

## ADHESIVE DESCRIPTION

ACRALOCK PP 1 series is an advanced, two component, 1:1 mix ratio, medium shear strength coupled with excellent toughness, low elongation low energy surface bonding adhesives. PP 1 series is available as 2 – 3 min open time version and is specially designed to bond low energy surfaces such as PE, PP, POM and PTFE as well as all kinds of other thermoplastics and various metal surfaces without surface primers and with minimal to no other surface preparation<sup>a,b</sup>. Due to its temperature resistant and high ignition temperature formulation, PP 1 series can be used with plastic fillet welding in cured and uncured stage. Packaging options include 50 & 400 ml side by side cartridges and 20 l & 200 l drum containers for application with meter-mix dispensing equipment.

## PERFORMANCE HIGHLIGHTS

- Working time 2 to 3 minutes
- Primerless Metal Bonding
- Low Exotherm adhesives
- Gap fill 0,5 to 4 mm
- Good Environmental/Chemical Resistance<sup>(b)</sup>
- Good temperature resistance
- Permanent toughness and elasticity
- No Sagging
- Non Critical mix ratio
- Stable formulations

## BENEFITS

- Good for small and medium assembly applications
- No surface treatment or priming required for most metals<sup>(a)</sup>
- Reduced Print Through, less post finish work
- Thin film to medium gap fill application possible
- Durable bond performance in harsh environments
- Combination with fillet welding possible
- Excellent fatigue characteristics and shock load resistance
- Vertical surface and overhead applications possible
- Easy to use with cartridges and meter mixing equipment
- Shelf-life 3 months @ 25° C, 6 months @ 5 – 8° C

## PRODUCT PROPERTIES @ 22° C

Product	Adhesive/Activator	Working Time (Minutes)	Fixture Time (Minutes)
PP 1-02 NAT	PP 1-02 A / PP 1-02 B	2 – 3	> 180

(x): Fixture time is time to reach > 0,5 MPa lap shear strength on Polypropylene, t = 2 mm  
Full cure after 24 h

## TYPICAL ADHESIVE WET PROPERTIES

Property	Component A	Component B	A + B mixed
Colour	Amber	Off white	Natural
Mix Ratio (Volume)	1	1	
Mix Ratio (Weight)	1	1	
Viscosity kps (Pa.s)	80 - 150	30 – 60	
Density (g/cm <sup>3</sup> )	0,95 – 1,00	0,95 – 1,00	0,95 – 1,00

## TYPICAL ADHESIVE CURED PHYSICAL PROPERTIES

- Tensile strength: 14 - 18 MPa
- Modulus: 700 - 800 MPa
- Elongation: 10 - 20 %
- Lap Shear strength, ASTM D1002: 12 – 15 MPa
- Shore D: 70 - 80
- Operating Temperature: - 55 – 85°C
- Max Temperature resistance: 150°C, 1h

Cured Adhesive is generally resistant to salt solutions, hydrocarbons and acid and bases with a PH from 3 to 10.

Cured Adhesive is not recommended for exposures to polar solvents and stronger acids or bases (see note b).

Operating Temperature range for this product is from - 40 to 120° C with intermittent exposure of -55 to 150° C (see note c)



- c.) Cohesive strength at -40 and 85°C retains a minimum of 500 psi as measured on aluminum. Bonds are resistant to intermittent exposures from -55 to 150° C, provided bonding assembly is in a fixture and not under shear load. User must determine suitability for continuous exposures beyond operating temperature range.
- d.) The shelf life of Components A and B in unopened containers is approximately 3 months from the date the product is delivered from EBS facilities. Shelf life is based on steady state storage between 55°F and 80°F (18°C and 25°C). Exposure, intermittent or prolonged, above 80°F/25°C will result in a reduction of the stated shelf life. Shelf life of both components can be extended by air-conditioned or refrigerated storage between 5°C and 8°C to 6 month.

**Product recommendations contained herein are based on information we believe to be reliable.**

**All values presented above are typical properties obtained under controlled conditions at the EBS, LLC. Laboratory or an outside certified laboratory. The values are intended to be used only as a guide for selection and further end-use evaluations. The ultimate suitability for any intended application must be verified by the END USER under their anticipated test conditions. This product is intended for use by skilled individuals at their own risk. Since specific use, materials and product handling are not controlled by EBS, our warranty is only limited to the replacement of defective EBS products.**

## **SAFETY, HANDLING AND APPLICATION**

**VERY IMPORTANT:** Read Material Safety Data Sheet before handling or using this product. Engineered Bonding Solutions, LLC (hereinafter referred to as "EBS") adhesives are supplied in dual component cartridges, 5 gallon pails and 50 gallon drums to facilitate mixing through approved meter mix dispensing equipment. We do not suggest mixing by hand. Please contact your EBS representative for questions about dispensing equipment. The chemical reaction that occurs when components A and B are mixed generates heat. The amount of heat generated is controlled by the mass and thickness of the mixed product. Large masses over 5 mm thick can develop heat in excess of 250°F/121°C and generate harmful, flammable vapors. Larger curing masses should be carefully moved to a well-ventilated area where the chance of personal contact is minimized.

The working time is the approximate time that the adhesive remains fluid and will still wet the surface of the adherend after mixing component A (adhesive) and component B (activator). The fixture time is the approximate time after mixing the two components that allow the part to be moved or unclamped. This is generally shortly after exotherm is reached for particular bonding condition. Parts can generally be put in service when 75 percent of full strength is developed, which occurs once the bonded assembly has cooled back to ambient temperatures. Higher ambient temperatures will shorten the working time and colder temperatures will lengthen the working time. The reported data presented in the TDS are based on tests conducted under laboratory conditions of 75°F/24°C. For applications in hot or cold ambient conditions please contact your EBS representative.

Prior to bonding, ensure substrates are clean and free of surface contaminants. All dispensing equipment should be in good operating condition and QC ratio checks performed periodically to ensure consistent and accurate dispensing. Use only adhesive dispensing equipment approved by your EBS sales representative. All wetted metal parts should be stainless steel, always purge enough adhesive on a non-porous surface (FRP or plastic) to ensure proper mixed color is maintained. Check the cure profile to ensure the working time and fixture time match the reported values for A and B components listed on the front page. If all QC checks are in order, continue with the assembly operation and be careful to ensure that parts are bonded to a minimum gap thickness of 0.02" (.5mm) and maximum gap of 0.5" (12,5 mm). *All adhesives with working times below 30 minutes can boil in gaps approaching 12,5 mm or even less if using even faster formulas. This could lead to reduced physical properties.* After the adhesive is fully applied, consistent pressure should be applied to allow squeeze out, then also, parts should not be repositioned once substrates are bonded. Any movement of parts will entrap air in the bonded joints, which will reduce performance. The bonded assembly should then be clamped in position and not be disturbed until the fixture time has elapsed.

EBS recommends the use of alcohol or industrial solvents for cleaning excess adhesive. This should be done when the adhesive is still wet or soft and care must be taken to prevent the cleaning solvent or alcohol from coming in contact with the adhesive as this could lead to an under-cure of the exposed edges. The use of tape and a sharp edge to remove excess adhesive is best practice. Also, partially cured adhesive can be carefully removed with a sharp knife. Removal of cured adhesive should be scraped or cut with a sharp blade which is preferred to sanding or grinding. High speed sanding or grinding of large areas will produce heat and produce noxious fumes and should be avoided or only be done with protective breathing apparatus.