SUMITOMO BAKELITE CO.,LTD.

SAFETY DATA SHEET

1. Product and company identification

Chemical description Die Attach Paste

Name of the chemical **SUMIRESIN EXCEL® CRM-1076DJ-G**

Other means of identification

SDS number P001621

Recommended use and Limitations on use

Recommended use For Semiconductors.

Limitations on use For industrial use only.

Name, address and telephone of manufacturer, importer or supplier

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2. Hazards identification

Hazard classification

Physical hazards	Not classified.	
Health hazards	Serious eye damage/eye irritation	Category 2B
	Sensitization, skin	Category 1
	Specific target organ toxicity following single exposure	Category 1 (respiratory system)
	Specific target organ toxicity following repeated exposure	Category 1 (respiratory system)
Environmental hazards	Not classified.	

*Hazards not stated here are "Not classified", "Not applicable" or "Classification not possible".

Label elements

Symbols

Signal word Danger

Hazard statement May cause an allergic skin reaction. Causes eye irritation. Causes damage to organs (respiratory system). Causes damage to organs (respiratory system) through prolonged or repeated exposure.

Precautionary statement

Prevention	Do not breathe mist/vapours. Wash 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.
Response	IF ON SKIN: Wash with plenty of 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: Call a POISON CENTRE/doctor. If skin irritation or rash occurs: Get medical advice/attention. If eye irritation persists: Get medical advice/attention. Take off contaminated clothing and wash it before reuse.
Storage	Store in a well-ventilated place. Store locked up.
Disposal	Dispose of contents/container in accordance with local/regional/national/international regulations.
Other hazards	None known.

3. Composition/information on ingredients

Substance or mixture Mixture

Chemical properties	CAS Number	Concentration (%)
Silver Powder	7440-22-4	70 - 80
Bisphenol F Type Epoxy Resin	9003-36-5	1 - 5
Epoxy resin	Trade Secret	5 - 10
Phenolic Hardener	Trade Secret	1 - 5
Ethylene dimethacrylate	97-90-5	5 - 10
1,4-Cyclohexanedimethanol diglycidyl ether	14228-73-0	1 - 5
Dicyandiamide	461-58-5	0.1 - 1
1,1-Di(t-butylperoxy)cyclohexane	3006-86-8	0.1 - 1

Composition comments * Regarding non-hazardous substances, CAS registration numbers are not listed legally.
Disclosure of composition information is based on the interpretation of the Regulation of Labeling and Hazard Communication of Hazardous Chemicals.
The range of Concentration is greater than or equal to the lower limit but less than the upper limit.

4. First aid measures

First aid measures for different exposure routes

Inhalation	Move to fresh air.
Skin contact	Remove contaminated clothing immediately and wash skin with soap and water. In case of eczema or other skin disorders: Seek medical attention and take along these instructions.
Eye contact	Immediately flush eyes with plenty of water for at least 15 minutes. Remove contact lenses, if present and easy to do. Continue rinsing. Get medical attention if irritation develops and persists.
Ingestion	Rinse mouth. Get medical attention if symptoms occur.
Most important symptoms and effects	Irritation of eyes. Exposed individuals may experience eye tearing, redness, and discomfort. Skin irritation. May cause an allergic skin reaction. Dermatitis. Rash. Prolonged exposure may cause chronic effects.
Personal protection for first-aid responders	First aid personnel must wear protective gloves/protective clothing/eye protection/face protection. IF exposed or concerned: Get medical advice/attention. Ensure that medical personnel are aware of the material(s) involved, and take precautions to protect themselves. Wash contaminated clothing before reuse.
Notes to physician	Provide general supportive measures and treat symptomatically. Symptoms may be delayed.

5. Fire-fighting measures

Extinguishing media	Water fog. Foam. Dry chemical powder. Carbon dioxide (CO2).
Extinguishing media to avoid	Do not use water jet as an extinguisher, as this will spread the fire.
Specific hazards during fire fighting	Development of hazardous combustion gases or vapours possible in the event of fire.
Special fire fighting procedures	Move containers from fire area if you can do so without risk.
Protection of fire-fighters	Wear suitable protective equipment. Use personal protective mask and fight fire from upwind, to avoid fumes upon combustion.
General fire hazards	No unusual fire or explosion hazards noted.
Specific methods	Use standard firefighting procedures and consider the hazards of other involved materials.

6. Accidental release measures

Personal precautions	Keep unnecessary personnel away. Keep people away from and upwind of spill/leak. Keep out of low areas. Wear appropriate protective equipment and clothing during clean-up. Do not breathe mist/vapours. Do not touch damaged containers or spilled material unless wearing appropriate protective clothing. Ensure adequate ventilation. Local authorities should be advised if significant spillages cannot be contained. For personal protection, see section 8 of the SDS.
Environmental precautions	Avoid discharge into drains, water courses or onto the ground.
Spill cleanup methods	Prevent entry into waterways, sewer, basements or confined areas. Large Spills: Stop the flow of material, if this is without risk. Dike the spilled material, where this is possible. Absorb in vermiculite, dry sand or earth and place into containers. Following product recovery, flush area with water. Small Spills: Wipe up with absorbent material (e.g. cloth, fleece). Clean surface thoroughly to remove residual contamination. Never return spills to original containers for re-use. For waste disposal, see section 13.

