

*“A Reliable  
and Responsive  
Adhesive  
Company.”*

Bondline™ 6905 is a combination flux and underfill epoxy encapsulant.

After solder reflow and cool down 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

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

#### **Temperature profile for soldering reflow and adhesive curing:**

##### **Low Temperature Cure Option:**

**Step 1)** Ramp temperature from 25°C to solder liquidus point 185°C over 3 minutes.

**Step 2)** Increase temperature to 200°C for adhesive gel, 1 minute dwell time.

**Step 3)** Reduce temperature to 160°C for adhesive cure, 2 hour dwell time.

##### **High Temperature Cure Option:**

**Step 1)** Ramp temperature from 25°C to solder liquidus point 240°C over 3 minutes.

**Step 2)** Decrease temperature to 220°C for adhesive gel, 1 minute dwell time.

**Step 3)** Reduce temperature to 160°C for adhesive cure, 2 hour dwell time.

Adhesive properties are not intended to be used as specification limits.

\* Brookfield Cone & Plate, CP 51 Spindle, 0.5 rpm, 25°C

\*\* Cured 4 hours @ 160°C.

# **Bondline™**

**Electronic Adhesives, Inc.**

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# ***General Instructions for Adhesive Storage and Use***

## **FROZEN STORAGE** – Unless otherwise stated

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) may alter the adhesives' properties and shorten its work life. DO NOT RE-FREEZE adhesive that has already been thawed!

## **THAWING PROCESS**

Adhesive must reach room temperature before use. Remove syringes from freezer. Place syringes on end for thawing. See chart below for thaw time based on syringe size.

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

**\*\* NOTE:** To accelerate thaw time, place syringes in front of an air blower or fan. This will reduce the thaw time by approximately 50%. Remove all condensation from syringes prior to use.

## **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 the work life time period. The adhesives' properties will change (usually thicken) 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 Material Safety Data Sheet (MSDS) before using. Refer to the MSDS 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 Material Safety Data Sheet (MSDS) OSHA for more details.

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