SIPR-7126M-20

ShinEtsuMicroSi

MATERIAL SAFETY DATA SHEET

This MSDS is compatible with ISO 11014 – 1:2002 and conforms to ANSI standard Z400.1 – 2004.

SAFETY DATA SHEET

This SDS complies with REACH 1907/2006 and 2001/58/EC

Section 1: Chemical Product and Company Identification

CHEMICAL SUPPLIER COMPANY NAME
Shin-Etsu MicroSi, Inc.
10028 South 51st Street
Phoenix, AZ 85044
Safety Data Sheet Competent Person:

EMERGENCY TELEPHONE
Chemtrec 24 hrs: (800) 424-9300
Information: (480) 893-8898
Fax. (480) 893-8637
Customer Service csteam@microsi.com

MANUFACTURER'S NAME: Shin-Etsu Chemical Co., Ltd.
ADDRESS: 6-1, 2-Chome, Ohtemachi, Chiyodaku, Tokyo, 100-0004, Japan
TELEPHONE NUMBER: 81-3-3246-5345 Tokyo, Japan
81-255-45-5811 Niigata, Japan
31-20-662-1359 Shin Etsu International Europe B.V., Amsterdam, The Netherlands

DATE PREPARED: January 16, 2007 **DATE REVIEWED: June 24, 2008**

PRODUCT NAMES: **SIPR-7126M-20**
CHEMICAL NAME: Resist Component
CHEMICAL FAMILY: Modified Silicone Resin Solution
FORMULA: Mixture
PRODUCT USE: This product is limited to use as a Photoresist in semiconductor photomicrolithography.

Section 2: Hazards Identification

HAZARD CLASSIFICATION: Flammable Liquid (based on IMO and DOT)
FIRE AND EXPLOSION: Flammable and Explosive Hazard

NFPA RATINGS:

Component	Health (Blue)	Flammability (Red)	Reactivity (Yellow)	Special (White)
Propyleneglycolmono-methyletheracetate (PGMEA)	1	2	0	--
Cyclopentanone	2	3	0	--

POTENTIAL HEALTH EFFECTS

INGESTION: Large oral doses may produce gastro-intestinal disturbances. Material is moderately toxic.

INHALATION: Causes irritation to the respiratory tract. Symptoms may include coughing, shortness of breath. High concentrations have a narcotic effect. Can cause dizziness and lightheadedness. May cause central nervous system depression and unconsciousness.

SKIN CONTACT: May cause skin irritation, prolonged skin contact may cause dermatitis.

EYE CONTACT: Causes severe eye irritation.

Section 3: Composition, Information on Ingredients

PRODUCT COMPOSITION	APPROX %	ACGIH TLV	OSHA PEL	NIOSH REL	CAS NO.	EINECS	DANGER SYMBOL	R-RISK PHRASE	DSL
Propyleneglycolmono-methyletheracetate (PGMEA)	>30	-----	-----	-----	108-65-6	203-603-9	Xi	R: 10, 36	Y
Cyclopentanone	<15	-----	-----	-----	120-92-3	204-435-9	Xi	R: 10-36/38	Y
PolyHydroxyStyrene derivatives	<40	-----	-----	-----	-----	Y/Y	-----	-----	Y
Additive 2	<5	-----	-----	-----	-----	Y/Y	-----	-----	Y
Additive 4	<10	-----	-----	-----	-----	N/N	-----	-----	Y

Some items on this MSDS may be designated as trade secrets (TS). Bona fide requests for disclosure of trade secret information to medical personnel must be made in accordance with the provisions contained in 29 CFR 1910.1200 I 1-13.
The Full List for all R phrases is shown in Section 16.

Section 4: First Aid Measures

INHALATION: Remove to fresh air. If not breathing, provide CPR (cardio pulmonary resuscitation) get immediate medical attention.

SKIN CONTACT: Immediately flush skin with plenty of soap and water for at least 15 minutes. Remove contaminated clothing.

EYE CONTACT: Immediately flush eyes with plenty of water for at least 15 minutes. Get medical attention if irritation persists.

INGESTION: If swallowed do not induce vomiting, give large quantities of water to drink. Never give anything to an unconscious person. Get immediate medical attention.