7. Handling and storage

Handling

Technical measures	No specific recommendations.
Local and general ventilation	Provide adequate ventilation.
Precautions	Do not breathe mist/vapours. Avoid contact with eyes, skin, and clothing. When using, do not eat, drink or smoke. Avoid discharge into drains, water courses or onto the ground.
Safe handling advice	Avoid prolonged exposure. Wash hands thoroughly after handling. Observe good industrial hygiene practices. Use personal protection recommended in Section 8 of the SDS.

Storage

Technical measures	No specific recommendations.
Suitable storage conditions	Store locked up. Keep container tightly closed. Store away from incompatible materials (see Section 10 of the SDS). Keep dry and cool below -15°C for quality.
Incompatible materials	For further information, please refer to section 10 of the SDS.
Safe packaging materials	Store in original tightly closed container.

8. Exposure controls/personal protection

Occupational exposure limits

OELs. (Standards on Workplace Atmosphere of Dangerous and Hazardous Materials)

Components	Type	Value	Form
Silver Powder (CAS 7440-22-4)	STEL	0.03 mg/m3	Dust and fume.

OELs. (Standards on Workplace Atmosphere of Dangerous and Hazardous Materials)

Components	Type	Value	Form
	TWA	0.01 mg/m3	Dust and fume.

Exposure limits

US. ACGIH Threshold Limit Values

Components	Type	Value	Form
Silver Powder (CAS 7440-22-4)	TWA	0.1 mg/m3	Dust and fume.

Biological limit values No biological exposure limits noted for the ingredient(s).

Appropriate engineering controls Good general ventilation should be used. Ventilation rates should be matched to conditions. If applicable, use process enclosures, local exhaust ventilation, or other engineering controls to maintain airborne levels below recommended exposure limits. If exposure limits have not been established, maintain airborne levels to an acceptable level. Provide eyewash station.

Individual protection measures, such as personal protective equipment

Eye/face protection Wear safety glasses with side shields (or goggles).

Skin protection

Hand protection Wear appropriate chemical resistant gloves.

Other Wear appropriate chemical resistant clothing.

Respiratory protection Use chemical cartridge protection with appropriate cartridge.

Thermal hazards Wear appropriate thermal protective clothing, when necessary.

General hygiene considerations Always observe good personal hygiene measures, such as washing after handling the material and before eating, drinking, and/or smoking. Routinely wash work clothing and protective equipment to remove contaminants. Contaminated work clothing should not be allowed out of the workplace.

9. Physical and chemical properties

Appearance

Physical state Liquid.

Form Paste.

Colour Silver.

Odour Very faint.

Odour threshold Not available.

Melting point/freezing point Not available.

pH Not available.

Boiling point, initial boiling point, and boiling range Not available.

Flammability (solid, gas) Not applicable.

Flash point Not available.

Decomposition temperature Not available.

Auto-ignition temperature Not available.

Upper/lower flammability or explosive limits

Flammability limit - lower (%) Not available.

Flammability limit - upper (%) Not available.

Explosive limit - lower (%) Not available.

Explosive limit – upper (%) Not available.

Vapour pressure	Not available.
Vapour density	Not available.
Density	Not available.
Solubility(ies)	
Solubility (water)	Not available.
Partition coefficient (n-octanol/water)	Not available.
Evaporation rate	Not available.
Other data	
Explosive properties	Not explosive.
Oxidising properties	Not oxidising.
Specific gravity	3.0 - 4.0 3.0 - 4.0

10. Stability and reactivity

Reactivity	The product is stable and non-reactive under normal conditions of use, storage and transport.
Stability	Stable under recommended storage conditions.
Possibility of hazardous reactions	No dangerous reaction known under conditions of normal use.
Conditions to avoid	Contact with incompatible materials. Keep away from heat, moisture and sunlight for quality.
Incompatible materials	Strong oxidising agents. Strong acids, alkalies and oxidizing agents.
Hazardous decomposition products	No hazardous decomposition products are known.

11. Toxicological information

Information on likely routes of exposure

Inhalation	May cause damage to organs by inhalation. Prolonged inhalation may be harmful.
Skin contact	May cause an allergic skin reaction.
Eye contact	Causes eye irritation.
Ingestion	Expected to be a low ingestion hazard.
Symptoms	Irritation of eyes. Exposed individuals may experience eye tearing, redness, and discomfort. Skin irritation. May cause an allergic skin reaction. Dermatitis. Rash.

Information on toxicological effects

Acute toxicity

Components	Species	Test Results
Silver Powder (CAS 7440-22-4)		
Acute		
Dermal		
LD50	Rat	> 2000 mg/kg *
Oral		
LD50	Rat	> 5000 mg/kg *

Routes of exposure	Inhalation. Skin contact. Eye contact.
Serious eye damage/eye irritation	Causes eye irritation.

