



Fine-L-Kote™ SR

Silicone Conformal Coating

2102

Introduction

A type SR silicone resin conformal coating that has excellent moisture and fungus resistance properties and is UL recognized (UL File Number E95150). Material flexibility allows for vibration, movement, and rapid changes in temperature. Fine-L-Kote™ SR is a durable coating that offers chemical resistance and is recommended for harsh environments. Contains Opti/Scan™ to allow for black light inspection. Coated boards can be reworked by applying soldering iron directly to coating. Coated boards can be stripped using Trace Technologies™ Conformal Coating Remover (2510-N, 2510-P).

- Features / Benefits
- Moisture, Thermal and Chemical Resistant
 - UL Recognized
 - Recommended for Harsh Environments
 - Flexible
 - Contains Opti/Scan™

Chemical Components

Toluene.....(108-88-3)	4-5% - Aerosol 7-8% - Bulk 28-30% - HV
Methyltrimethylsilane.....(1185-55-3)	<1%
Dimethylmethylphenylmethoxysiloxane.....(68952-93-2)	12-15% 40-50% - HV
Hexane isomers	
Dipropylene Glycol Methyl Ether Acetate.....(88917-22-0)	<4% - Aerosol 3-6% - Bulk, HV
Acetone.....(67-64-1)	20-25% - Aerosol 45-50% - Bulk
Propane.....(74-98-6)	10-30% - Aerosol
Silicone Polymer	10-12%
2-Butanone.....(78-93-3)	7-10% - HV

Cure Type	Thermal		
Meets/Exceeds IPC-CC-830 MIL-I-46058C	SR Silicone		
Thermal Shock	5		
Dielectric Constant (@ 10 ⁶ Hz)	2.33		
Dielectric Strength (Volts/Mill)	1100 Dry	976 Wet	
Volume Resistivity	1x10 ¹⁴ Dry	9x10 ¹⁴ Wet	
Moisture Resistance	5		
Resistant to Fungus	Yes		
Ease of Repair	5		
Flexibility	5		
Chemical Resistance	4		
Dry Time to Touch	1 Hour		
Cure Time	72 Hours		
Accelerated Cure Time	30 min. @ 90°F	45 min. @ 200°F	Two Step Process
Removal (2510-P or 2510-N)	1-5 min.		
Burn Through	Yes		

Ratings: 5 (Excellent), 4 (Very Good), 3 (Good), 2 (Fair), 1 (Poor)

Typical Properties as Cured Physical Properties for 2102

Operating temperature range °C	-65 to 200
Specific Gravity @ 25°C	1.11
Tensile Strength @ 25°C, psi	600
Elongation @ 25°C percent	60
Durometer Hardness, Shore D, points	25
Volume Coefficient of Thermal Expansion um/m/c	253.6
Thermal Conductivity @ 100°C Watts/mK	0.17
Water Absorption, 100 hours @ 25°C Percent	0.05
Viscosity (cps) Bulk / HV	4-10 / 60-90

Environmental Policy

Techspray® is committed to developing products to ensure a safer and cleaner environment. We will continue to meet and sustain the regulations of all federal, state and local government agencies.

Packaging and Availability

Fine-L-Kote™ SR may be ordered in the following container sizes:

2102-12S	12 Ounce Aerosol
2102-P	1 Pint in Glass
2102-G	1 Gallon in Metal
2102-GHV	1 Gallon in Metal
2102-5G	5 Gallons in Metal

FINE-L-KOTE™ COATING SELECTION CHART

Fine-L-Kote™ Part Number	2102	2103	2104	2106
Cure Type	Thermal	Thermal	Thermal	Thermal
Meets / Exceeds IPC-CC-830 MIL-I-46058C	SR Silicone	AR Acrylic	UR Urethane	SR Silicone
Thermal Shock	5	2	3	5
Dielectric Constant (@ 10 ⁴ Hz)	2.66	3.1	3.80	2.5
Dielectric Strength (Volts / Mil)	1100 Dry 976 Wet	2086	380	560
Volume Resistivity	1x10 ¹⁴ Dry 9x10 ¹⁴ Wet	4x10 ¹³ Dry	2x10 ¹³	5x10 ¹³
Moisture Resistance	5	2	4	5
Resistant to Fungus	Yes	Yes	Yes	Yes
Ease of Repair	3	5	2	3
Flexibility	5	2	3	5
Chemical Resistance	4	1	4	2
Dry Time To Touch	1 Hour	15 Min.	15 Min.	45 Min.
Cure Time	72 Hours	24 Hours	24 Hours	24 Hours
Accelerated Cure Time	30 min. @ 90°F 45 min. @ 200°F Two Step Process	20 min. @ 120°F 30 min. @ 180°F Two Step Process	20 min. @ 120°F 30 min. @ 180°F Two Step Process	15 min. @ 120°F One Step Process
*Removal (2510)	1-5 min.	1-5 min.	1-5 min.	1-5 min.
Burn Through	Yes	Yes	Yes	Yes

