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MSDS Number: 138
Revision Date: 06/29/2012
Supersedes Date: 04/06/2010

MATERIAL SAFETY DATA SHEET

Complies with OSHA Hazard Communication Standard 29 CFR 1910.1200

Product Name: PRINT KOTE CONFORMAL COATING

SECTION 1. PRODUCT AND COMPANY IDENTIFICATION

Product Type:	Silicone Resin Solution	Emergency Contact:	Chemtrec
Product Name:	Print Kote Conformal Coating	Phone:	(800) 424-9300
Part Number(s):	22-203		

NFPA RATINGS

Health:	2	Generic Description:	Silicone resin solution.
Flammability:	3	Physical Form:	Liquid
Instability/Reactivity:	0	Color:	Translucent
		Odor:	Some odor

SECTION 2. HAZARDS IDENTIFICATION

POTENTIAL HEALTH EFFECTS

Acute Effects

Eye:	Direct contact may cause mild irritation.
Skin:	May cause moderate irritation.
Inhalation:	Vapor may irritate nose and throat. Overexposure by inhalation may cause drowsiness, dizziness, confusion or loss of coordination.
Oral:	Low ingestion hazard in normal use. Overexposure by ingestion may cause drowsiness, dizziness, confusion or loss of coordination.

Prolonged/Repeated Exposure Effects

Skin:	Repeated or prolonged contact may cause defatting and drying of skin which may result in skin irritation and dermatitis. Repeated skin contact may cause allergic skin reaction.
Inhalation:	Overexposure by inhalation may injure the following organ(s): Kidneys. Bladder. Nervous system. Liver.



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SECTION 2. HAZARDS IDENTIFICATION (CONTINUED)

Oral: Repeated ingestion or swallowing large amounts may injure internally.

Other Health Effects

This product contains a chemical(s) that has the following effect(s):
Developmental Toxicity

See Section 11 for specific details.

Signs and Symptoms of Overexposure

No known applicable information.

Medical Conditions Aggravated by Exposure

No known applicable information.

The above listed potential effects of overexposure are based on actual data, results of studies performed upon similar compositions, component data and/or expert review of the product. Please refer to Section 11 for the detailed toxicology information.

SECTION 3. COMPOSITION / INFORMATION OF INGREDIENTS

<u>CAS Number</u>	<u>Wt %</u>	<u>Component Name</u>
107-51-7	55.0 - 75.0	Octamethyltrisiloxane
108-88-3	1.0 - 5.0	Toluene
1185-55-3	1.0 - 5.0	Methyltrimethoxysilane

The above components are hazardous as defined in 29 CFR 1910.1200.



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SECTION 4. FIRST AID MEASURES

- Eye:** Immediately flush the contaminated eye(s) with lukewarm, gently flowing water for 5 minutes while holding the eyelid(s) open. Obtain medical attention.
- Skin:** As quickly as possible remove contaminated clothing, shoes and leather goods (e.g. watchbands, belts). Quickly and gently blot or brush away excess chemical. Immediately flush with lukewarm gently flowing water for 15 minutes. Completely decontaminate clothing, shoes and leather goods before reuse or discard. If irritation persists, obtain medical advice.
- Inhalation:** Remove from the source of contamination or move to fresh air. Obtain medical attention.
- Oral:** Never give anything by mouth if victim is rapidly losing consciousness or convulsing. DO NOT INDUCE VOMITING. Have victim drink 2 to 8 oz. (60 to 240 mL) of water. If vomiting occurs naturally, have victim lean forward to reduce the risk of aspiration. Have victim rinse mouth with water again. Immediately obtain medical attention.
- Notes to Physician:** Treat according to person's condition and specifics of exposure.

SECTION 5. FIRE FIGHTING MEASURES

- Flash Point:** 62.6 °F / 17 °C (Seta Closed Cup)
- Autoignition Temperature:** Not determined.
- Flammability Limits in Air:** Not determined.
- Extinguishing Media:** On large fires use AFFF alcohol compatible foam or water spray (fog). On small fires use AFFF alcohol compatible foam, CO2 or water spray (fog). Water can be used to cool fire exposed containers.
- Fire Fighting Measures:** Self-contained breathing apparatus and protective clothing should be worn in fighting large fires involving chemicals. Determine the need to evacuate or isolate the area according to your local emergency plan. Use water spray to keep fire exposed containers cool.
- Unusual Fire Hazards:** Vapors are heavier than air and may travel to a source of ignition and flash back. Static electricity will accumulate and may ignite vapors. Prevent a possible fire hazard by bonding and grounding or inert gas purge. Fire burns more vigorously than would be expected.



