SA1-05A Structural Adhesive

Preliminary TDS Version 18-5

ACRALOCK ENGINEERED BONDING SOLUTIONS, LLC.

ADHESIVE DESCRIPTION

ACRALOCK SA1-05A is a single base methacrylate adhesive (Component A) formulated to be used with different activators (Component B). When mixed at 1:1 ratios with SA1-05BNAT or SA1-15BNAT activators, will provide a range of working times. The Component A can also be used with a few other Component B activators either pigmented Gray activators or HS type activator (see HS1-05-15B TDS for more information). These products will adhere to assemblies of thermoset composites, most plastics and are formulated to be primerless on most metal surfaces (see all notes on back). ACRALOCK adhesives, manufactured by Engineered Bonding Solutions, LLC., are packaged in 25ml, 50ml & 400 ml dual cartridges as well as 5 & 50-gallon containers for application with meter-mix dispensing equipment.

KEY FEATURES

- Easy 1:1 mix ratio
- Working time of 7 or 17 minutes
- 3,700psi shear strength and up to 100 % elongation
- Little to no surface preparation
- Primerless on most metals
- Good Chemical Resistance
- Excellent fatigue characteristics and shock load resistance
- Stable formulations with shelf-life of 6 months

SUGGESTED SUBSTRATES WE BOND

Wood, Polyesters, Vinyl Esters, SMC, Epoxies, Acrylics, PVC/FPVC/CPVC, Polycarbonate, ABS, Styrenics, Stainless Steel, Carbon Steel, Aluminum, Coated Metals, Nylon, Galvanized Metals and many other composites, thermoplastics and metals!

CHEMICAL RESISTANCE

Cured Adhesive is generally resistant to intermittent exposures of salt solutions, hydrocarbons, acids and bases with a pH range from 3 to 10. See more important notes on chemical resistance on back page!

TYPICAL ADHESIVE WET PROPERTIES

Property	Comp A	Comp B	Mixed
Color	CREAM	AMBER*	NATURAL
Viscosity (cP)	200K-400K	100K-200K	
Mix ratio weight	1.04	1	-
Mix ratio volume	1 part	1 part	-
Density g/cc	1.0	0.96	-
WPG lb/gal	8.32	8.0	-

*Component B is also available in Gray SA1-05B GRY or SA1-15B GRY without any significant change in physical properties!

PRODUCT WORKING & FIXTURE TIME (min)

CARTRIDGE→	SA1-05NAT	SA1-15NAT
Comp B →	SA1-05B	SA1-15B
Color	NAT	NAT
Comp A →	SA1-05A	SA1-05A
Working Time	5-8	15-20
Fixture Time	15-20	30-40

CURED PHYSICAL PROPERTIES	Typical Values psi (MPa)
Tensile strength	2,500-3,000 (20.7)
Modulus *kpsi*	80-100 (690)
Elongation (max. %):	75-100
Lap Shear Aluminum, ASTM D1002	3,200-3,700 (25.5)
Lap Shear Stainless , D1002	2,900-3,400 (23.4)
Lap Shear Cold Rolled Steel, D1002	2,900-3,400 (23.4)

NOT RECOMMENDED FOR BONDING

Polyolefins, Polyacetals and PTFE

TEMPERATURE EXPOSURE

Temperature range for this product is from -40 to 180 °F (-40 to 82 °C), with intermittent exposure between -67 to 250°F (-55 to 121 °C)

SEE IMPORTANT INFORMATION AND NOTES ON PAGE 2!

IMPORTANT INFORMATION

ACRALOCK is a trade name of Engineered Bonding Solutions, LLC (hereinafter referred to as "EBS"). All ACRALOCK 1:1 and 10:1 adhesives (Component A) and 1:1 activators (1:1 Component B) are flammable. Cured product is NOT fire resistant and will burn if ignited, releasing toxic fumes. The use of proper PPE (Personal Protective Equipment) is strongly recommended; wear gloves and safety glasses to avoid skin and eye contact, harmful if swallowed and please always refer to both TDS and SDS before using any ACRALOCK adhesive product. Questions relative to handling and applications should be directed to 1-855-411-GLUE or email us at info@acralock.com