Ratings: 5 - Excellent, 4 - Very Good, 3 - Good, 2 - Fair, 1 - Poor
All coatings may be thinned by using Fine-L-Kote™ UR Thinner (2105)

* Available: Conformal Coating Remover
Product #'s: 2510-P and 2510-N

MOISTURE RESISTANT



2102
2106

THERMAL RESISTANT



2102
2106

CHEMICAL RESISTANT



2102
2104

STATIC RESISTANT



2103

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MATERIAL SAFETY DATA SHEET

Finished Product

MSDS Ref. No : 2102-P

Fine-L-Kote™ SR

1. PRODUCT AND COMPANY IDENTIFICATION

PRODUCT NAME: Fine-L-Kote™ SR**PRODUCT DESCRIPTION:** Silicone Conformal Coating**PRODUCT CODE:** 2102-P**PRODUCT FORMULATION NAME:** Fine-L-Coat™ SR

MANUFACTURER

Techspray, L.P.

2. COMPOSITION / INFORMATION ON INGREDIENTS

<u>Chemical Name</u>	<u>Content</u>	<u>CAS</u>	<u>EINECS</u>
Acetone	30 - 60	67-64-1	200-662-2
Hexane	15 - 40	110-54-3	203-777-6
1-(2-Methoxy-Methyl-Ethoxy)-2-Propanol Acetate	1 - 10	88917-22-0	
Polysiloxane mixture	8 - 20		
Benzene- methyl, (Toluene)	1 - 6	108-88-3	203-625-9

EEC LABEL SYMBOL AND CLASSIFICATION



R12 - Extremely flammable.

EEC Extremely flammable - "F+"



R20/21/22 - Harmful by inhalation, in contact with skin and if swallowed.

EEC Harmful - "Xn"

3. HAZARDS IDENTIFICATION

EMERGENCY OVERVIEW

PHYSICAL APPEARANCE: Transparent, colorless liquid.

IMMEDIATE CONCERNS: Flammable liquid and vapor.

POTENTIAL HEALTH EFFECTS

EYES: Substance causes substantial eye irritation.

SKIN: Prolonged or repeated contact can result in defatting and drying of the skin which may result in skin irritation and dermatitis (rash).

INGESTION: Harmful if swallowed.

INHALATION: High concentrations in immediate area can displace oxygen and can cause dizziness, unconsciousness, and possibly death with longer exposure. Keep people away from such vapors without self-contained breathing apparatus.

SIGNS AND SYMPTOMS OF OVEREXPOSURE

EYES: Symptoms of overexposure include: stinging, tearing, redness and pain.

INGESTION: For large amounts; abdominal pain, nausea and vomiting.

4. FIRST AID MEASURES

EYES: Immediately flush eyes with plenty of water for at least 15 minutes. Get immediate medical attention.

SKIN: Wash with soap and water. Get medical attention if irritation develops or persists.

INGESTION: Aspiration hazard. If swallowed, vomiting may occur spontaneously, but do not induce. If vomiting occurs, keep head below hips to prevent aspiration into lungs. Call a physician immediately.

INHALATION: Remove to fresh air. If not breathing, give artificial respiration or give oxygen by trained personnel. Seek immediate medical attention.

5. FIRE FIGHTING MEASURES

FLASHPOINT AND METHOD: -12.2°C (10°F)TAG CC

FLAMMABLE LIMITS: 1.8% to 10%

GENERAL HAZARD: Flammable Liquid. Can release vapors that form explosive mixtures at temperatures at or

1-(2-Methoxy-Methyl-Ethoxy)-2-Propanol Acetate	STEL	NL ppm	NL mg/ m3	NL ppm	NL mg/ m3	NL ppm	NL mg/ m3
Polysiloxane mixture							
Benzene- methyl, (Toluene)	TWA	200 ppm	375 mg/ m3	S 50 ppm ^[2]	188 mg/ m3	NL	NL
	STEL	C300 ppm ^[3]	560 mg/ m3	NL ppm	NL mg/ m3	NL	NL

OSHA TABLE COMMENTS:

1. NL = Not Listed
2. S = Skin
3. C = Ceiling

ENGINEERING CONTROLS: Local exhaust ventilation may be necessary to control any air contaminants to within their TLVs during the use of this product.

PERSONAL PROTECTIVE EQUIPMENT

EYES AND FACE: For normal conditions, wear safety glasses. Where there is reasonable probability of liquid contact, wear splash-proof goggles.

SKIN: The glove(s) listed below may provide protection against permeation. Gloves of other chemically resistant materials may not provide adequate protection. Viton, Solvex, Butyl, Buna, Neoprene.

