

SAFETY DATA SHEET

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Revision Number 2

This document complies with the US OSHA Hazard Communication Standard (29 CFR 1910.1200), Canada WHMIS 2015 which includes the amended Hazardous Products Act (HPA) and the Hazardous Products Regulation (HPR), and Mexico's NMX-R-019-SC-2011.

1. IDENTIFICATION OF THE SUBSTANCE/PREPARATION AND THE COMPANY/UNDERTAKING

GHS product identifier

Product Name CA-40 HF; CA-40 HF DI

Other means of identification

Product Code(s) 400446; 800117

Synonyms None

Recommended use of the chemical and restrictions on use

Recommended Use Solder mask part B

Uses advised against No information available

Supplier's details

Supplier Address

Taiyo America, Inc.
2675 Antler Drive
Carson City, NV 89701
TEL: 775-885-9959

Emergency telephone number

Emergency Telephone Number 775-885-9959

2. HAZARDS IDENTIFICATION

Classification

This product is considered hazardous according to the criteria set within the US OSHA Hazard Communication Standard (29 CFR 1910.1200), Canada WHMIS 2015 which includes the amended Hazardous Products Act (HPA) and the Hazardous Products Regulation (HPR), and Mexico's NMX-R-019-SC-2011.

Serious Eye Damage/Eye Irritation	Category 1
Skin Sensitization	Category 1
Germ Cell Mutagenicity	Category 1B
Carcinogenicity	Category 2
Specific Target Organ Toxicity (Repeated Exposure)	Category 2
Flammable liquids	Category 4

Label Elements

Signal Word

Danger

**Hazard Statements**

Causes serious eye damage
May cause an allergic skin reaction
May cause genetic defects
Suspected of causing cancer.
May cause damage to organs through prolonged or repeated exposure
Combustible liquid.

Physical and Health Hazards Not Otherwise Classified

Not applicable.

Precautionary Statements**Prevention**

- Obtain special instructions before use.
- Do not handle until all safety precautions have been read and understood.
- Use personal protective equipment as required.
- Contaminated work clothing should not be allowed out of the workplace.
- Do not breathe dust/fume/gas/mist/vapors/spray.
- Keep away from heat/sparks/open flames/hot surfaces - No smoking.
- Wear protective gloves/protective clothing/eye protection/face protection.

General Advice

- If exposed or concerned: Get medical attention/advice
- Specific treatment (see supplemental first aid instructions on this label)

Eyes

- IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing.
- Immediately call a POISON CENTER or doctor/physician.

Skin

- IF ON SKIN: Wash with plenty of soap and water.
- If skin irritation or rash occurs: Get medical advice/attention.
- Wash contaminated clothing before reuse.

Fire

- In case of fire: Use CO₂, dry chemical, or foam for extinction.

Storage

- Store locked up.
- Store in a well-ventilated place. Keep cool.

Disposal

- Dispose of contents/container to an approved waste disposal plant.

Other information

Harmful to aquatic life with long lasting effects.

Unknown acute toxicity

20.49% of the mixture consists of ingredient(s) of unknown toxicity.

3. COMPOSITION/INFORMATION ON INGREDIENTS

Chemical Name	CAS-No	Weight %	Hazardous Material Information Review Act registry number (HMIRA registry #)	Date HMIRA filed and date exemption granted (if applicable)
Barium sulfate	7727-43-7	15-40	-	-
4,4'-Bis(2,3-epoxypropoxy)-3,3',5,5'-tetramethyl (1,1'-biphenyl)	85954-11-6	5-10	-	-
1,3,5-tris-[(2S and 2R)-2,3-epoxypropyl]-1,3,5-triazine-2,4,6-(1H,3H,5H)-trione	59653-74-6	5-10	-	-
Trimethylolpropane triacrylate	15625-89-5	1-5	-	-
Naphtha (petroleum), heavy aromatic	64742-94-5	0.5 - 1.5	-	-

4. FIRST AID MEASURES

Description of necessary first-aid measures

Eye Contact	Immediately flush with plenty of water. After initial flushing, remove any contact lenses and continue flushing for at least 15 minutes. Immediate medical attention is required.
Skin Contact	Wash off immediately with soap and plenty of water removing all contaminated clothes and shoes. In the case of skin irritation or allergic reactions see a physician.
Inhalation	Move to fresh air. If breathing is difficult, give oxygen. If symptoms persist, call a physician.
Ingestion	Rinse mouth. Do NOT induce vomiting. Drink plenty of water. If symptoms persist, call a physician.