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SECTION 6. ACCIDENTAL RELEASE MEASURES

Containment/Clean up: Remove possible ignition sources. Determine whether to evacuate or isolate the area according to your local emergency plan. Observe all personal protection equipment recommendations described in Sections 5 and 8. For large spills, provide diking or other appropriate containment to keep material from spreading. If diked material can be pumped, store recovered material in appropriate container. Clean up remaining materials from spill with suitable absorbant. Clean area as appropriate since spilled materials, even in small quantities, may present a slip hazard. Final cleaning may require use of steam, solvents or detergents. Dispose of saturated absorbant or cleaning materials appropriately, since spontaneous heating may occur. Local, state and federal laws and regulations may apply to releases and disposal of this material, as well as those materials and items employed in the cleanup of releases. You will need to determine which federal, state and local laws and regulations are applicable. Sections 13 and 15 of this MSDS provide information regarding certain federal and state requirements.

Note: See Section 8 for Personal Protective Equipment for Spills.

SECTION 7. HANDLING AND STORAGE

Use with adequate ventilation. Product evolves flammable methyl alcohol when exposed to water or humid air. Provide ventilation during use to control exposure within Section 8 guidelines or use air-supplied or self-contained breathing apparatus. Avoid eye contact. Avoid skin contact. Avoid breathing vapor, mist, dust, or fumes. Keep container closed. Do not take internally.

Keep container closed and store away from water or moisture. Static electricity will accumulate and may ignite vapors. Prevent a possible fire hazard by bonding and grounding or inert gas purge. Keep container closed and away from heat, sparks, and flame.



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SECTION 8. EXPOSURE CONTROLS / PERSONAL PROTECTION

Component Exposure Limits

<u>CAS Number</u>	<u>Component Name</u>	<u>Exposure Limits</u>
107-51-7	Octamethyltrisiloxane	Dow Corning guide: TWA 200 ppm.
108-88-3	Toluene	OSHA PEL (final rule): 8-Hour TWA 200 ppm, Ceiling 300 ppm, 10 minutes maximum duration 500 ppm. ACGIH TLV: TWA 20 ppm.
1185-55-3	Methyltrimethoxysilane	Dow Corning guide: TWA 50 ppm. See methyl alcohol comments.

Methyl alcohol forms on contact with water or humid air. Provide adequate ventilation to control exposures within guidelines of OSHA PEL: TWA 200 ppm and ACGIH TLV-skin: TWA 200 ppm, STEL 250 ppm.

Engineering Controls

Local Ventilation: Recommended.
General Ventilation: Recommended.

Personal Protective Equipment for Routine Handling

Eyes: Use proper protection - safety glasses as a minimum.

Skin: Wash at mealtime and end of shift. If skin contact occurs, change contaminated clothing as soon as possible and thoroughly flush affected areas with cool water. Chemical protective gloves are recommended.

Suitable Gloves: Avoid skin contact by implementing good industrial hygiene practices and procedures. Select and use gloves and/or protective clothing to further minimize the potential for skin contact. Consult with your glove and/or personnel protective equipment manufacturer for selection of appropriate compatible materials.

Inhalation: Use respiratory protection unless adequate local exhaust ventilation is provided or exposure assessment demonstrates that exposures are within recommended exposure guidelines. Industrial hygiene personnel can assist in judging the adequacy of existing engineering controls.

Suitable Respirator: General and local exhaust ventilation is recommended to maintain vapor exposures below recommended limits. Where concentrations are above recommended limits or are unknown, appropriate respiratory protection should be worn. Follow OSHA respirator regulations (29 CFR 1910.134) and use NIOSH/MSHA approved respirators.



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SECTION 8. EXPOSURE CONTROLS / PERSONAL PROTECTION (CONTINUED)

Personal Protective Equipment for Spills

- Eyes: Use full face respirator.
- Skin: Wash at mealtime and end of shift. If skin contact occurs, change contaminated clothing as soon as possible and thoroughly flush affected areas with cool water. Chemical protective gloves are recommended.
- Inhalation/Suitable Respirator: Respiratory protection recommended. Follow OSHA Respirator Regulations (29 CFR 1910.134) and use NIOSH/MHSA approved respirators. Protection provided by air purifying respirators against exposure to any hazardous chemical is limited. Use a positive pressure air supplied respirator if there is any potential for uncontrolled release, exposure levels are unknown, or any other circumstance where air purifying respirators may not provide adequate protection.
- Precautionary Measures: Avoid eye contact. Avoid skin contact. Avoid breathing vapor, mist, dust, or fumes. Keep container closed. Do not take internally. Use reasonable care.
- Comments: Product evolves flammable methyl alcohol when exposed to water or humid air. Provide ventilation during use to control exposure within Section 8 guidelines or use air-supplied or self-contained breathing apparatus.

