHTING MEASURES and HANDLING (PERSONNEL) sections before proceeding with clean-up. Use appropriate PERSONAL PROTECTIVE EQUIPMENT during clean-up.

Safeguards (Personnel) : 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.

Spill Cleanup : 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.

Accidental Release Measures : Dispose of in accordance with local regulations.

SECTION 7. HANDLING AND STORAGE

Handling (Personnel) : 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.
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

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protective equipment before entering eating areas. Remove and wash contaminated clothing before re-use.

Handling (Physical Aspects) : Avoid formation of dust and aerosols. Keep away from heat and sources of ignition.

Dust explosion class : No applicable data available.
Storage : 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.
Stable under normal conditions.

Storage period : No applicable data available.

Storage temperature : No applicable data available.

SECTION 8. EXPOSURE CONTROLS/PERSONAL PROTECTION

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
Additional protection: 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

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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 and body 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

Exposure Guidelines
Exposure Limit Values

Terpineol

No applicable data available.

Silver powder

TLV	(ACGIH)	0.1 mg/m3	TWA Dust and fume
REL	(NIOSH)	0.01 mg/m3	Time-weighted average concentration for up to a 10-hour workday during a 40-hour workweek Dust
PEL (Permissible Exposure Limit)	(OSHA)	0.01 mg/m3	TWA

Modified Epichlorohydrin Resin

No applicable data available.

Nonylphenol Ethoxylate

No applicable data available.

Lead

REL	(NIOSH)	0.05 mg/m3	Time-weighted average concentration for up to a 10-hour workday during a 40-hour workweek Lead
TLV	(ACGIH)	0.05 mg/m3	TWA

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			Lead
PEL (Permissible Exposure Limit)	(OSHA)	0.05 mg/m3	8 hr. TWA Lead

Biological Exposure Indices

Lead			
BEI	(ACGIH)	200 µg/l	Lead/In blood Not critical

SECTION 9. PHYSICAL AND CHEMICAL PROPERTIES

Appearance

Physical state : liquid
Form : viscous liquid
Color : black

Odor : pine

Odor threshold : No applicable data available.

pH : No applicable data available.

Melting point/range : No applicable data available.

Boiling point/boiling range : No applicable data available.

Flash point : 89 °C
Method: closed cup

Evaporation rate : No applicable data available.

Flammability (solid, gas) : No applicable data available.

Upper explosion limit : No applicable data available.

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Lower explosion limit : No applicable data available.

Vapour Pressure : No applicable data available.

Vapour density : No applicable data available.

Density : 1.96 g/cm³

Specific gravity (Relative density) : No applicable data available.

Water solubility : at 20 °C (68 °F)
slightly soluble

Solubility(ies) : No applicable data available.

Partition coefficient: n-octanol/water : No applicable data available.

Auto-ignition temperature : No applicable data available.

Decomposition temperature : No applicable data available.

Viscosity, kinematic : > 20.5 mm²/s at 40 °C (104 °F)
estimated

Viscosity, dynamic : > 100 Pa.s at 25 °C (77 °F)

Oxidizing Substance : The substance or mixture is not classified as oxidizing.

SECTION 10. STABILITY AND REACTIVITY

Reactivity : No applicable data available.

Chemical stability : Stable at normal temperatures and storage conditions.

Possibility of hazardous reactions : Polymerization will not occur.

Conditions to avoid : None reasonably foreseeable.

Incompatible materials : Acids, bases and strong oxidizing agents

Hazardous decomposition : No decomposition if stored and applied as directed.

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products

Under fire conditions:
Carbon monoxide, carbon dioxide and unburned hydrocarbons (smoke).,
Metal oxides

SECTION 11. TOXICOLOGICAL INFORMATION

Terpineol

Inhalation	:	no data available
Inhalation	:	
Dermal LD50	:	> 2,000 mg/kg , Rabbit
Oral LD50	:	> 2,000 mg/kg , Rat
Skin irritation	:	Skin irritation, Rabbit
Eye irritation	:	Eye irritation, animals (unspecified species)
Skin sensitization	:	Did not cause sensitisation on laboratory animals., Guinea pig
Repeated dose toxicity	:	Oral Rat - No toxicologically significant effects were found.
Carcinogenicity	:	Not classifiable as a human carcinogen. Overall weight of evidence indicates that the substance is not carcinogenic.
Mutagenicity	:	Tests on bacterial or mammalian cell cultures did not show mutagenic effects. Evidence suggests this substance does not cause genetic damage in animals.
Reproductive toxicity	:	Animal testing showed effects on reproduction at levels equal to or above those causing parental toxicity.

