

SAFETY DATA SHEET

PRODUCT NAME : "SUMIRESIN EXCEL" CRM-1076NS
MSDS NO. : MSDS-CRM-671
DATE PREPARED : Aug.31,2004 according to 2001/58/EC

1.PRODUCT AND COMPANY IDENTIFICATION

PRODUCT NAME: "SUMIRESIN EXCEL" CRM-1076NS
CHEMICAL NATURE: Preparation. Epoxy Silver Paste
MANUFACTURER: SUMITOMO BAKELITE CO., LTD.
Tennoz Parkside Bldg., 5-8, Higashi-Shinagawa 2-chome, Shinagawa-ku,
Tokyo 140-0002, Japan Phone: 81-3-5462-4267
SUPPLIER: SUMITOMO BAKELITE CO., LTD.
Tennoz Parkside Bldg., 5-8, Higashi-Shinagawa 2-chome, Shinagawa-ku,
Tokyo 140-0002, Japan Phone: 81-3-5462-4267

EMERGENCY ASSISTANCE : (Please contact any of following sales offices)

| NAME & EMERGENCY PHONE NUMBER | ADDRESS |
|--|--|
| Sumitomo Plastics America, Inc. Phone: 408-243-8402 (USA) | 900 Lafayette Street, SUITE #510 Santa Clara, CA 95050 |
| Sumitomo Bakelite Singapore Pte, Ltd. Phone: 65-755-5550 (Singapore) | 1 Senoko South Road, Singapore 758069 |
| Sumitomo Bakelite Europe (Barcelona), S.L. Phone 34-93-579-9050 (Spain) | Antonio Machado 2-4, 08170 Montornes del valles Barcelona |
| n.v. Sumitomo Bakelite Europe s.a. Phone 32-89-320-304 (Belgium) | Henry Ford Laan 80 3600 Genk |
| CHEMTREC Phone: 800-424-9300 (USA) | 24 hours everyday |

2.COMPOSITION / INFORMATION ON INGREDIENTS

| COMPONENT | CAS No. | by weight (%) |
|---------------|------------|---------------|
| Silver | 7440-22-4 | 75-85 |
| Epoxy resin | 9003-36-5 | 7-15 |
| Diluent | 26447-14-3 | 2-10 |
| Dicyandiamide | 461-58-5 | <1 |
| Hardener | 620-92-8 | 1-6 |

Labeling according to EC directives:

Hazardous components: none
Hazard symbol: No symbol and risk phrases are required.
Risk phrases: none
Safety phrase: none

3.HAZARDS IDENTIFICATION

*** EMERGENCY OVERVIEW ***

Silver gray paste and slightly odor. Repeated contact may cause skin irritation and sensitization.
Can burn in fire but not ordinarily an emergency problem. Epoxy resin is substrates known to
be positive by Ames test. Foam, carbon dioxide and dry chemicals can be used on fires.

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POTENTIAL HEALTH EFFECTS

EYE : May cause irritating to eyes.
SKIN : May cause sensitization by skin contact.
INGESTION : Small amounts (teaspoonful) swallowed during normal handling operations are not likely to cause injury; swallowing amounts larger than that may cause injury.
INHALATION : Heated product may produce generate vapors. May be harmful for respiratory tract if inhaled.

4.FIRST-AID MEASURES

INHALATION : Immediately remove to the victim from the contamination to fresh air.
SKIN CONTACT : Wash off thoroughly the affected areas under flowing water or shower with soap. If irritation occurs, get medical attention.
EYE CONTACT : Immediately flush eyes with large amounts of water for at 15 minutes. Get medical attention.
INGESTION : Do not induce vomitting. Rinse mouth with plenty of water and immediately give the victim milk or water. Get medical advice.
NOTE TO PHYSICIANS :
Treat symptomatically. Treatment may vary with condition of victim and specifics of incident.

5.FIRE-FIGHTING MEASURES

EXTINGUISHING MEDIA :
Use foam, carbon dioxide or dry chemicals
PROTECTION OF FIREFIGHTERS :
Wear full bunker gear inducing positive self-contained breathing apparatus in any closed space.

6.ACCIDENTAL RELEASE MEASURES

PERSONAL PRECAUTION :
Use personal protective equipments.
ENVIRONMENTAL PRECAUTIONS :
Do not flush into surface water or sanitary sewer system.
METHODS FOR CLEANING UP :
Ventilate spilled area. Remove all sources. Take up with absorbent, inert material (e.g. paper towel, sand) with suitable protective equipment and place in suitable, closed impervious container.

7.HANDLING AND STORAGE

HANDLING:
Use with adequate ventilation. Keep away from heat, sparks and open flames. Avoid contact with eyes and skin, and avoid breathing of vapor if generated. Practice good personal hygiene after using this material, especially before eating, drinking smoking or using the toilet.
STORAGE :
Keep container tightly closed in a below -15 degC, well-ventilated dark place for quality separate from strong oxidents, and protect from direct sunlight.

