

**Material Safety Data Sheet**

acc. to ISO/DIS 11014

Printing date 11/14/2003

Reviewed on 11/14/2003

**1 Identification of substance****Product details****Trade name: ORMET 1202***Application of the substance / the preparation: Conductive ink***Manufacturer/Supplier:**

Kester  
515 E. Touhy Ave.  
Des Plaines, IL 60018

Tel.(847) 297-1600  
Fax.(847) 390-9338

**Information department:**

MSDS Coordinator

Tel. (847) 699-5755

**Emergency information:**

CHEMTREC 24-Hour Emergency Telephone Number:

(800)424-9300

CHEMTREC 24-Hour Emergency Telephone Number (Outside of the U.S. and Canada):

(703)527-3887

**2 Composition/Data on components****Chemical characterization***Description: Mixture of the substances listed below with nonhazardous additions.***Dangerous components:**

7440-50-8	copper	50-100%
7440-31-5	tin	10-25%
7439-92-1	lead	2.5-10%
112-34-5	2-(2-butoxyethoxy)ethanol	2.5-10%
80-05-7	4,4'-isopropylidenediphenol	2.5-10%
102-71-6	2,2',2''-nitrioltriethanol	≤ 2.5%
7440-22-4	silver	≤ 2.5%

**3 Hazards identification****WHMIS Hazard Symbols****Information pertaining to particular dangers for man and environment:***The product has to be labelled due to the calculation procedure of international guidelines.**Danger of cumulative effects.**May cause sensitisation by skin contact.**Possible risk of impaired fertility.**Contains lead. Should not be used on surfaces liable to be chewed or sucked by children.*

(Contd. on page 2)

**Material Safety Data Sheet**

acc. to ISO/DIS 11014

Printing date 11/14/2003

Reviewed on 11/14/2003

**Trade name: ORMET 1202**

(Contd. of page 1)

**Classification system:****NFPA ratings (scale 0 - 4)**

Health = 2

Fire = 2

Reactivity = 0

**HMIS-ratings (scale 0 - 4)**

HEALTH	2
FIRE	2
REACTIVITY	0

Health = 2

Fire = 2

Reactivity = 0

**4 First aid measures****After inhalation:** Supply fresh air; consult doctor in case of complaints.**After skin contact:** Immediately wash with water and soap and rinse thoroughly.**After eye contact:** Rinse opened eye for several minutes under running water.**After swallowing:** Induce vomiting and call for medical help.**5 Fire fighting measures****Suitable extinguishing agents:**CO<sub>2</sub>, extinguishing powder or water spray. Fight larger fires with water spray or alcohol resistant foam.**Special hazards caused by the material, its products of combustion or resulting gases:**

Carbon monoxide (CO)

Carbon dioxide (CO<sub>2</sub>)

Aliphatic aldehydes

Nitrogen oxides (NO<sub>x</sub>)**Protective equipment:** Wear self-contained respiratory protective device.**6 Accidental release measures****Person-related safety precautions:** Ensure adequate ventilation**Measures for environmental protection:** Do not allow product to reach sewage system or any water course.**Measures for cleaning/collecting:**

Scoop up paste and deposit in appropriate containers.

Dispose contaminated material as waste according to item 13.

**7 Handling and storage****Handling:****Information for safe handling:**

Wash hands after handling paste and before eating or smoking. Care should be taken to remove paste from under fingernails.

**Information about protection against explosions and fires:**

Keep ignition sources away - Do not smoke.

Protect against electrostatic charges.

(Contd. on page 3)

USA

# Material Safety Data Sheet

acc. to ISO/DIS 11014

Printing date 11/14/2003

Reviewed on 11/14/2003

Trade name: ORMET 1202

(Contd. of page 2)

Keep respiratory protective device available.