Silver powder

Inhalation 4 h LC50	:	> 5.16 mg/l , Rat
Dermal LD50	:	> 2,000 mg/kg , Rat

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Information given is based on data obtained from similar substances.

Oral LD50	: > 2,000 mg/kg , Rat
Skin irritation	: No skin irritation, Rabbit
Eye irritation	: No eye irritation, Rabbit
Skin sensitization	: Does not cause skin sensitisation., Guinea pig Information given is based on data obtained from similar substances.
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.
Carcinogenicity	: Weight of evidence does not support classification as a carcinogen Overall weight of evidence indicates that the substance is not carcinogenic.
Mutagenicity	: 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.
Teratogenicity	: Animal testing showed no developmental toxicity. Information given is based on data obtained from similar substances.
Modified Epichlorohydrin Resin Inhalation	: Rat An LC50/inhalation/4h/rat could not be determined because no mortality of rats was observed at the maximum achievable concentration.
Dermal LD50	: > 2,000 mg/kg , Rat
Oral LD50	: > 2,000 mg/kg , Rat
Skin irritation	: Severe skin irritation, Rabbit

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- Eye irritation : Irritation to eyes, reversing within 7 days, Rabbit
- Skin sensitization : May cause sensitisation by skin contact., Mouse
- Repeated dose toxicity : Ingestion
Rat
- 90 d
NOAEL: > 1,000 mg/kg Method: OECD Test Guideline 408
No toxicologically significant effects were found.
- Skin contact
Mouse
- 90 d
NOAEL: 100 mg/kg Method: OECD Test Guideline 411
No toxicologically significant effects were found.
- Carcinogenicity : Animal testing did not show any carcinogenic effects.
- Mutagenicity : Animal testing did not show any mutagenic effects.
Did not cause genetic damage in cultured bacterial cells.
Genetic damage in cultured mammalian cells was observed in some laboratory tests but not in others.
- Reproductive toxicity : No toxicity to reproduction
Animal testing showed no reproductive toxicity.
No effects on or via lactation
- Teratogenicity : Animal testing showed no developmental toxicity.
- Nonylphenol Ethoxylate
Oral LD50 : 4,450 mg/kg , Rat
- Skin irritation : Severe skin irritation, Rabbit
Information given is based on data obtained from similar substances.
- Eye irritation : Risk of serious damage to eyes., Rabbit
Information given is based on data obtained from similar substances.
- Skin sensitization : Does not cause skin sensitisation., human
Information given is based on data obtained from similar substances.

Lead

- Inhalation 4 h LC50 : > 5.05 mg/l , Rat

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Information given is based on data obtained from similar substances.

Dermal LD50	:	> 2,000 mg/kg , Rat Information given is based on data obtained from similar substances.
Oral LD50	:	> 5,000 mg/kg , Rat Information given is based on data obtained from similar substances.
Skin irritation	:	No skin irritation, Rabbit Information given is based on data obtained from similar substances.
Eye irritation	:	No eye irritation, Rabbit Information given is based on data obtained from similar substances.
Skin sensitization	:	Does not cause skin sensitisation., Guinea pig Information given is based on data obtained from similar substances.
Repeated dose toxicity	:	Oral Rat - LOAEL: 200, Target Organs: Blood The substance or mixture is classified as specific target organ toxicant, repeated exposure, category 1. altered blood chemistry, Information given is based on data obtained from similar substances.
Carcinogenicity	:	Suspected human carcinogens An increased incidence of tumours was observed in laboratory animals. Information given is based on data obtained from similar substances.
Mutagenicity	:	In vitro tests showed mutagenic effects Genetic damage in cultured mammalian cells was observed in some laboratory tests but not in others.
Reproductive toxicity	:	Known human reproductive toxicant Reduced fertility Information given is based on data obtained from similar substances.
Teratogenicity	:	Delayed foetal development (variations) Information given is based on data obtained from similar substances.

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Carcinogenicity

The carcinogenicity classifications for this product and/or its ingredients have been determined according to HazCom 2012, Appendix A.6. The classifications may differ from those listed in the National Toxicology Program (NTP) Report on Carcinogens (latest edition) or those found to be a potential carcinogen in the International Agency for Research on Cancer (IARC) Monographs (latest edition).

