



# Fine-L-Kote™ UR

## Urethane Conformal Coating

### 2104

#### Introduction

As a urethane conformal coating, Fine-L-Kote™ UR is highly resistant to most solvents, moisture, fungus and molds. A clear, repairable coating, Fine-L-Kote™ UR is formulated with a black light indicator, Opti/Scan™, to provide checks for conformity in quality control. Coated boards can be reworked by applying soldering iron directly to coating, or complete removal can be achieved by using Trace Technologies™ Conformal Coating Remover (2510-N, 2510-P).

#### Features / Benefits

- Solvent Resistant
- Recommended for Harsh Environments
- Flexible
- Contains Opti/Scan™

#### Chemical Components

Propyl acetate..... (109-60-4)	25-30%-Aerosol 49-53%-Bulk
Urethane Prepolymer	<10%-Aerosol 19-23%-Bulk
Cyclotetramethylene oxide..... (109-99-9)	15-20%
Aerosol-Tetrafluoroethane..... (811-97-2)	30-35%
Xylene..... (1330-20-7)	9.28%-Aerosol <20-24%-Bulk
Bulk-Ethyl Benzene..... (100-41-4)	<5-8%
Bulk-Optical Brightener	<.1%

Cure Type	Thermal
Meets/Exceeds IPC-CC-830 MIL-I-46058C	UR Urethane
Thermal Shock	3
Dielectric Constant (@ 10 <sup>5</sup> Hz)	4.36
Dielectric Strength (Volts/Mill)	315
Volume Resistivity	2x10 <sup>13</sup>
Moisture Resistance	4
Resistant to Fungus	Yes
Ease of Repair	3
Flexibility	3
Chemical Resistance	4
Dry Time to Touch	15 min.
Cure Time	24 Hours
Accelerated Cure Time	20 min. @ 120°F    30 min. @ 180°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 for 2104

<b>Uncured Liquid Bulk</b>		
Gardener Color		1
Solids (%)		40
Viscosity (cps) Bulk / HV		10-20 / 150-250
NCO Content (%)		2.9
Pounds/Gallon		8.1
Flash Point (°F)		81
<b>Wet Film (40% solids, 3 mil thickness)*</b>		<b>*All conditions of test at 50% R.H. and 72°F</b>
Set to Touch (minutes)		10
Surface Dry (minutes)		45
Hard Dry (hours)		4
Full Cure (hours)		12
Sward Hardness (1 day)		2
<b>Cured Film</b>		
<b>Mechanical Properties</b>		
Color of Film		Clear
Sward Hardness		38
Taber Abrasion Loss (mg) (1000g load, 1000 cycles)		
cs 10 wheel		18
cs 17 wheel		28
Tensile Strength (psi)		5,000
Elongation (%) (20 in/min. Instron)		85
Impact Resistance (pounds)		
Direct		160
Reverse		140
Thermal Shock (Mil -I-46058C, UR)		Passes
(-65°C - + 125°C for appearance – doesn't crack)		
<b>Electrical Properties</b>		
Dielectric Strength (volts/mil)		380
Dielectric Constant	(60 hz)	4.1
	(10 <sup>6</sup> hz)	3.8
Insulation Resistance (ohms)		1.5 x 10 <sup>12</sup>

### Environmental Policy

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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

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

2104-12S	12 Ounce Aerosol
2104-P	1 Pint in Glass
2104-PHV	1 Pint in Glass
2104-G	1 Gallon in Metal
2104-GHV	1 Gallon in Metal
2104-5G	5 Gallons in Metal Pail

## Resources

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Techspray® products are supported by a global sales, technical and customer services resources.

For additional technical information on this product or other Techspray® products in the United States, call the technical sales department at 800-858-4043, email [tsales@techspray.com](mailto:tsales@techspray.com) or visit our web site at: [www.techspray.com](http://www.techspray.com).

North America  
Tech Spray L.P.  
P.O. Box 949  
Amarillo, TX 79105  
800-858-4043  
email: [tsales@techspray.com](mailto:tsales@techspray.com)

Europe  
Techspray International  
UNIT 4, 44/46 Bunyan Road, Kempston  
Bedford MK42 8HL United Kingdom  
+44 (0) 1234 855443  
email: [tseurope@techspray.com](mailto:tseurope@techspray.com)

Countries Outside US  
Call to locate a distributor  
in your country.

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Tech Spray, L.P.  
P.O. Box 949  
Amarillo, TX 79105  
[www.techspray.com](http://www.techspray.com)



## 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 <sup>6</sup> Hz)	2.66	3.1	3.80	2.5
Dielectric Strength (Volts / Mil)	1100 Dry 976 Wet	2086	380	560
Volume Resistivity	1x10 <sup>14</sup> Dry 9x10 <sup>14</sup> Wet	4x10 <sup>13</sup> Dry	2x10 <sup>13</sup>	5x10 <sup>13</sup>
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