### Storage:

**Requirements to be met by storerooms and receptacles:** Store at or near 5°C in a dry location.

**Information about storage in one common storage facility:** Not required.

**Further information about storage conditions:** Store in cool, dry conditions in well sealed receptacles.

## 8 Exposure controls and personal protection

**Additional information about design of technical systems:** No further data; see item 7.

### Components with limit values that require monitoring at the workplace:

#### 7440-50-8 copper

PEL	0.1*, 1** mg/m <sup>3</sup> *fume **dusts & mists
REL	0.1*, 1** mg/m <sup>3</sup> *Copper fume, as Cu **Copper dusts & mists, as Cu
TLV	0.2*, 1** mg/m <sup>3</sup> *fume; ** dusts&mists, as Cu

#### 7440-31-5 tin

PEL	2 mg/m <sup>3</sup> Metal
REL	2 mg/m <sup>3</sup> Tin, Metal
TLV	2 mg/m <sup>3</sup>

### Additional information:

PEL = Permissible Exposure Limit (OSHA)

REL = Recommended Exposure Limit (NIOSH)

TLV = Threshold Limit Value (ACGIH)

OSHA = Occupational Safety and Health Administration

ACGIH = American Conference of Governmental Industrial Hygienists

NIOSH = National Institute for Occupational Safety and Health

### Personal protective equipment:

#### General protective and hygienic measures:

Keep away from foodstuffs, beverages and feed.

Immediately remove all soiled and contaminated clothing.

Wash hands before breaks and at the end of work.

Store protective clothing separately.

#### Breathing equipment:

When ventilation is not sufficient to remove fumes from the breathing zone, a safety approved respirator or self-contained breathing apparatus should be worn.

#### Protection of hands:



Protective gloves

Material of gloves:

Nitrile rubber, NBR

Natural rubber, NR

(Contd. on page 4)

USA

**Material Safety Data Sheet**

acc. to ISO/DIS 11014

Printing date 11/14/2003

Reviewed on 11/14/2003

**Trade name: ORMET 1202**

(Contd. of page 3)

*Penetration time of glove material:**The exact break through time has to be found out by the manufacturer of the protective gloves and has to be observed.***Eye protection:***Tightly sealed goggles**Safety glasses***9 Physical and chemical properties****General Information**

**Form:** Pasty  
**Color:** Copper colored  
**Odor:** Mild

**Change in condition**

**Melting point/Melting range:** Undetermined.  
**Boiling point/Boiling range:** 110°C (230°F)

**Flash point:** 74°C (165°F)**Danger of explosion:** Product does not present an explosion hazard.**Vapor pressure at 20°C (68°F):** < 1 mm Hg**Density at 20°C (68°F):** 4.900 g/cm<sup>3</sup>**Solubility in / Miscibility with****Water:** Not miscible or difficult to mix.**10 Stability and reactivity****Thermal decomposition / conditions to be avoided:** No decomposition if used according to specifications.**Materials to be avoided:** Strong acids, strong oxidizers.**Dangerous reactions** No dangerous reactions known.**Dangerous products of decomposition:**

Carbon monoxide and carbon dioxide

Nitrogen oxides

Aldehydes

**11 Toxicological information****Acute toxicity:****Primary irritant effect:***on the skin: Irritant to skin and mucous membranes.**on the eye: Irritating effect.*

(Contd. on page 5)

USA

**Material Safety Data Sheet**

acc. to ISO/DIS 11014

Printing date 11/14/2003

Reviewed on 11/14/2003

**Trade name: ORMET 1202**

(Contd. of page 4)

*through inhalation: May cause respiratory irritation.**through ingestion: May be harmful if swallowed.***Sensitization:** *Sensitization possible through skin contact.***Additional toxicological information:***The product shows the following dangers according to internally approved calculation methods for preparations:**Irritant***12 Ecological information****General notes:** *Do not allow product to reach ground water, water course or sewage system.***13 Disposal considerations****Product:****Recommendation:***Must not be disposed of together with household garbage. Do not allow product to reach sewage system.**Disposal must be made according to official regulations.***Uncleaned packagings:****Recommendation:** *Disposal must be made according to official regulations.***14 Transport information****DOT regulations:***Hazard class: -**Not regulated.***Land transport ADR/RID (cross-border):****ADR/RID class:** -*Not regulated.***Maritime transport IMDG:****IMDG Class:** -*Not regulated.***Marine pollutant:** *No***Air transport ICAO-TI and IATA-DGR:****ICAO/IATA Class:** -*Not regulated.***15 Regulations***USA The following information relates to product regulation specific to the USA.***SARA (Superfund Amendments and Reauthorization Act)****Section 355 (extremely hazardous substances):***None of the ingredient is listed.*