Note: These precautions are for room temperature handling. Use at elevated temperature or aerosol/spray applications may require added precautions. For further information regarding aerosol inhalation toxicity, please refer to the guidance document regarding the use of silicone-based materials in aerosol applications that has been developed by the silicone industry (www.SEHSC.com).

SECTION 9. PHYSICAL AND CHEMICAL PROPERTIES

- Physical Form: Liquid
Color: Translucent
Odor: Some odor
Specific Gravity @ 25°C: 0.9
Viscosity: 350 cSt
- Freezing/Melting Point: Not determined.
Boiling Point: 101 °C
Vapor Pressure @ 25°C: Not determined.
Vapor Density: Not determined.
Solubility in Water: Not determined.
pH: Not determined.



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SECTION 9. PHYSICAL AND CHEMICAL PROPERTIES (CONTINUED)

Volatile Content: Not determined.
Flash Point: 62.6 °F / 17 °C (Seta Closed Cup)
Autoignition Temperature: Not determined.
Flammability Limits in Air: Not determined.

Note: The above information is not intended for use in preparing product specifications.

SECTION 10. STABILITY AND REACTIVITY

Chemical Stability: Stable.

Hazardous Polymerization: Hazardous polymerization will not occur.

Conditions to Avoid: None.

Materials to Avoid: Oxidizing material can cause a reaction. Water, moisture, or humid air can cause hazardous vapours to form as described in Section 8 .

Hazardous Decomposition Products

Thermal breakdown of this product during fire or very high heat conditions may evolve the following decomposition products: Carbon oxides and traces of incompletely burned carbon compounds. Metal oxides. Formaldehyde. Silicon dioxide.



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SECTION 11. TOXICOLOGICAL INFORMATION

Component Toxicology Information

This material contains methyltrimethoxysilane (MTMS). MTMS was evaluated in a combined repeated-dose toxicity study with the reproduction/developmental toxicity screening test (OECD 422). Sprague-Dawley rats were gavaged daily at dose levels of 0, 50, 250, and 1000 mg MTMS (in corn oil)/kg body weight. Test article-related effects were seen in one or both sexes at the two top dose levels (unless otherwise noted) and included (but not limited to): increased liver weights; increased incidence of hyperplasia and/or hypertrophy in the liver, thyroid and adrenals (high dose only); acanthocytosis (high dose only); increased prothrombin time; elevations in blood platelet count (high dose only), serum total protein and cholesterol. The no observed adverse effect level (NOAEL) was determined to be 50 mg/kg/day for parental toxicity and 1000 mg/kg/day for effects on reproductive performance and on developmental toxicity.

In a 90-day study, five (5) groups of 10 male and 10 female Sprague-Dawley rats were exposed to target methyltrimethoxysilane concentrations of 0 (control), 25, 100, 400 and 1600 ppm for groups 1 through 5, respectively, for six hours per day, five days per week. Additional satellite groups of 10 males and 10 females were included in the 0 and 1600 ppm exposure groups for evaluation of a 28-day post-exposure recovery period. Based on the grossly observed urinary bladder calculi and kidney dilation at the 400 and 1600 ppm exposure levels, the No Observable Effect Level (NOEL) for methyltrimethoxysilane was 100 ppm.

This material may liberate methanol upon exposure to moisture or humid air. Overexposure to methanol can result in blindness and nervous system effects.

Toxicology studies with laboratory animals and occupational evaluations with humans have found limited evidence of birth defects, low birth weights and delayed growth in offspring resulting from repeated exposures to toluene during pregnancy.

This material contains octamethyltrisiloxane (L3). Repeated exposure in rats to L3 resulted in what appears to be protoporphyrin accumulation in the liver at dose levels that exceed typical workplace or consumer exposures. Without knowledge of the specific mechanism leading to the protoporphyrin accumulation the relevance of this finding to humans is unknown. Industrial, commercial, or consumer intended uses of products containing L3 do not represent a risk to humans.

Special Hazard Information on Components

Developmental Toxicity

<u>CAS Number</u>	<u>Wt %</u>	<u>Component Name</u>	
108-88-3	1.0 - 5.0	Toluene	Evidence of teratogenicity (birth defects) in laboratory animals.



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SECTION 11. TOXICOLOGICAL INFORMATION (CONTINUED)

Sensitizers

<u>CAS Number</u>	<u>Wt %</u>	<u>Component Name</u>	
1185-55-3	1.0 - 5.0	Methyltrimethoxysilane	Possible skin sensitizer.

SECTION 12. ECOLOGICAL INFORMATION

Environmental Fate and Distribution

Complete information is not yet available.

Environmental Effects

Complete information is not yet available.

Fate and Effects in Waste Water Treatment Plants

Complete information is not yet available.