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8.EXPOSURE CONTROLS/PERSONAL PROTECTION

EXPOSURE LIMITS :

| COMPONENT | EXPOSURE GUIDELINES(mg/m ³) | |
|---------------|---|------------|
| | ACGIH(TLV-TWA) | OSHA(PEL) |
| Silver | 0.1(respirable) | 0.01 |
| Epoxy resin | Not listed | Not listed |
| Diluent | Not listed | Not listed |
| Dicyandiamide | Not listed | Not listed |
| Hardener | Not listed | Not listed |

ENGINEERING MEASURES :

Provide general and/or local exhaust ventilation to control airborne levels below the exposure guidelines. Good general ventilation should be sufficient for most conditions. When processing at elevated temperature, provide local exhaust ventilation.

PERSONAL PROTECTIVE EQUIPMENTS :

- Respiratory protection - Wear an approved respirator to protect from vapors or fume.
- Hand protection - Chemical-resistant gloves.
- Eye protection - Chemical splash goggles or safety glass with side-shields.
- Skin & body protection - Clean clothing, long sleeves, apron, full-face cover or legs-covering clothing as appropriate.

9.PHYSICAL AND CHEMICAL PROPERTIES

- APPEARANCE : Silver gray paste with slightly odor.
- pH : No information available.
- BOILING POINT : 252 degC (as Diluent)
- DECOMPOSITION TEMPERATURE : No information available.
- FLASH POINT : No information available.
- AUTOIGNITION TEMPERATURE : Not applicable.
- EXPLOSION PROPERTIES : Not applicable.
- VAPOR PRESSURE : No information available.
- VAPOR DENSITY : 5.7 (Air=1, as Diluent)
- DENSITY : 3.8-4.2
- SOLUBILITY : Negligible.

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10. STABILITY AND REACTIVITY

STABILITY : Stable under recommended storage conditions.

CONDITIONS TO AVOID :

Keep away from heat, open flame, sparks and sunlight for quality.

MATERIALS TO AVOID :

Organic amines, acid anhydride, strong alkali and oxidizing agents.
Oxidizing agents or base.

HAZARDOUS DECOMPOSITION PRODUCTS :

Mainly: Carbon oxide
Slightly: Carbon monoxide, various hydrocarbons, chlorine compounds,
oxides of nitrogen and siloxane compounds.
(over 400 degC)

11. TOXICOLOGICAL INFORMATION

| | | | |
|------------------|------------------|---------------|--------------|
| ACUTE TOXICITY : | Epoxy resin ---- | orl-rat LD50: | >2,000 mg/kg |
| | Diluent ---- | orl-rat LD50: | 5,140 mg/kg |
| | Dicyandiamide--- | orl-rat LD50 | 10.5~20 g/kg |
| | Hardener --- | orl-rat LD50: | 4,950 mg/kg |

LOCAL EFFECTS : Irritating to eyes and skin.

SENSITIZATION : May cause sensitization by skin contact.

CHRONIC TOXICITY: Potential carcinogen

IARC : Not listed

NTP : Not listed

OSHA : Not regulated

12. ECOLOGICAL INFORMATION

MOBILITY : No data is available on the product itself.

ECOTOXICITY : Toxic to aquatic organisms, may cause long-term adverse effects in the aquatic environment.

13. DISPOSAL CONSIDERATION

WASTE FROM RESIDUES :

Can burn in a chemical incinerator equipped with an afterburner and scrubber in compliance with government or local disposal regulations, also contaminated packagings do so.

14. TRANSPORT INFORMATION

Not a hazardous material for D.O.T. (Department Of Transportation) shipping.

Not dangerous by any mode of international transport.

UN No. : None assigned.

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15.REGULATORY INFORMATION

TSCA(TOXIC SUBSTANCES CONTROL LAW) :

The ingredients of this product are all on the 8(b) inventory list.

EINECS(EUROPEAN INVENTORY OF EXISTING COMMERCIAL CHEMICAL SUBSTANCES)

This product complies with the provisions of the European Inventory.

| | | |
|------------|----------------|-----------|
| EINECS No. | Silver: | 231-131-3 |
| | Diluent: | 247-711-4 |
| | Dicyandiamide: | 207-312-8 |
| | Hardener: | 210-658-2 |
| NLP No. | Epoxy resin A: | 500-006-8 |

Labeling according to EC Directives:

Hazard symbol : No symbol and risk phrases are required.
Risk phrases : none
Safety phrases : none

WHMIS(Workplace Hazardous Materials Information System):

Class= Silver(CAS#:7440-22-4) is listed on Canada's Ingredient Disclosure List.
But all except Silver are not listed on this list.
Health=2, Flammability=1, Reactivity=0

16.OTHER INFORMATION

DISCLAIMER: The information presented herein was prepared for your reference to be best of our knowledge. It is given in good faith but no warranty expressed or implied is made.

DATA PREPARED BY: SUMITOMO BAKELITE CO., LTD.
QA DEPARTMENT, UTSUNOMIYA PLANT