(Contd. on page 6)

USA

**Material Safety Data Sheet**

acc. to ISO/DIS 11014

Printing date 11/14/2003

Reviewed on 11/14/2003

**Trade name: ORMET 1202**

(Contd. of page 5)

**Section 313 (Specific toxic chemical listings):**

7440-50-8	copper
7439-92-1	lead
80-05-7	4,4'-isopropylidenediphenol
7440-22-4	silver

**TSCA (Toxic Substances Control Act):**

All ingredients are listed.

**California Proposition 65**

Chemicals known to cause cancer:

WARNING: This product contains a chemical known to the State of California to cause cancer.

7439-92-1	lead
7440-43-9	cadmium
7440-02-0	nickel
106-89-8	1-chloro-2,3-epoxypropane
101-77-9	4,4'-diaminodiphenylmethane

Chemicals known to cause reproductive toxicity:

WARNING: This product contains a chemical known to the State of California to cause birth defects and/or other reproductive harm.

7439-92-1	lead
7440-43-9	cadmium
106-89-8	1-chloro-2,3-epoxypropane

**Carcinogenicity categories**

EPA (Environmental Protection Agency)

7440-50-8	copper	D
7439-92-1	lead	B2
7440-22-4	silver	D

IARC (International Agency for Research on Cancer)

7439-92-1	lead	2B
102-71-6	2,2',2''-nitrioltriethanol	3

NTP (National Toxicology Program)

None of the ingredients is listed.

TLV (Threshold Limit Value established by ACGIH)

None of the ingredients is listed.

NIOSH-Ca (National Institute for Occupational Safety and Health)

None of the ingredients is listed.

OSHA-Ca (Occupational Safety &amp; Health Administration)

None of the ingredients is listed.

CANADA: The following information relates to product regulation specific to Canada.

(Contd. on page 7)

USA

**Material Safety Data Sheet**

acc. to ISO/DIS 11014

Printing date 11/14/2003

Reviewed on 11/14/2003

**Trade name: ORMET 1202**

(Contd. of page 6)

**Workplace Hazardous Materials Identification (WHMIS):**

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

**WHMIS Classification:**

B3  
D2A  
D2B

**Components on Ingredient List for WHMIS:**

4,4'-isopropylidenediphenol  
lead  
tin  
copper  
silver

**EUROPEAN UNION**

*The following information relates to product regulation specific to the directives of the European Union.*

**Risk phrases:**

*Danger of cumulative effects.  
May cause sensitisation by skin contact.  
Possible risk of impaired fertility.*

**Safety phrases:**

*Avoid exposure - obtain special instructions before use.  
Keep locked up and out of the reach of children.  
Avoid contact with skin.  
Do not empty into drains, dispose of this material and its container at hazardous or special waste collection point.  
Wear suitable gloves and eye/face protection.  
In case of accident or if you feel unwell, seek medical advice immediately (show the label where possible).*

**Special labeling of certain preparations:**

*Contains lead. Should not be used on surfaces liable to be chewed or sucked by children.*

**16 Other information**

*The information contained herein is based on data considered accurate and is offered solely for information, consideration and investigation. Kester extends no warranties, makes no representations and assumes no responsibility as to the accuracy, completeness or suitability of this data for any purchaser's use. The data on this Material Safety Data Sheet relates only to this product and does not relate to use with any other material or in any process. All chemical products should be used only by, or under the direction of, technically qualified personnel who are aware of the hazards involved and the necessity for reasonable care in handling. Hazard communication regulations require that employees must be trained on how to use a Material Safety Data Sheet as a source for hazard information.*

**Department issuing MSDS:** Product Safety

**Contact:** Heather Holich, MSDS Coordinator

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