Section 5: Fire-fighting Measures

FLASH POINT: 30°C, 86°F (Closed-Cup Method) [Mixture]
FLAMMABLE LIMITS IN AIR (% by vol): Lower: 1.5%, Upper: 7.0%, [PGMEA]
EXTINGUISHING MEDIA: Foam, Dry Chemical, or Carbon Dioxide

SPECIAL FIREFIGHTING PROCEDURES:

Product is flammable due to solvent content. Wear supplied breathing air and other protective equipment. Work from the upwind side of the fire. Use suitable extinguishing agents. If possible, move the container to a safe area. If it cannot be removed from fire danger, protect it from destruction then cool container and vicinity by spraying with water. If ignited and it cannot be extinguished easily, evacuate the area and call your emergency responders.

UNUSUAL FIRE AND EXPLOSION HAZARDS:

Solvent vapors may create explosive mixtures with air. Vapors can travel a considerable distance to source of ignition and flash back. Prevent build-up of explosive atmospheres by using adequate ventilation. Disperse explosive vapor mixtures by ventilating with air. Under fire conditions, may emit corrosive Nitrogen Oxide vapors and other toxic fumes. [PGMEA]

Section 6: Accidental Release Measures

ACTION TO BE TAKEN IF MATERIAL IS RELEASED OR SPILLED:

Wear proper protective equipment as specified in the protective equipment section.
Warn other workers of spill.
In case of small spills, absorb with inert materials such as earth or dry sand. Place in a chemical waste container.
In case of large spills, dike the spill, if possible. Call emergency services. Absorb the chemical. Place in a chemical waste container.
Eliminate all sources of ignition and ventilate area.
Prevent spills or contaminated rinse water from entering sewers or watercourses.

DISPOSAL METHOD:

Disposal of this container: Reference Section 13 of this MSDS.

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Section 7: Handling and Storage

PRECAUTIONS TO BE TAKEN IN HANDLING AND STORAGE:

Store upright in a cool, dry place.
Keep container closed when not in use.
Prevent build-up of electro-static charges (e.g. by grounding).
Keep away from heat, sparks, flame, direct sunlight and other possible sources of ignition.
Do not store with peroxides and oxidizing materials.
Use only with adequate ventilation.
Do not inhale vapors.
Avoid spilling and releasing vapor.
Wear proper protective equipment when handling this material.
Avoid contact with skin, eyes or clothing.
Wash hands and face after handling this material.
Keep out of reach of children.
Follow all applicable local regulations for handling and storage.
Utilize chemical segregation.

INFORMATION ON EMPTIED CONTAINER

Dispose of this container according to local, state, and federal laws in your country.
Do not reuse this container. This container may be hazardous when emptied.
Residues will be explosive or flammable.
Do not puncture or cut this container.
Do not weld on or near this container.

SPECIFIC USES:

This product is intended for use in Semiconductor photolithography processes.

Section 8: Exposure Controls/Personal Protection

VENTILATION:	Always provide good general, mechanical room ventilation where this chemical is used.
SPECIAL VENTILATION CONTROLS:	Use this material inside totally enclosed equipment, or use it with local exhaust ventilation at points where vapors can be released into the workspace air.
RESPIRATORY PROTECTION:	Use NIOSH approved air-purifying respirator equipped with organic vapor cartridge if required by your process.
PROTECTIVE GLOVES:	Wear chemical impervious gloves at all times while working with this product. Recommended glove types include: Laminate Film, Nitrile, or Tri-polymer. Check with your company's glove supplier to ensure chemical resistance.
EYE PROTECTION:	Safety Glasses, Chemical goggles, face shield
PROTECTIVE CLOTHING:	Wear suitable protective clothing to prevent skin contact. Use of anti-static type aprons is recommended.
OTHER EQUIPMENT:	Make safety shower, eyewash stations, and hand washing equipment available in the work area.
WORK/HYGIENE PRACTICES:	Avoid breathing vapor. Avoid contact with eyes. Wash hands and face after handling.