Most important symptoms/effects, acute and delayed

Most Important Symptoms/Effects Serious eye irritation or damage. May cause allergic skin reaction. Itching. Rashes. Hives.

Indication of immediate medical attention and special treatment needed, if necessary

Notes to Physician Treat symptomatically.

5. FIRE-FIGHTING MEASURES

<u>Suitable Extinguishing Media</u>	Carbon dioxide (CO ₂). Foam. Dry chemical.
<u>Unsuitable Extinguishing Media</u>	No information available
<u>Specific Hazards Arising from the Chemical</u>	Combustible liquid. Vapors may travel to source of ignition and flash back. Thermal decomposition can lead to release of irritating gases and vapors. Product is or contains a sensitizer. May cause sensitization by skin contact.
Explosion Data	
Sensitivity to Mechanical Impact	None.
Sensitivity to Static Discharge	Yes.
<u>Protective Equipment and Precautions for Firefighters</u>	As in any fire, wear self-contained breathing apparatus pressure-demand, MSHA/NIOSH (approved or equivalent) and full protective gear.

6. ACCIDENTAL RELEASE MEASURES

Personal precautions, protective equipment and emergency procedures

Personal Precautions Avoid contact with skin, eyes and clothing. Use personal protective equipment. Evacuate personnel to safe areas. Keep people away from and upwind of spill/leak. Ensure adequate ventilation. In case of insufficient ventilation wear suitable respiratory equipment. Remove all sources of ignition. Take precautionary measures against static discharges. Pay attention to flashback.

Environmental Precautions

Environmental Precautions Prevent further leakage or spillage if safe to do so. Prevent product from entering drains. Prevent entry into waterways, sewers, basements or confined areas. Do not flush into surface water or sanitary sewer system.

Methods and materials for containment and cleaning up

Methods for Containment Prevent further leakage or spillage if safe to do so.

Methods for Cleaning Up Soak up with inert absorbent material. Pick up and transfer to properly labeled containers. Clean contaminated surface thoroughly.

7. HANDLING AND STORAGE

Precautions for safe handling

Handling Handle in accordance with good industrial hygiene and safety practice. Avoid contact with skin, eyes and clothing. Wear personal protective equipment. Use only in area provided with appropriate exhaust ventilation. In case of insufficient ventilation, wear suitable respiratory equipment. Do not eat, drink or smoke when using this product. Do not take internally. Wash thoroughly after handling. Take necessary action to avoid static electricity discharge (which might cause ignition of organic vapors). To avoid ignition of vapors by static electricity discharge, all metal parts of the equipment must be grounded. Keep away from heat, sparks and open flame. No smoking.

Conditions for safe storage, including any incompatibilities

Storage Keep containers tightly closed in a dry, cool and well-ventilated place. Keep out of the reach of children. Keep in properly labeled containers. Keep away from heat and sources of ignition.

Incompatible Products Strong oxidizing agents.

8. EXPOSURE CONTROLS / PERSONAL PROTECTION

Control parameters

Exposure Guidelines

Chemical Name	ACGIH TLV	OSHA PEL	NIOSH IDLH
Barium sulfate 7727-43-7	TWA: 5 mg/m ³ inhalable particulate matter, particulate matter containing no asbestos and <1% crystalline silica	TWA: 15 mg/m ³ total dust TWA: 5 mg/m ³ respirable fraction (vacated) TWA: 10 mg/m ³ total dust (vacated) TWA: 5 mg/m ³ respirable fraction	TWA: 10 mg/m ³ total dust TWA: 5 mg/m ³ respirable dust
Dipropylene glycol monomethyl ether 34590-94-8	STEL: 150 ppm TWA: 100 ppm S*	TWA: 100 ppm TWA: 600 mg/m ³ (vacated) TWA: 100 ppm (vacated) TWA: 600 mg/m ³ (vacated) STEL: 150 ppm (vacated) STEL: 900 mg/m ³ (vacated) S* S*	IDLH: 600 ppm TWA: 100 ppm TWA: 600 mg/m ³ STEL: 150 ppm STEL: 900 mg/m ³

Appropriate engineering controls

Engineering Measures Showers
Eyewash stations
Ventilation systems

Individual protection measures, such as personal protective equipment

Eye/Face Protection Tightly fitting safety goggles.
Skin and Body Protection Lightweight protective clothing. Impervious gloves.