Respiratory or skin sensitisation

Respiratory sensitisation	Not available.
Skin sensitisation	May cause an allergic skin reaction.
Germ cell mutagenicity	Not available.
Carcinogenicity	Not available.
Reproductive toxicity	This product is not expected to cause reproductive or developmental effects.

Specific target organ toxicity - single exposure	Causes damage to organs (respiratory system).
Specific target organ toxicity - repeated exposure	Causes damage to organs (respiratory system) through prolonged or repeated exposure.
Aspiration hazard	Not available.
Chronic toxicity or long-term toxicity	Prolonged inhalation may be harmful. Causes damage to organs through prolonged or repeated exposure.

12. Ecological information

Ecotoxicity The product is not classified as environmentally hazardous. However, this does not exclude the possibility that large or frequent spills can have a harmful or damaging effect on the environment.

Components		Species	Test Results
Silver Powder (CAS 7440-22-4)			
Aquatic			
Fish	LC50	Fathead minnow	0.0019 - 0.003 mg/l, 96 hours

Persistence and degradability	No data is available on the degradability of any ingredients in the mixture.
Bioaccumulation	Not available.
Mobility in soil	No data available for this product.
Other hazardous effects	No other adverse environmental effects (e.g. ozone depletion, photochemical ozone creation potential, endocrine disruption, global warming potential) are expected from this component.

13. Disposal considerations

Disposal instructions	Collect and reclaim or dispose in sealed containers at licensed waste disposal site.
Disposal considerations	
Residual waste	Dispose in accordance with local regulations.
Contaminated packaging	Empty containers should be taken to an approved waste handling site for recycling or disposal.
Local disposal regulations	Collect and reclaim or dispose in sealed containers at licensed waste disposal site.

14. Transport information

IATA

Not regulated as dangerous goods.

IMDG

Not regulated as dangerous goods.

Specific precautions Keep cool below -15°C. Keep containers tightly closed. And avoid leaks, spills or collapse of cargo to avoid damage to containers.

15. Regulatory information

Applicable regulations This safety data sheet was prepared in accordance with the Rules on Hazardous Communication of Dangerous Materials and Toxic Materials. All components are on the Taiwan's existing chemicals inventory list.

Methods and Facilities Standards for the Storage, Clearance and Disposal of Industrial Waste

Not listed.

Standards of Permissible Exposure Limits of Airborne Hazardous Substances in Workplace

Silver Powder (CAS 7440-22-4) Listed.

Hazardous Substances and Flammable Pressurized Gases Establishment Standards and Safety Control Regulations

1,1-Di(t-butylperoxy)cyclohexane (CAS 3006-86-8) Class 5: Self-reactive substances and mixtures, Organic peroxides

GHS Classification List: GHS implementation phase 1, 2 and 3 (CLA No. 0980145063, 0990146707, and 1020146801)

1,1-Di(t-butylperoxy)cyclohexane (CAS 3006-86-8) TRADE SECRET INGREDIENT(S)
Ethylene dimethacrylate (CAS 97-90-5) TRADE SECRET INGREDIENT(S)

Silver Powder (CAS 7440-22-4) SILVER

Taiwan Controlled Chemical

Not listed.

Priority Management Chemical List (Regulations on Handling Priority Managed Chemicals), as amended

1,1-Di(t-butylperoxy)cyclohexane (CAS 3006-86-8) Listed.
1,4-Cyclohexanedimethanol diglycidyl ether (CAS 14228-73-0) Listed.

Regulation of Labeling and Hazard Communication of Dangerous and Toxic Substances: Dangerous Materials Classification

Not listed.

Regulation of Labeling and Hazard Communication of Dangerous and Toxic Substances: Toxic Materials Classification

Not listed.

International regulations

Stockholm Convention

Not applicable.

Rotterdam Convention

Not applicable.

Montreal Protocol

Not applicable.

Kyoto Protocol

Not applicable.

Basel Convention

Dicyandiamide (CAS 461-58-5)

16. Other information

References

•ACGIH (2017)
•EPA: AQUIRE database
•NLM: Hazardous Substances Data Base
HSDB® - Hazardous Substances Data Bank
•IARC (vol. 1~117)
•Taiwan. Dangerous Materials (Rules on Hazard Communication of Dangerous Materials and Toxic Materials)
•Taiwan. OELs. (Standards of Permissible Exposure Limits of Airborne Hazardous Substances in Workplace)
•Taiwan. Toxic Chemical Substances (TCS) (List of Toxic Chemical Substances announced by the Environmental Protection Administration)
•Taiwan. CNS15030 Z1051: Classification and Labeling of Chemicals
•UN. Globally Harmonized System of Classification and Labelling of Chemicals (GHS) ST/SG/AC.10/30/Rev.4
•Japan. GHS Classifications of Regulated Chemicals (NITE)

Disclaimer

SUMITOMO BAKELITE CO., LTD. cannot anticipate all conditions under which this information and its product, or the products of other manufacturers in combination with its product, may be used. It is the user's responsibility to ensure safe conditions for handling, storage and disposal of the product, and to assume liability for loss, injury, damage or expense due to improper use.

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