Ecotoxicity Classification Criteria

Hazard Parameters (LC50 or EC50)	High	Medium	Low
Acute Aquatic Toxicity (mg/L)	<=1	>1 and <=100	>100
Acute Terrestrial Toxicity	<=100	>100 and <= 2000	>2000

This table is adapted from "Environmental Toxicology and Risk Assessment", ASTM STP 1179, p.34, 1993.

This table can be used to classify the ecotoxicity of this product when ecotoxicity data is listed above. Please read the other information presented in the section concerning the overall ecological safety of this material.

SECTION 13. DISPOSAL CONSIDERATIONS

RCRA Hazard Class (40 CFR 261)

When a decision is made to discard this material, as received, is it classified as a hazardous waste? Yes

Characteristic Waste:

Ignitable: D001

State or local laws may impose additional regulatory requirements regarding disposal.



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SECTION 14. TRANSPORT INFORMATION

DOT Road Shipment Information (49 CFR 172.101)

Proper Shipping Name: Flammable liquids, n.o.s.
Hazard Technical Name: Octamethyltrisiloxane / Toluene
Hazard Class: 3
UN/NA Number: UN 1993
Packing Group: II
Hazard Label(s): ORM-D Flammable Liquid

Ocean Shipment (IMDG)

Proper Shipping Name: FLAMMABLE LIQUID, N.O.S.
Hazard Technical Name: Octamethyltrisiloxane / Toluene
Hazard Class: 3
UN/NA Number: UN 1993
Packing Group: II
Hazard Label(s): Flammable liquid

Air Shipment (IATA)

Proper Shipping Name: Flammable liquid, n.o.s.
Hazard Technical Name: Octamethyltrisiloxane / Toluene
Hazard Class: 3
UN/NA Number: UN 1993
Packing Group: II
Hazard Label(s): Flammable Liquid



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SECTION 15. REGULATORY INFORMATION

Contents of this MSDS comply with the OSHA Hazard Communication Standard 29 CFR 1910.1200.

TSCA Status: All chemical substances in this material are included on or exempted from listing on the TSCA Inventory of Chemical Substances.

EPA SARA Title III Chemical Listings

Section 302 Extremely Hazardous Substances (40 CFR 355):
 None.

Section 304 CERCLA Hazardous Substances (40 CFR 302):

<u>CAS Number</u>	<u>Wt %</u>	<u>Component Name</u>
108-88-3	3.0	Toluene

Section 311/312 Hazard Class (40 CFR 370):

- Acute: Yes
- Chronic: Yes
- Fire: Yes
- Pressure: No
- Reactive: No

Section 313 Toxic Chemicals (40 CFR 372):

<u>CAS Number</u>	<u>Wt %</u>	<u>Component Name</u>
108-88-3	3.0	Toluene

Note: Chemicals are listed under the 313 Toxic Chemicals section only if they meet or exceed a reporting threshold.

California

Warning: This product contains the following chemical(s) listed by the State of California under the Safe Drinking Water and Toxic Enforcement Act of 1986 (Proposition 65) as being known to cause cancer, birth defects or other reproductive harm.

<u>CAS Number</u>	<u>Wt %</u>	<u>Component Name</u>
108-88-3	1.0 - 5.0	Toluene Developmental toxin.



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SECTION 15. REGULATORY INFORMATION (CONTINUED)

Massachusetts

<u>CAS Number</u>	<u>Wt %</u>	<u>Component Name</u>
108-88-3	1.0 - 5.0	Toluene

New Jersey

<u>CAS Number</u>	<u>Wt %</u>	<u>Component Name</u>
107-51-7	55.0 - 75.0	Octamethyltrisiloxane
68952-93-2	15.0 - 35.0	Dimethyl methylphenylmethoxy siloxane
108-88-3	1.0 - 5.0	Toluene
1185-55-3	1.0 - 5.0	Methyltrimethoxysilane

Pennsylvania

<u>CAS Number</u>	<u>Wt %</u>	<u>Component Name</u>
107-51-7	55.0 - 75.0	Octamethyltrisiloxane
68952-93-2	15.0 - 35.0	Dimethyl methylphenylmethoxy siloxane
108-88-3	1.0 - 5.0	Toluene

SECTION 16. OTHER INFORMATION

GC Electronics believes that the information contained herein is accurate and reliable as of the date of this material safety data sheet, but no representation guarantee or warranty, express or implied, is made as to the accuracy, reliability or completeness of the information. Persons receiving information are encouraged to make their own determination as to the information's suitability and completeness for their particular application. NO INFORMATION CONTAINED HEREIN CONSTITUTES A PRODUCT WARRANTY OF ANY KIND, WHETHER EXPRESS OR IMPLIED; AND ALL IMPLIED WARRANTIES OF MERCHANTABILITY AND OF FITNESS FOR A PARTICULAR PURPOSE ARE HEREBY DISCLAIMED BY GC ELECTRONICS.