TECHNICAL SHEET

Rev. 2 dated 17/02/2016

PLIO-METAL EPOXY is a two-component structural epoxy cartridge adhesive system, intended for use in bonding panels made with sheet metal, aluminium, reinforced plastic, etc. Bond line thickness is controlled by 0.25 mm glass microspheres.

This 2:1 adhesive system is available as either 220ml side by side or 195ml universal cartridge format. The larger chamber contains a black epoxy based resin; the smaller one contains a beige catalyst system. Do not attempt to use mixing systems other than the one supplied in the application of this product. Additional mixers are available.

The product cures at room temperature, heat acceleration is possible.
Withstands automotive e-coat, powder prime, and paint oven temperatures up to 230°C.
When uncured, it is spot-weldable.
The system offers excellent corrosion protection, high energy absorption and very good crash performance

TYPICAL COMPONENT PROPERTIES – NOMINAL VALUES

Container	Epoxy	Curative
Colour	Nero	Beige
Consistency	Pasta viscosa	Pasta viscosa
Density, lbs/gal (g/cm³)	1.08	1.13
Ratio by weight	1.9	1.0
Ratio by volume	2.0	1.0
Odour	Nessuno	Amminico

TYPICAL CURE CHARACTERISTICS OF MIXED ADHESIVE

Open time	at 23 °C	60 minutes
Working time	at 23 °C	90 minuti
Clamp time	at 23 °C	4 hours
Curin g through	at 23 °C	24 hours

TYPICAL PHYSICAL PROPERTIES OF CURED ADHESIVE

(1 MPa = approx. 145 psi)

	Test method	***Value***
Tensile strength (MPa @ 23 °C)	ASTM D-638	30
Young modulus (MPa @ 23 °C)	ASTM D-638	4550
Ultimate elongation (%)	ASTM D-638	3.0
Poisson ratio @ 23 °C	ASTM E-132	0.28
Water absorption (%)	ASTM D-570	2.9
Shore Hardness (D)	ASTM D-2240	80
CLTE[1], 10 $^{-6}$ °C @ -30 ° to 0 °C	ISO MAT-2208	67

[1] Coefficient of Linear Thermal Expansion

CLTE, 10 $^{-6}$ °C @ 100 ° to 130 °C	ISO MAT-2208	155
Glass transition temperature (°C)	ASTM E-1640	
G' Onset		49
G'' exothermic peak		-80, -50, 57
Tan delta peak		-80, -49, 73

TEST CONDITIONS

Bond line thickness	0.25 mm
Cure cycle	1 week at 23 °C
Testing temperature	23 °C
Crosshead speed	13 mm/min

APPLICATION GUIDE

Cure	Ambient or heat accelerated cure (max 150°C)
Optimum bondline thickness	0.25 mm (glass bead incorporated)
Paint bake	Up to 230°C
Gap filling	Very good
Sag resistance	For vertical applications
Consumption (6 mm diameter round bead)	Approx. 35 g/m
Consumption (13 mm diameter round bead)	Approx. 141 g/m

SURFACE PREPARATION

Substrate	**Ambient cure**	**Heat cure**
Metal	Abrasion and degreasing	Abrasion and degreasing
Composite (SMC, RTM, CFRP)	Abrasion	Solvent wipe

OVERLAP SHEAR STRENGTH

Substrate	**Lap shear value (MPa)**	**Failure mode**
Cold-rolled steel (1.5 mm)	27,8	Cohesive failure
Cold-rolled steel (0.8 mm)	23,7	Steel deformation
Hot-dipped Galvanised steel (0.8 mm)	12,6	Steel deformation
Alloyed Galvanised steel (0.7 mm)	18,5	Cohesive failure
6111 Aluminium alloy (0.9 mm)	11,3	Adhesive failure
5052 Aluminium alloy (0.6 mm)	12,4	Adhesive failure
Polypropylene (3.2 mm)	1,75	Adhesive failure
ABS (2.9 mm)	2,98	Substrate failure

SMC (2.8 mm)	8,76	Substrate failure

CURING RATE – OVERLAP SHEARS – COLD-ROLLED STEEL (1.5 mm) - MPa @23°C

Hours	1	2	4	5	6	7	8	24
MPa @23 °C	0,0	0,2	1,5	n.a.	9,3	n.a.	13,3	22,9

STORAGE:

24 months, in the original package, in cool, dry place. Best results are obtained when the cartridge is stored on its side.

AVAILABLE PACKAGINGS:

Code	**Format**
30820	Side by side cartridges, 225 ml
30820/195	Universal cartridges, 195 ml

The information provided in this document is based on our current knowledge and is correct. The recommendations and suggestions on this sheet are provided without guaranteeing the results. You should evaluate these recommendations and suggestions in your laboratory before using the product. Our responsibility for claims due to warranty default, negligence or any other reason is limited only to the purchase price of the product.