

# BONDLINE 6905

## HIGH PERFORMANCE ADHESIVE

Bondline 6905 is a combination flux and underfill epoxy encapsulant. After solder reflow the gelled underfill epoxy is post cured at 150-160°C for 90-120 minutes. It's low extractable ions make it suitable for flip chip on-board (FCOB) and chip scale packages (CSP's). Stable to 250°C, weight loss starts at 270°C.

## ADHESIVE PROPERTIES

<b>Color</b>	Black
<b>Viscosity*</b>	260,000 cps
<b>Work Life @ 25°C</b>	2 days
<b>Hardness (Shore D)**</b>	88
<b>Service Temperature Range</b>	-55°C to 200°C
<b>Lap Shear Strength @ 25°C (Al to Al)</b>	3200 psi
<b>Specific Gravity</b>	1.37
<b>Weight loss @ 105°C</b>	Nil
<b>Weight loss @ 200°C</b>	Nil
<b>Glass Transition Temperature (Tg)**</b>	128°C
<b>Mobile Ion Concentrations</b>	Chloride: 50 ppm Sodium: 20 ppm Potassium: Nil
<b>Coefficient of Thermal Expansion</b>	
<b>CTE Below Tg</b>	48 x 10 <sup>-6</sup> in/in/°C
<b>CTE Above Tg</b>	146 x 10 <sup>-6</sup> in/in/°C
<b>Shelf Life</b>	1 year @ -40°C or colder
<b>Availability</b>	Net volume 1cc to 10cc, available in disposable 3cc, 5cc & 10cc syringes.

## TEMPERATURE PROFILE FOR SOLDERING REFLOW AND ADHESIVE CURING

### LOW TEMPERATURE CURE OPTION

1. Ramp temperature from 25°C to solder liquidus point 185°C over 3 minutes.
2. Increase temperature to 200°C for adhesive gel, 1 minute dwell time.
3. Reduce temperature to 160°C for adhesive cure, 2 hour dwell time.

### HIGH TEMPERATURE OPTION

1. Ramp temperature from 25°C to solder liquidus point 240°C over 3 minutes.
2. Decrease temperature to 220°C for adhesive gel, 1 minute dwell time.
3. Reduce temperature to 160°C for adhesive cure, 2 hour dwell time.

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## GENERAL INSTRUCTIONS FOR ADHESIVE STORAGE/ USE

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### FROZEN STORAGE

This adhesive must be stored at (minus) -40°C (°F) or colder at all times. Storing this adhesive at temperatures warmer than (minus) -40°C (°F) will shorten its work life.

DO NOT RE-FREEZE adhesive that has already been thawed!

### THAWING PROCESS

Remove frozen syringe from freezer. Place in vertical position with lure lock end pointed down during thaw.

Adhesive must reach room temperature before use. See chart below based on syringe size.

SYRINGE SIZE	THAW TIME
1cc	5 minutes
3cc	10 minutes
5cc	15 minutes
10cc	20 minutes

### SURFACE PREPARATION

Make sure that all surface areas to be bonded are free of any contamination. If parts have been solvent cleaned make sure solvent is dried before applying adhesive

### APPLICATION

Check the work life of the adhesive, on the technical data sheet. Adhesives must be used within its work life .The adhesives' properties will change if it is used past the allowable work life. Apply adhesive using dispensing equipment of choice. Contact Bondline Technical Service with questions about dispensing adhesives.

### CURE

Choose a Cure Option (time & temperature) from the Bondline technical data sheet. Preheat the oven to the temperature of the selected cure option. For optimum cure, do not deviate from the selected cure option. Be sure to allow additional time for holding fixtures to reach cure temperature. Avoid opening oven doors during cure. Large fixtures and/or multiple fixtures may require extended cure time.

### SAFETY

Review the adhesive Safety Data Sheet (SDS) before using. Refer to the SDS in case of emergency. Always wear protective gloves and goggles while handling adhesives. Only work with adhesives in well-ventilated areas, with curing ovens vented outside. For industrial use only.

### TECHNICAL SERVICE CONTACT

For recommendations and help with any aspect of adhesive applications please contact the Bondline Technical Service Department (408) 830-9200, or via email: [info@bondline.net](mailto:info@bondline.net) or visit our website, [www.bondline.net](http://www.bondline.net)

**CAUTION: For industrial use only. People with sensitive skin may have a reaction to this adhesive. Avoid skin contact. Wash all areas with soap and water immediately if contact does occur. It is important to refer to Safety Data Sheet (SDS) OSHA for more details.**

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