

## Silicone Conformal Coating

422 / 422A



UL Recognized, CSA Tested, Flame Class 94 V-0

Ideal for high temperature environments. Silicone Conformal coating is a flexible finish product that provides a protective coating for printed circuit boards against moisture, corrosion, and thermal shock. It protects and insulates electrical and electronic components and assemblies, including generators, motors, transformers, relays, and solenoid coils. For spraying, liquid can be thinned using M.G. Thinner Cleaner. Thin up to one half part thinner to one part coating. Also available in a micro tip pen format.

### Directions of Use

Spray an even coat with a minimum application of .048 grams per square centimeter. Application measurements can be achieved by first weighing the can, then spraying an even coat, then reweighing the can. Knowing the dimensions of your board, one can calculate as to whether your application is within certified limits. This method will give you maximum surface area coverage of 7080 cm<sup>2</sup> (7.6 ft<sup>2</sup>).

Best results will be obtained by applying to thoroughly cleaned and dried parts or materials. It is essential that surfaces be free of any trace of grease or organic substances.

At room temperature, the product will tack free in approximately 30 minutes, and full cure will be achieved in approximately 48 hours.

Curing may be accelerated by applying moderate heat with either a convection oven or infrared lamps. We recommend curing in a convection oven at 65°C (149°F) for one hour, but other temperature and time combinations can work well. Heat curing will improve the physical strength of this coating.



## Specifications

Standards	
	CSA tested (file # LO 4000-4068)
	UL Recognized (file # E203094)
	Meets UL 94 Flame Class, 94V-0
Properties	
Color	Clear
Service temperature range	-40°C to 200°C (-40°F to 350°F)
Specific gravity of liquid	0.96
Liquid viscosity	14.4 cps
Solvents	xylene, acetone
Percent solids by weight	25% (liquid); 15% (aerosol)
Tack free time	30 minutes at 20°C
Full cure	48 hrs. @ 20°C (68°F) 60 min. @ 65°C (149°F)
Hardness	75 Shore D
Dielectric Properties	
Dielectric strength	80 kV/mm (2000 V/mil)
Dielectric constant @ 100MHz	2.7
Loss angle tangent @ 100 MHz	0.001
Volume resistivity, Ohm * cm	1 x 10 <sup>14</sup>
Dielectric withstanding voltage @ 1,500 VDC for 1 min (IPC-TM-650)	Pass

## Available Sizes

Catalog Number	Sizes Available	Description
422-55ML	2 oz. (55 ml)	Liquid
Silicone Conformal Coating W/UV IND.		
422A-340G	340 gram (12 oz)	Aerosol
Silicone Conformal Coating Pen		
<a href="#">422A-P</a>	5ml (0.16 oz.)	Pen
Silicone Conformal Coating		
422-1L	950ml (1 quart)	Liquid
422-4L	4L (1 gal)	Liquid
422-20L	20L (5.3 gal)	Liquid

# Material Safety Data Sheet

## Section 1: Product Identification

**MSDS Code: 422 - Liquid**                      **Name: Silicone Conformal Coating**

**Related Part Numbers: 422-55ML; 422-1L; 422-4L; 422-20L**

Use: Protective coating for pc boards.

## Section 2: Hazardous Ingredients

CAS#	Chemical Name	Percentage by weight	ACGIH TWA	Osha PeI	Osha Stel
67-64-1	2-propanone	25 – 50%	750ppm	1000ppm	1000ppm
1330-20-7	Xylenes	15 - 40 %	100ppm	100ppm	150ppm
N/A	Polymethylphenylsiloxanes	8 - 20%	N/A	N/A	N/A
9003-01-4	Acrylic resins	8 - 20%	N/A	N/A	N/A
108-65-6	1-methoxy-2- propanol acetate	2 - 8%	N/E	N/E	N/E

## Section 3: Hazards Identification

<b>Eyes:</b>	Causes severe eye irritation.
<b>Skin:</b>	Harmful if absorbed through the skin. Irritant. Can cause redness, dryness, and loss of natural oils.
<b>Inhalation:</b>	May cause nausea, dizziness, hallucinations, headache, and loss of coordination.
<b>Ingestion:</b>	Harmful if swallowed. May cause headache, dizziness, nausea, vomiting, and abdominal pain. May cause central nervous system depression.
<b>Chronic:</b>	No effects known.

## Section 4: First Aid Measure

<b>Eyes:</b>	Remove contact lenses. Flush with water or saline for 20 minutes. Get medical aid.
<b>Skin:</b>	Wash skin with large quantities of soap and water. Get medical aid if symptoms persist.
<b>Inhalation:</b>	Immediately remove from exposure to fresh air. If not breathing, give artificial respiration. If breathing is difficult, give oxygen. Get medical aid.
<b>Ingestion:</b>	Do not induce vomiting. If conscious, give 1-2 glasses of water. Get medical aid.

