

### TECHNICAL SHEET

#### PLI 50 – Finixa metal bonding 60 min. black - 220ml

##### Description

PLI 50 is a two-component structural epoxy adhesive system intended for use in metal and composite panel bonding. Bond line thickness is controlled by 0,25mm glass beads comprised in the adhesive. The 2:1 adhesive system is available in 220ml side by side. The universal cartridge can be used with PLI 60, the Finixa applicator gun.

##### Features and benefits

- Room Temperature curing, heat acceleration possible
- Long open time of 60 min, handling within 4 hours @ 23°C, full cure in 24 hours
- Bond line thickness is controlled by 0,25mm glass beads
- Withstands automotive e-coat, powder prime, and paint oven temperatures up to 230°C
- Spot-weldable (uncured!)
- Excellent corrosion protection
- High energy absorption and very good crash performance

##### Nominal component properties

	PLI 50 (A-Part)	PLI 50 (B-Part)
Chemistry	Epoxy	Amine
Color	Black	Tan
Consistency	Viscous Paste	Viscous Paste
Specific Gravity, g/ml	1,08	1,13
Ratio by Weight	1,9	1,00
Ratio by Volume	2,0	1,00
Odor	none	slight amine

##### Typical cure characteristics of the mixed adhesive

	Temperature	Time
Open Time	@ 23°C	60 min
Working time	@ 23°C	90 min
Handling time	@ 23°C	4 hours
Full cure	@ 23°C	24 hours

**Open Time** - also "wet time" or "pot life". The time the adhesive is wet enough to bond to a second substrate being mated in the bed of adhesive. The open time is temperature depending. All data given was measured at 23°C.

**Working Time** - During working time the already joined part can still be re-positioned. Do not take the bonded assembly apart.

**Handling Time** - Time when the adhesive is hard enough to hold on its own. The handling strength of freshly bonded parts depends on type and height of outside forces, that impact the bond. Typically 0.75 to 1MPa is needed. In all cases peel forces, that effect the bond need to be reduced as far as possible. The part needs to be clamped or fixed until handling strength is reached.

### **Physical properties of the cured adhesive**

	<b>Value</b>	<b>Test Method</b>
Tensile strength, MPa @ 23°C	30	ASTM D-638
Young's Modulus, MPa @ 23°C	4550	ASTM D-638
Elongation, %	3	ASTM D-638
Poisson Ratio, @ 23°C	0,28	ASTM E-132
Water Absorption, %	2,9	ASTM D-570
Shore Hardness, D	80	ASTM D-2240
CLTE, 10-6/°C @ -30°C to 0°C	67	ISO MAT-2208
CLTE, 10-6/°C @ 100°C to 130°C	155	ISO MAT-2208
Glass Transition Temperature, °C		
G' Onset	49	ASTM E-1640
G'' Peak	-80, -50, 57	ASTM E-1640
Tan Delta Peak	-80, -49, 73	ASTM E-1640

Physical properties are values, based on material tested in our laboratories, but are subject to a standard deviation from sample to sample. Typical values should not be construed as a guaranteed analysis of any specific lot.

### **Application Guide**

Cure	Ambient or heat accelerated cure (max 150°C)
Optimum Bondline Thickness	0,25mm (glass bead incorporated)
Maximum Bondline Thickness	up to 230°C
Gap Filling	Very Good
Sag Resistance	For vertical applications
Consumption, 1/4" Diameter Round Bead	app 35g / m
Consumption, 1/2" Diameter Round Bead	app 141g / m

### **Surface Preparation**

Substrate	Surface preparation Ambient Cure	Surface preparation Heat Cure
Metal	Abrasion & Degreasing	Abrasion & Degreasing
Composite (SMC, RTM, CFRP)	Abrasion	Solvent wipe

### **Lap Shear Strength**

<b>Substrate</b>	<b>Lap Shear Value [MPa]</b>	<b>Failure Mode</b>
Cold Rolled Steel (1,5mm)	27,8	Cohesive Failure
Cold Rolled Steel (0,8mm)	23,7	Steel Deformation
Hot Dipped Galvanized Steel (0,7mm)	12,6	Steel Deformation
Alloyed Galvanized Steel (0,7mm)	18,5	Cohesive Failure
6111 Aluminium Alloy (0,9mm)	11,3	Mixed Failure (COH/ADH)
5052 Aluminium Alloy (0,6mm)	12,4	Mixed Failure (COH/ADH)
ABS	3,0	Substrate Failure
SMC	8,8	Substrate Failure

Test Conditions: preparation: Solvent wipe, Orbital Abrasion (80rgd), Bond Line: 0,25mm, Cure: 1w@23°C, Test temperature: 23°C, Crosshead speed: 13mm/min

## **Handling**

PLI 50 Adhesive System contains ingredients which could be harmful if improperly handled. Contact with skin and eyes should be avoided and necessary protective equipment and clothing should be worn. Material Safety Data Sheets contain health and safety information for your development of appropriate product handling procedures to protect your employees and customers.

## **Packaging**

PLI 50 adhesive system is supplied in cartridges 220ml.

## **Shelf Life and Storage**

PLI 50 cartridges have a shelf life of 24 months from date of filling, when stored indoors between 15° to 32°. After dispense the used mixer should be left attached to the cartridge to ensure sealing from humidity.

*The above information is given in good faith, but the user should assure himself that the performance of the product is sufficient for his application. The quoted values are average and should not be taken as maximum or minimum values for specific purposes. Chemicar Europe cannot be held responsible for product failure unless full testing has been carried out. The client has to decide on the products suitability for their own applications.*