Section 9: Physical and Chemical Properties

APPEARANCE - COLOR:	Brown Transparent
PHYSICAL STATE:	Liquid
ODOR:	Solvent Odor

	Propylene Glycol mono methyl ether acetate (PGMEA)	Cyclopentanone
Boiling point	146 °C	130-131 °C 266.9°F
Melting point	-80 °C	-51 °C 59.8°F
Vapor Pressure	5.07 hpa (@25 °C)	1.3 hpa (@20 °C)
Vapor Density (air=1)	4.6	2.3
Solubility in water:	18.5g/100g at 20 °C	15g/100g at 20 °C
Water solubility in the solvent	5.6 g/100g at 20 °C	

	PRODUCT CRITERIA
PH	Not Available for product
FLASH POINT:	47 °C, 116.6°F
FLAMMABILITY (Solid, gas)	Not Available for product
EXPLOSIVE PROPERTIES	Not Available for product
OXIDIZING PROPERTIES	Not Available for product
SPECIFIC GRAVITY (@25°C):	1.02
EVAPORATION RATE (BUTYL ACETATE = 1):	<1
% VOLATILE by VOLUME	Not Available for product
PARTITION COEFFICIENT	Not Available for product
BOILING POINT:	130 - 131°C
MELTING POINT:	Not Available for product
VAPOR PRESSURE	1.3 KpA (20°C)
VAPOR DENSITY (AIR = 1)	4.6
SOLUBILITY IN WATER:	Not Soluble
WATER SOLUBILITY IN THE SOLVENT	Not Available for product
FREEZING POINT:	Not Available for product
VISCOSITY	Not Available for product

Section 10: Stability and Reactivity

STABILITY: UV unstable and decompose in UV light.

CONDITIONS TO AVOID: Heating, direct sunshine and contact with acids, metallic oxides, amines or combustible materials.

INCOMPATIBILITY (MATERIALS TO AVOID): Acids, metallic oxides, amines, combustible materials.

HAZARDOUS DECOMPOSITION PRODUCTS: Decomposition products include carbon monoxide, carbon dioxide, and fumes of aromatic and aliphatic hydrocarbons.

HAZARDOUS POLYMERIZATION: Will not occur under normal temperatures and pressures.

Section 11: Toxicological Information

There is no toxicological information available for the product mixture.

GHS Required Criteria	Toxicity Criteria	Toxicity Information	Comments	Chemical Constituent
Acute Toxicity	LD50 (Oral/Rat):	8532 mg/kg		PGMEA
	LD50 (Abdominal Cavity/Mouse):	750 mg/kg		PGMEA
	LD50 (Dermal/Rabbit):	>5 g/kg		PGMEA
	LD50 (Inhalation/Rat):	>4350 ppm		PGMEA
	LD50 (Intraperitoneal/Mouse):	1950 mg/kg		CycloPentanone
	LC50 (Inhalation/Rat) :	>19500 mg /m3		CycloPentanone
	LD50 (Intraperitoneal/Mouse):	2590 mg/kg		Additive 4
Skin Corrosion/Irritation	SKIN-RABBIT	500mg	MILD	CycloPentanone
Serious Eye Damage / Eye Irritation	EYE-RABBIT:	No information is available		PGMEA
	EYE-HUMAN:	No information is available		PGMEA
	EYE-RABBIT	100mg	SEVERE	CycloPentanone
	EYE-Human	No information is available	Irritant	CycloPentanone
Respiratory or Skin Sensitization	SKIN-RABBIT:	No information is available		PGMEA
	SKIN-HUMAN	No information is available		PGMEA
Germ Cell Mutagenicity		No information is available		
Carcinogenicity	IARC	Not listed		
	NTP	Not listed		
	OSHA	Not listed		
Reproductive Toxicity		No information is available		
STOST -- Single Exposure		No information is available		
STOST – Repeated Exposure		No information is available		
Aspiration Hazard		No information is available		

STOST = Specific Target Organ Systemic Toxicity

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OTHER DATA:

PGMEA

OEL-AUSTRIA: MAK 20 ppm (110 mg/m3), JAN1999
OEL-DENMARK: TWA 20 ppm (110 mg/m3), JAN1999
OEL-GERMANY: MAK 20 ppm (110 mg/m3), JAN1999
OEL-AUSTRIA: MAK 50 ppm (275 mg/m3), JAN1999
OEL-DENMARK: TWA 50 ppm (270 mg/m3), JAN1999
OEL-SWEDEN: NGV 50 ppm (230 mg/m3), KTV 75 ppm (350 mg/m3, Skin, JAN1999
OEL-UNITED KINGDOM: TWA 50 ppm (274 mg/m3), STEL 150 ppm (822 mg/m3), SEP2000
OEL-THE NETHERLANDS: MAC-TGG 550 mg/m3, 2003

Section 12: Ecological Information

		Chemical
BIODEGRADATION:	Biodegradation under aerobic static laboratory conditions is high (BOD20 OR BOD28/THOD IS GREATER THAN 40%) 10-day biological oxygen chemical demand is 1.04 P/P. 20-day biochemical oxygen demand is 1.12 P/P.	PGMEA
BIOACCUMULATION:	No information is available.	PGMEA
ECO TOXICITY:	Acute LC50 for Fathead Minnow (Pimephales Promelas) is 161 mg/l	PGMEA
	Acute LC50 for Water Flea (Daphnia Magna) is 408 mg/l to >500 mg/l	PGMEA
	Acute LC50 for Rainbow trout (Oncorhynchus Mykiss) is 100-180 mg/l	PGMEA
MOBILITY:	No information is available.	

Section 13: Disposal Considerations

WASTE FROM RESIDUES / UNUSED PRODUCTS:
Waste material should be disposed of by using incineration. The incineration temperature should meet or exceed 1250°C (2282°F) for a minimum residence time of 2 seconds.

CONTAMINATED PACKAGING:
Contaminated packaging material should be disposed of by incineration as stated above for residues and unused product.

RINSATE: Do not dispose of rinse water containing product in a sanitary sewer system, stormwater drainage system, or wastewater treatment system. Rinsate should be disposed of by incineration as stated above for residues and unused product.

Section 14: Transport Information

ROAD TRANSPORT:
ADR = International Carriage of Dangerous Goods by Road

UN NUMBER:	UN 1866
DOT PROPER SHIPPING NAME	RESIN SOLUTION (CONTAINS Propylene Glycol Mono Methyl Ether Acetate)
DOT / ADR HAZARD CLASS:	Flammable
DOT / ADR LABELS:	Class 3
PLACARD:	Flammable, Class 3
DOT / ADR PACKAGING GROUP:	III
HAZARD NUMBER – ADR:	UN1866
ADR PROPER SHIPPING NAME:	RESIN SOLUTION (CONTAINS Propylene Glycol Mono Methyl Ether Acetate)
EPA HAZARDOUS WASTE CLASS:	D001
MARINE POLLUTANT:	None

DOT REPORTABLE QUANTITY (49 CFR 172.101, APP.) and CERCLA REPORTABLE QUANTITY (40 CFR PART 302, TABLE 302.4) HAZARDOUS SUBSTANCE(S) NAME / (CAS NO.), CONTENT(S) AND RQ: D001 (Ignitable = 100 lbs)

RAIL TRANSPORT: RID	FLAMMABLE
CLASS No.:	
RID PACKING GROUP:	

SEA TRANSPORT: IMDG	FLAMMABLE
PROPER SHIPPING NAME	RESIN SOLUTION (CONTAINS Propylene Glycol Mono Methyl Ether Acetate)
UN NUMBER SEA	UN 1866
CLASS:	3
PACKING GROUP:	III
EmS No.:	F-E, S-E
MARINE POLLUTANT:	No
SEA TRANSPORT NOTES:	

AIR TRANSPORT: IATA/ICAO

UN NUMBER:	UN1866
PROPER SHIPPING NAME	RESIN SOLUTION (CONTAINS Propylene Glycol MonoMethyl Ether Acetate)
HAZARD CLASS:	3
PACKAGING GROUP:	III

Section 15: Regulatory Information

LABEL FOR SUPPLY:

IRRITANT

RISK PHRASES:

R: 10	Flammable
R: 36/38	Irritant to eyes and skin
S: (2-)	Keep out of the reach of children.
S: 25	Avoid contact with eyes
S: 23	Do not breath gas/fumes/vapor/spray

TOXIC SUBSTANCES CONTROL ACT (TSCA) STATUS:

This product is in compliance with rules, regulations, and/or orders of TSCA and should be used in accordance with the LVE (low volume exemptions) regulations of TSCA.