## Section 5: Fire Fighting Measures

**Autoignition Temperature:** 272°C                      **Flash Point:** -18°C                      **LEL / UEL:** 4 / 19

**Extinguishing Media:** Use water spray, dry chemical, carbon dioxide, or chemical foam.

**Media:**

**General Information:** Will burn if involved in a fire. Containers may explode in the heat of a fire. Flash back along vapor trail is possible.

## Section 6: Accidental Release Measures

**Spill Procedure:** Remove all sources of ignition. Provide adequate ventilation. Wear appropriate personal protection. Sprinkle absorbent compound onto spill, then sweep into a plastic or metal container. Wipe up further residue with paper towel and place in container. Wash spill area with soap and water.

## Section 7: Handling and Storage

**Handling:** Wash thoroughly after handling. Avoid contact with eyes, skin, and clothing. Do not ingest or inhale. Do not expose container to heat or flame.

**Storage:** Keep away from sources of ignition. Store in a cool, dry, well-ventilated area, away from incompatible substances. Keep from freezing.

## Section 8: Exposure Controls

**Routes of entry:** Eyes, ingestion, inhalation, and skin.

**Ventilation:** Use adequate general or local exhaust ventilation to keep airborne concentrations below exposure limits.

**Personal Protection:** Wear appropriate protective eyeglasses or chemical safety goggles. Wear appropriate protective clothing to prevent skin contact. Use a NIOSH approved respirator when necessary.

## Section 9: Physical and Chemical Properties

<b>Physical State:</b>	Liquid	<b>Odor:</b>	Ethereal	<b>Solubility in water:</b>	Insoluble	<b>Evaporation Rate:</b>	Moderate	
<b>Boiling Point:</b>	55°C	<b>Specific Gravity:</b>	0.96	<b>Vapor Pressure:</b>	1 PSI @21°C	<b>Vapor Density:</b>	3.1 (Air=1)	<b>pH:</b> 7

## Section 10: Stability and Reactivity

**Stability:** Stable at normal temperatures and pressures.

**Conditions to avoid:** Temperatures over 40°C, ignition sources, and incompatible substances.

**Incompatibilities:** Strong acids, bases, oxidizing agents, sodium, barium, and aluminum powder.

**Polymerization:** Will not occur.

**Decomposition:** **Formaldehyde** (only at temperatures over 160°C), dimethylcyclosiloxanes, methylphenylcyclosiloxanes, carbon monoxide, and carbon dioxide, halogens, halogen acids, possibly carbonyl halides.

## Section 15: Regulatory Information

### CANADA

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

#### **DSL**

All ingredients in this product are listed on the Domestic Substances List

#### **WHMIS**

This product belongs to the following categories: **B2, D2A**

#### **Industry and Science Canada**

MG Labels products intended for the workplace to conform to WHMIS labeling regulations. Product identification, net quantity declaration, minimum printing type size heights, and packaging of this product are in compliance.

#### **Health Canada**

Products produced by MG Chemicals intended for retail display conform to the Canadian Consumer Labeling Regulations.

### USA

#### **CAA** (Clean Air Act, USA)

This product does not contain any class 1 ozone depleting substances.

This product does not contain any class 2 ozone depleting substances.

This product does not contain any chemicals listed as hazardous air pollutants.

#### **SARA** (Superfund Amendments and Reauthorization Act of 1986, USA, 40 CFR 372.4)

This product contains a toxic chemical, which has a reportable quantity. (Xylene CAS# 1330-20-7, 15%)

#### **EPCRA** (Emergency Planning and Right to Know Act, USA, 40 CFR 372.45)

This product does contain Xylene CAS# 1330-20-7 15%, a toxic chemical subject to the reporting requirements of section 313 Title III of the SARA of 1986 and 40 CFR part 372.

#### **TSCA** (Toxic Substances Control Act of 1976, USA)

All substances are TSCA listed.

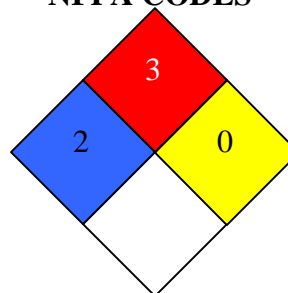
#### **California Proposition 65** (Chemicals known to cause cancer or reproductive toxicity, May 1, 1997 revision, USA)

This product does not contain any chemicals listed.

### HMIS RATING

<b>HEALTH:</b>	1
<b>FLAMMABILITY:</b>	4
<b>PHYSICAL HAZARD:</b>	0
<b>PERSONAL PROTECTION:</b>	

### NFPA CODES



### EUROPE

#### **RoHS**

This product does not contain any lead, cadmium, mercury, hexavalent chromium, PBB's, or PBDE's, and complies with European RoHS regulations.

#### **WEEE**

This product is not a piece of electrical or electronics equipment, and is therefore not governed by this regulation.