Respiratory Protection In case of inadequate ventilation wear respiratory protection. If exposure limits are exceeded or irritation is experienced, approved respiratory protection should be worn.

Hygiene Measures Handle in accordance with good industrial hygiene and safety practice.

9. PHYSICAL AND CHEMICAL PROPERTIES

Information on basic physical and chemical properties

Physical State	Viscous liquid.	Appearance	Off-white.
Odor	Mild Solvent.	Odor Threshold	No information available.

<u>Property</u>	<u>Values</u>	<u>Remarks/ - Method</u>
pH	No data available	None known
Melting Point/Range	No data available	None known
Boiling Point/Boiling Range	No data available	None known
Flash Point	78 °C	None known
Evaporation rate	No data available	None known
Flammability (solid, gas)	No data available	None known
Flammability Limits in Air		
upper flammability limit	No data available	
lower flammability limit	No data available	
Vapor Pressure	No data available	None known
Vapor Density	No data available	None known
Relative Density	No data available	None known
Specific Gravity	1.50	None known
Water Solubility	No data available	None known
Solubility in other solvents	No data available	None known
Partition coefficient: n-octanol/water	No data available	None known
Autoignition Temperature	No data available	None known
Decomposition Temperature	No data available	None known
Viscosity	No data available	None known

Flammable Properties Combustible material: may burn but does not ignite readily

Explosive Properties No data available

Oxidizing Properties No data available

Other information

VOC Content (%)	13
VOC (g/l)	190

10. STABILITY AND REACTIVITY

Reactivity No data available.

Chemical stability Stable under recommended storage conditions.

Possibility of hazardous reactions None under normal processing.

Hazardous Polymerization Hazardous polymerization does not occur.

Conditions to avoid Incompatible products. Heat, flames and sparks.

Incompatible materials Strong oxidizing agents.

Hazardous decomposition products Thermal decomposition can lead to release of irritating and toxic gases and vapors. Carbon dioxide (CO₂). Carbon monoxide (CO). Sulfur oxides.

11. TOXICOLOGICAL INFORMATION

Information on likely routes of exposure**Product Information**

Inhalation	No known effect based on information supplied.
Eye Contact	Causes serious eye damage.
Skin Contact	May cause allergic skin reaction.
Ingestion	May be harmful if swallowed.

Numerical measures of toxicity - Product

The following values are calculated based on chapter 3.1 of the GHS document:

LD50 Oral	4995 mg/kg; Acute toxicity estimate
LD50 Dermal	26369 mg/kg; Acute toxicity estimate
Inhalation	
dust/mist	6.6 mg/L; Acute toxicity estimate
Vapor	39.8 mg/L; Acute toxicity estimate
Unknown acute toxicity	20.49% of the mixture consists of ingredient(s) of unknown toxicity.
Acute Oral Toxicity	20.49% of the mixture consists of ingredient(s) of unknown acute oral toxicity
Acute Dermal Toxicity	51.16% of the mixture consists of ingredient(s) of unknown acute dermal toxicity
Acute Inhalation (dust/mist) Toxicity	20.49% of the mixture consists of ingredient(s) of unknown acute inhalation (dust/mist) toxicity
Acute Inhalation (vapor) Toxicity	20.49% of the mixture consists of ingredient(s) of unknown acute inhalation (vapor) toxicity
Acute Inhalation (gas) Toxicity	20.49% of the mixture consists of ingredient(s) of unknown acute inhalation (gas) toxicity

Chemical Name	LD50 Oral	LD50 Dermal	LC50 Inhalation
Barium sulfate	= 307000 mg/kg (Rat)	-	-
Trimethylolpropane triacrylate	> 5000 mg/kg (Rat)	= 5000 mg/kg (Rabbit)	-
Naphtha (petroleum), heavy aromatic	> 5000 mg/kg (Rat)	> 2 mL/kg (Rabbit)	> 590 mg/m ³ (Rat) 4 h

Symptoms related to the physical, chemical and toxicological characteristics

Symptoms No information available.

Delayed and immediate effects and also chronic effects from short and long term exposure

Respiratory or Skin Sensitization May cause sensitization of susceptible persons. May cause sensitization by skin contact.
Germ Cell Mutagenicity Contains a known or suspected mutagen. Suspected of causing genetic defects.
Carcinogenicity Contains a known or suspected carcinogen. May cause cancer.