RESPIRATORY: A respiratory protection program that meets OSHA 1910.134 and ANSI Z88.2 requirements must be followed whenever workplace conditions warrant a respirator's use.

9. PHYSICAL AND CHEMICAL PROPERTIES

PHYSICAL STATE: Liquid

pH: Not Applicable

PERCENT VOLATILE: 86 at 20°C (68°F)

BOILING POINT: 79°C (134°F)

SOLUBILITY IN WATER: Insoluble

SPECIFIC GRAVITY: 0.83 (water=1)

(VOC): 481 g/L (non-exempt VOC)

10. STABILITY AND REACTIVITY

STABLE: YES

HAZARDOUS POLYMERIZATION: NO

CONDITIONS TO AVOID: Heat, flames, ignition sources, and incompatibles.

STABILITY: Stable.

INCOMPATIBLE MATERIALS: Concentrated nitric and sulfuric acid mixtures, chloroform, alkalis, chlorine compounds, acids, potassium t-butoxide.

11. TOXICOLOGICAL INFORMATION

<u>INGREDIENT(S)</u>	<u>ORAL LD₅₀ (rat)</u>	<u>DERMAL LD₅₀ (rabbit)</u>	<u>INHALATION LC₅₀ (rat)</u>
Acetone	5800 - mg/kg	20 - g/kg	50100 - ppm

EYE EFFECTS: Not Available

SKIN EFFECTS: Not Available

CARCINOGENICITY:

IARC: NOT listed

NTP: NOT listed

OSHA: NOT listed

REPRODUCTIVE EFFECTS: Toluene is listed as a reproductive hazard.

12. ECOLOGICAL INFORMATION

ENVIRONMENTAL DATA: There is limited information available on the environmental fate and effects of this material. The primary environmental concern for release is the impact on aquatic and terrestrial species. Due care should be taken to avoid the accidental release of this material into the environment.

13. DISPOSAL CONSIDERATIONS

GENERAL COMMENTS: Dispose of in a manner consistent with federal, state, and local regulations.

14. TRANSPORT INFORMATION

DOT (DEPARTMENT OF TRANSPORTATION)

PROPER SHIPPING NAME: CONSUMER COMMODITY ORM-D

ROAD AND RAIL (ADR/RID):

KEMLER NUMBER: UN1993

HAZARD CLASS: 3

AIR (ICAO/IATA)

PROPER SHIPPING NAME: Flammable Liquid, N.O.S., (Hexane, Acetone)

UN/NA NUMBER: UN1993

PRIMARY HAZARD CLASS/DIVISION: 3

PACKING GROUP: II

NOTE: Domestic shipments only. When shipping International contact TechSpray shipping department.

VESSEL (IMO/IMDG)

PROPER SHIPPING NAME: Flammable Liquid, N.O.S., (Hexane, Acetone)

UN/NA NUMBER: UN1993
PRIMARY HAZARD CLASS/DIVISION: 3
PACKING GROUP: II
NOTE: Page 3230

CANADA TRANSPORT OF DANGEROUS GOODS
PROPER SHIPPING NAME: CONSUMER COMMODITY ORM-D

15. REGULATORY INFORMATION

UNITED STATES

SARA TITLE III (SUPERFUND AMENDMENTS AND REAUTHORIZATION ACT)

311/312 HAZARD CATEGORIES:

FIRE: YES **PRESSURE GENERATING:** NO **REACTIVITY:** NO **ACUTE:** YES
CHRONIC: YES

313 REPORTABLE INGREDIENTS: Toluene n-Hexane (110-54-3)

CERCLA (COMPREHENSIVE RESPONSE, COMPENSATION, AND LIABILITY ACT)

CERCLA REGULATORY: Acetone (67-64-1) Contains toluene (#108-88-3).

CERCLA RQ: 1000 Lbs.

TSCA (TOXIC SUBSTANCE CONTROL ACT)

TSCA STATUS: All components of this product are either listed or exempt from listing in the TSCA inventory.

RCRA STATUS: U220 U002

OSHA HAZARD COMM. RULE: Contents of this MSDS comply with the OSHA Hazard Communication Standard 29 CFR 1910.1200.

CANADA

WHMIS (WORKPLACE HAZARDOUS MATERIALS INFORMATION SYSTEM): This product has been classified according to the hazard criteria of the CPR. This MSDS contains all the information required by the CPR."

WHMIS CLASS: Class B2 - Flammable Liquids. Class D2B - Toxic Materials.

DOMESTIC SUBSTANCE LIST (INVENTORY): All components of this product are listed on the Canadian DSL.

EUROPEAN COMMUNITY

EEC LABEL SYMBOL AND CLASSIFICATION



R12 - Extremely flammable.

EEC Extremely flammable - "F+"