Material	IARC	NTP	OSHA
Lead	2B	X	X

SECTION 12. ECOLOGICAL INFORMATION**Aquatic Toxicity****Terpineol**

96 h LC50	: Danio rerio (zebra fish) 62 - 80 mg/l OECD Test Guideline 203
72 h ErC50	: Pseudokirchneriella subcapitata (green algae) 68 mg/l OECD Test Guideline 201
72 h EbC50	: Pseudokirchneriella subcapitata (green algae) 17 mg/l OECD Test Guideline 201
48 h LC50	: Daphnia magna (Water flea) 73 mg/l OECD Test Guideline 202

Silver powder

96 h LC50	: Fish (unspecified species) 0.107 mg/l OECD Test Guideline 203 Information given is based on data obtained from similar substances.
96 h EC50	: Pseudokirchneriella subcapitata (green algae) 0.19 mg/l Information given is based on data obtained from similar substances.
14 d NOEC	: Algae 0.0012 mg/l Information given is based on data obtained from similar substances.
48 h EC50	: Ceriodaphnia dubia (water flea) 0.16 mg/l Information given is based on data obtained from similar substances.
32 d	: NOEC Oncorhynchus mykiss (rainbow trout) 0.0012 mg/l Information given is based on data obtained from similar substances.

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21 d : NOEC Daphnia magna (Water flea) 0.00327 mg/l
Information given is based on data obtained from similar substances.

Modified Epichlorohydrin Resin

96 h LC50 : Oncorhynchus mykiss (rainbow trout) 1.2 mg/l
72 h ErC50 : Scenedesmus capricornutum (fresh water algae) > 11 mg/l
72 h NOEC : Scenedesmus capricornutum (fresh water algae) 4.2 mg/l
48 h EC50 : Daphnia magna (Water flea) 1.1 mg/l OECD Test Guideline 202
21 d : NOEC Daphnia magna (Water flea) 0.3 mg/l OECD Test Guideline 211

Nonylphenol Ethoxylate

96 h LC50 : Danio rerio (zebra fish) 81 mg/l

Environmental Fate**Terpineol**

Biodegradability : 80 % OECD Test Guideline 301
Readily biodegradable.
Bioaccumulation : Bioconcentration factor (BCF) : 24.13
Bioaccumulation is unlikely.

Modified Epichlorohydrin Resin

Bioaccumulation : The substance has the potential to bioaccumulate.

Additional ecological information : No data is available on the product itself.

SECTION 13. DISPOSAL CONSIDERATIONS

Waste disposal methods - Product : If recycling is not practicable, dispose of in compliance with local regulations.
Never place unused product down any indoor or out door drain.

Waste disposal methods - Container : 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

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as industry Standards.

Contaminated packaging : No applicable data available.

SECTION 14. TRANSPORT INFORMATION

IATA_C	UN number	: 3082
	Proper shipping name	: Environmentally hazardous substance, liquid, n.o.s. (Silver, Glass frits)
	Class	: 9
	Packing group	: III
IMDG	Labelling No.	: 9
	UN number	: 3082
	Proper shipping name	: ENVIRONMENTALLY HAZARDOUS SUBSTANCE, LIQUID, N.O.S. (Silver, Glass frits)
	Class	: 9
	Packing group	: III
	Labelling No.	: 9

Not regulated by DOT in non-bulk package.

Regulated by DOT/49CFR as Combustible Liquid when transported in a bulk package (≥ 119 gallons(450 litres)).

Marine Pollutants assigned UN number 3077 and 3082 in single or combination packaging containing a net quantity per single or inner packaging of 5 L or less for liquids or having a net mass per single or inner packaging of 5 KG or less for solids may be transported as non-dangerous goods as provided in section 2.10.2.7 of IMDG code, IATA special provision A197, and ADR/RID special provision 375.

SECTION 15. REGULATORY INFORMATION

TSCA : On the inventory, or in compliance with the inventory

SARA 311/312 Hazard classification : Flammable (gases, aerosols, liquids, or solids)
Oxidiser (liquid, solid or gas)
Skin corrosion or irritation
Serious eye damage or eye irritation
Respiratory or skin sensitisation

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Germ cell mutagenicity
Carcinogenicity
Reproductive toxicity
Specific target organ toxicity (single or repeated exposure)

SARA 313 Regulated Chemical(s) : The following components are subject to reporting levels established by SARA Title III, Section 313: Silver powder, Diethylene glycol dibutyl ether

California Prop. 65 : This product can expose you to Lead, which is known to the State of California to cause cancer and birth defects or other reproductive harm. For more information go to www.P65Warnings.ca.gov

SECTION 16. OTHER INFORMATION

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

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