Reproductive Toxicity Based on available data, the classification criteria are not met.
STOT - single exposure Based on available data, the classification criteria are not met
STOT - repeated exposure May cause damage to organs through prolonged or repeated exposure.
Aspiration Hazard Based on available data, the classification criteria are not met.

12. ECOLOGICAL INFORMATION**Ecotoxicity**

Not classified

Chemical Name	Toxicity to Algae	Toxicity to Fish	Toxicity to Microorganisms	Daphnia Magna (Water Flea)
Naphtha (petroleum), heavy aromatic 64742-94-5	EC50 72 h: = 2.5 mg/L (Skeletonelema costatum)	LC50 96 h: = 19 mg/L static (Pimephales promelas) LC50 96 h: = 2.34 mg/L (Oncorhynchus mykiss) LC50 96 h: = 1740 mg/L static (Lepomis macrochirus) LC50 96 h: = 45 mg/L flow-through (Pimephales promelas) LC50 96 h: = 41 mg/L (Pimephales promelas)		EC50 48 h: = 0.95 mg/L (Daphnia magna)

Persistence and Degradability No information available

Bioaccumulation

Chemical Name	Log Pow
Naphtha (petroleum), heavy aromatic	2.9 - 6.1

Mobility No information available

Other Adverse Effects No information available.

13. DISPOSAL CONSIDERATIONS

Waste Disposal Methods Dispose of in accordance with local regulations.

Contaminated Packaging Empty containers should be taken to an approved waste handling site for recycling or disposal.

14. TRANSPORT INFORMATION

Note: According to 49 CFR §173.150(f)(1), this material should be reclassified as NA1993, Combustible Liquid, NOS if it is shipped in bulk.

DOT Not regulated

TDG Not regulated

MEX Not regulated

IATA Not regulated

IMDG/IMO Not regulated

15. REGULATORY INFORMATION

International Regulations

Ozone depleting substances Not applicable
Persistent Organic Pollutants Not applicable
Hazardous Waste Not applicable
The Rotterdam Convention (Prior Informed Consent) Not applicable
International Convention for the Prevention of Pollution from Ships (MARPOL) Not applicable

International Inventories

TSCA Complies
DSL Not determined
European Union Complies

U.S. Federal Regulations

Section 313 of Title III of the Superfund Amendments and Reauthorization Act of 1986 (SARA). This product contains a chemical or chemicals which are subject to the reporting requirements of the Act and Title 40 of the Code of Federal Regulations, Part 372:

Chemical Name	CAS-No	Weight %	SARA 313 - Threshold Values %
Diethylene glycol monoethyl ether acetate	112-15-2	5-10	1.0

SARA 311/312 Hazard Categories

Acute Health Hazard	Yes
Chronic Health Hazard	Yes
Fire Hazard	Yes
Sudden Release of Pressure Hazard	No
Reactive Hazard	No

Clean Water Act

This product does not contain any substances regulated as pollutants pursuant to the Clean Water Act (40 CFR 122.21 and 40 CFR 122.42).

CERCLA

This material, as supplied, does not contain any substances regulated as hazardous substances under the Comprehensive Environmental Response Compensation and Liability Act (CERCLA) (40 CFR 302) or the Superfund Amendments and Reauthorization Act (SARA) (40 CFR 355). There may be specific reporting requirements at the local, regional, or state level pertaining to releases of this material.

U.S. State Regulations**California Proposition 65**

This product contains the following Proposition 65 chemicals:

Chemical Name	CAS-No	California Prop. 65
Naphthalene	91-20-3	Carcinogen

U.S. State Right-to-Know Regulations

"X" designates that the ingredients are listed on the state right to know list.

Chemical Name	New Jersey	Massachusetts	Pennsylvania	Illinois	Rhode Island
Barium sulfate	X	X	X		
Dipropylene glycol monomethyl ether	X	X	X	X	X

U.S. EPA Label Information

EPA Pesticide Registration Number Not applicable

16. OTHER INFORMATION

NFPA Health Hazard 3 Flammability 2 Instability 0 Physical and Chemical Hazards -

HMIS Health Hazard 3* Flammability 2 Physical Hazard 0 Personal Protection X

*Indicates a chronic health hazard.

Prepared By Product Stewardship
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General Disclaimer

The information provided on this SDS 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 as 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 material or in any process, unless specified in the text.

End of Safety Data Sheet