



Ormet Circuits, Inc.

MATERIAL SAFETY DATA SHEET

I. MATERIAL IDENTIFICATION

Ormet® 800, 700, 500, 400, 200 series inks

MSDS NUMBER : 0053.rev2
Preparer : C.Shearer
Date Printed : 3/4/2008

MANUFACTURER/DISTRIBUTOR

Ormet Circuits, Inc.
10070 Willow Creek Road
San Diego, CA 92131

PHONE NUMBERS

PRODUCT INFORMATION : 858-831-0010
MEDICAL EMERGENCY : 858-831-0010

CHEMICAL FAMILY : Polymer thick film

TRADE NAMES / SYNONYMS : Electrically conductive paste

II. COMPONENTS

Hazardous Ingredient Carcinogens 0.1% or greater	1% or greater	CAS Number	WT %	OSHA PEL (ppm)	ACGIH TLV TWA (ppm)
Proprietary Epoxy Resin Mixture		25085-99-8	5-15	NE	NE
Copper		7440-50-8	30-70	25	50
Bismuth		7440-69-9	5-20	NE	0.2
Tin		7440-31-5	10-50	0.01	0.1
Silver		7440-22-4*	1-5	0.01	0.1
Butyl carbitol		112-34-5	0-5	NE	NE

*this chemical is subject to the reporting requirements of section 313 of Title III of the Superfund Amendment and Reauthorization Act (SARA) of 1986 and 40 CFR Par 372.

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III. PHYSICAL DATA

Boiling Point	: 232°C
Vapor Pressure	: 0.01 mm Hg at 20°C
Odor	: Mild
Form	: Paste
Color	: Orange/brown
Specific Gravity	: ~4.5 kg/Liter (water=1 at 25°C)
Flash Point	: 100°C
pH	: NE
Odor Threshold	: NE
Evaporation Rate	: 0.06 (butyl acetate=1)
Melting Point	: NA°F NA°C
Percent volatiles	: <5 by weight

IV. HAZARDOUS REACTIVITY

Instability	: Stable.
Incompatibility	: Strong acid, strong oxidizers.
Decomposition	: Constituents containing amines and oxides of nitrogen may yield upon overheating.
Polymerization	: Avoid polymerization of large volume of material. May react exothermically at elevated temperatures.

V. FIRE AND EXPLOSION DATA

FIRE AND EXPLOSION HAZARDS

Solid massive form of material is not combustible under ordinary fire conditions.

EXTINGUISHING MEDIA

CO₂; Dry chemical; Foam; Water

SPECIAL FIRE FIGHTING INSTRUCTIONS

Evacuate personnel to a safe area. Keep personnel removed and upwind of fire. Wear self-contained breathing apparatus. Wear full protective equipment. Hose with water from a distance to prevent splashing on personnel.

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VI. HEALTH HAZARD INFORMATION

EXPOSURE LIMITS Ingested LD (50): NE g/Kg Inhaled LC(50): NE g/Kg

CARCINOGEN

() NTP () OSHA (X) IARC () Not Listed

PRIMARY ROUTES OF ENTRY

(x) Skin (x) Eyes (x) Inhalation (x) Ingestion

TARGET ORGANS: Skin, eyes, mucous membranes and respiratory system.

EFFECTS OF ACUTE (severe short-term) EXPOSURE:

INHALATION: If vapors are generated, inhalation can result in irritation of mucous membranes and respiratory tract.

SKIN CONTACT: Moderately irritating. SKIN ABSORPTION: NA

EYE CONTACT: Irritation.

INGESTION: Gastrointestinal irritation.

EFFECTS OF CHRONIC (prolonged) EXPOSURE: Prolonged or repeated contact with skin may cause significant sensitization and injury. Inhalation may cause headache, nausea, dizziness and irritation or damage to respiratory tract and respiratory system.

Conditions that may be aggravated by exposure: Chemical hypersensitivity, asthma and other respiratory conditions. Pre-existing conditions or diseases of the blood and blood-forming organs, kidneys, nerves and possibly reproductive system.

VII. FIRST AID

INHALATION

If inhaled, immediately remove to fresh air. If not breathing, give artificial respiration. Call a physician.

SKIN CONTACT

In case of contact, immediately flush skin with plenty of water for at least 15 minutes while removing contaminated clothing and shoes. Wash contaminated clothing before reuse. Call a physician.

EYE CONTACT

In case of contact, immediately flush eyes with plenty of water for at least 15 minutes. Call a physician.

INGESTION

If swallowed, immediately call a physician.

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VIII. PROTECTION INFORMATION

GENERALLY APPLICABLE CONTROL MEASURES AND PROCEDURES

Use only with adequate ventilation. Keep away from heat, sparks and flames. Keep container tightly closed. Do not mix with strong oxidants.

PERSONAL PROTECTIVE EQUIPMENT**EYE/FACE PROTECTION**

Wear safety glasses (ANSI - 287.1 or equivalent). Wear coverall chemical splash goggles and face shield when the possibility exists for eye and face contact.

RESPIRATORS

This material does not have established exposure limits. Final determination of appropriate respiratory protection equipment should be made by a qualified safety or industrial hygiene professional.

PROTECTIVE CLOTHING

Wear impervious clothing to prevent ANY contact with this product, such as gloves, apron, boots, lab coat, or whole body suit.

IX. DISPOSAL INFORMATION

SPILL, LEAK, OR RELEASE

Use appropriate PERSONAL PROTECTIVE EQUIPMENT during clean up. Remove source of heat, sparks, flame, impact, friction or electricity. Recover free ink for reuse or reclamation.

WASTE DISPOSAL

Treatment, storage, transportation and disposal must be in accordance with applicable Federal, State/Provincial, and Local regulations. Recover nonusable free liquid and dispose of in an approved and permitted landfill. Do not flush to surface water or sanitary sewer system.

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X. STORAGE CONDITIONS

Store in well ventilated area. Keep container tightly closed. Store in accordance with Federal Regulations.

Precautions to be taken in Handling and Storage: Keep containers sealed when not in use. Avoid excessive heat and moisture contamination. Store below 50°F (10°C) to prolong shelf life. Avoid contact with skin and eyes.

XI. ADDITIONAL INFORMATION**NFPA-HMIS Rating****HEALTH: 2****FLAMMABILITY: 1****REACTIVITY: 0**

Responsibility for MSDS:

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