SUPERFUND AMENDMENTS AND REAUTHORIZATION ACT OF 1986 (SARA) TITLE III SECTION 313 SUPPLIER NOTIFICATION:

This regulation requires submission of annual reports of toxic chemical(s) that appear in section 313 of the Emergency Planning and Community Right To Know Act of 1986 and 40 CFR 372. This information must be included in all MSDS's that are copied and distributed for the material.

The toxic chemicals contained in this product are: None

CANADA: This MSDS/SDS will be non compliant 3 years after the issue date.

WHMIS-INFORMATION:

The chemical components of this product are in compliance with the WHMIS regulations.

This product has been classified in accordance with the hazard criteria of the Controlled Products Regulations (CPR) and the MSDS contains all of the information required by the CPR.

CALIFORNIA PROPOSITION 65:

This regulation requires a warning for California Proposition 65 chemical(s) under the statute.
The California proposition 65 chemical(s) contained in this product are: None

STATE TOXIC SUBSTANCE OR HAZARDOUS SUBSTANCE LIST (State Right-to-Know):

Florida Toxic Substance(s):	None
Massachusetts hazardous substance:	Cyclopentanone
Pennsylvania hazardous substance:	Cyclopentanone
New Jersey	Cyclopentanone.
Illinois:	None

EUROPEAN UNION:

This product has been reviewed for compliance with the following European Community Directives: REACH 1907/2006; Directive 67/548/EEC, Directive 2001/59/EC, Directive 91/155/EC, and Directive 2001/58/EC.

WGK:	0
EINECS:	European Inventory of Existing Commercial Chemical Products.
ELINCS:	European List of Notified Chemical Substances

WEEE CERTIFICATION: Waste Electrical and Electronic Equipment (WEEE), European Union Directive 2002/96/EC. Shin Etsu MicroSi does not consider SIPR-7126M-20 a product that qualifies as one of the 10 categories of electrical and electronic equipment listed in Annex 1A of Directive 2002/96/EC. Also, the products manufactured by Shin Etsu MicroSi do not intentionally contain any of the regulated substances, preparations, or components listed in Annex II of Directive 2002/96/EC. This certification is valid only for this product: SIPR-7126M-20. Packaging materials were not considered for this certification.

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RoHS CERTIFICATION: The Restriction of Hazardous Substances in Electrical and Electronic Equipment (RoHS), EU Directive (2002/95/EC). We hereby certify that the hazardous substances regulated by the RoHS Directive 2002/95/EC are not used intentionally as ingredient(s) for SIPR-7126M-20 which is manufactured by Shin-Etsu Chemical Co. Ltd. This certification is valid only for this product, SIPR-7126M-20. Packaging materials were not considered for this certification.

Section 16: Other Information

Full Text:
European Community Hazards Identification:

R: 10	Flammable
R: 36	Irritating to the eyes
R: 36/38	Irritant to eyes and skin
S: (2-)	Keep out of the reach of children.
S: 25	Avoid contact with eyes
S: 23	Do not breath gas/fumes/vapor/spray

Danger Symbol(s):	Xi	Irritant
	F	Flammable
Revision Comments:	Updated from: January 16, 2007 to comply with REACH and GHS.	
Revision Number:	1	
Information Sources:	RTECS, REACH	

FOR INDUSTRIAL USE ONLY

THIS MATERIAL SAFETY DATA SHEET IS OFFERED SOLELY FOR YOUR INFORMATION, CONSIDERATION, AND INVESTIGATION. THE DATA DESCRIBED IN THIS MSDS CONSIST OF DATA ON LITERATURE, OUR ACQUISITIONAL DATA, AND ANALOGICAL INFERENCE BY DATA OF SIMILAR CHEMICAL SUBSTANCES OR PRODUCTS. SHIN-ETSU CHEMICAL CO. LTD. PROVIDES NO WARRANTIES, EITHER EXPRESSED OR IMPLIED, AND ASSUMES NO RESPONSIBILITY FOR THE ACCURACY OR COMPLETENESS OF THE DATA CONTAINED HEREIN.

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