Adhesives are supplied in dual component cartridges, 5-gallon pails and 50-gallon drums to facilitate mixing through approved stainless-steel meter mix dispensing equipment. Always use a static mixer with sufficient elements to ensure a homogeneous mix. We do not recommend mixing by hand. Please contact your EBS representative for questions about dispensing equipment manufacturers and approved seal and gasket materials. Automated equipment should be constructed of stainless steel. An exothermic chemical reaction occurs when components A and B are mixed and will generate heat. The amount of heat generated is relative to amount of mass of mixed product and also the working time of the Components A and B (or more relative to reactivity of product). Generally, faster curing products applied in larger beads or mixed left into large quantities can cause rapid boiling of monomers under excessive heat of reaction. These vapors are flammable or harmful if inhaled. Avoid sanding, grinding on cured adhesives (cut or scrape instead), which can produce noxious smoke that could contain harmful constituents, in this case consider a forced air breathing apparatus (PPE). After proper mixing of components, the VOC content of cured product will be less than 20 g/L (0.17 lbs./gal).

Use sufficient material to ensure the joint is completely filled when parts are mated and clamped. All adhesive application, part positioning, and fixturing should occur before the working time of the mix has expired. After indicated working time, parts must remain undisturbed until the fixture time is reached. The working time is the approximate time that the adhesive remains fluid and will still wet the surface of the adhered after mixing component A (adhesive) and component B (activator). The fixture time is the approximate time after mixing the two components that will allow the parts to be moved or unclamped. However both working time and fixture times will increase or decrease depending on ambient temperatures and thickness of application. Thin applications in colder conditions can substantially increase fixture 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. Clean-up is easiest before the adhesive has cured Citrus terpene or N-methylpyrolidone (NMP) containing, polar solvents, ketones. Avoid contaminating wet adhesive cosmetic surfaces with these cleaners, use masking tape and remove after applying while wet. If the adhesive is already cured, careful remove by scraping with a sharp tool, followed by a solvent wipe may be the most effective method of clean-up.

IMPORTANT NOTES:

Surface Preparation: The need for surface preparation must be determined by the user based on comparative testing of unprepared and prepared substrates to determine if strengths are adequate for application. Clean adhesive failure is not desired for long-term durable performance. In all cases initial shear strength tests must be followed up with simulated or actual durability tests to assure that surface conditions do not lead to degradation of the bond over time under service conditions. Subsequent changes in substrates or bonding conditions will require re-testing.

Most thermoplastics listed above can be bonded with no surface preparation other than a dry wipe or air blow-off. If contamination is visible or suspected, wipe with alcohol prior to bonding. Low surface energy plastics like polyolefins, thermoplastic polyesters and fluorocarbon plastics are generally not bondable.

Metals: EBS recommends surface preparation of most bare metals prior to bonding with Acralock adhesives. Preparation of metals may involve sanding, solvent wipe, solvent immersion or dry wipe. After cleaning, EBS recommends a final wipe of all bondable surfaces using Acralock AP-1, an alcohol based cleaner/primer, to achieve better adhesion, and long-term bond durability. Metal to metal assemblies with thin bond gaps ≤ .015" requires standoff or spacers for uniformity. Metals such as cold rolled steel, carbon steel, ductile iron, etc. require sanding to remove rust, oxidation or scale followed by cleaning with AP-1 cleaner/primer. High strength galvanized steel should be sanded, cleaned with AP-1 and tested with 1:1 Acralock products, such as SA1-05A or SA1-700A, for best results. Surface preparation, and AP-1 wipe is strongly recommended for best adhesion. Powder coated and painted metals do not require AP-1, but should be tested before bonding. **All other metals should be tested prior to bonding.**

Thermoset composites are generally bonded without preparation; however, mold releases and process can produce varied bonding performance and testing should be performed.

Elevated temperature cohesive strength at 180°F retains a minimum of 500 psi as measured on aluminum. Bonds can be exposed to intermittent temperatures up to 250°F, provided at the higher temperature range bonding assembly is in a fixture and not under shear load. User must determine suitability for all applications and operating conditions.

Chemical Resistance EBS strongly recommends laboratory and end-use testing representative of the environmental conditions and how the bonded assembly will be used. Bonds are generally resistant to the effects of heat, water and moisture, aqueous chemicals and some intermittent exposure of gasoline, motor oil and diesel fuel. Not recommended for immersion or long-term exposure to all hydrocarbons, concentrated acids or bases, or aggressive organic solvents such as toluene, ketones, and esters.

The shelf life of Components A and B in unopened containers is approximately six months from the date the product is manufactured from EBS facilities. Shelf life is based on steady state storage between 55°F and 80°F (13°C and 27°C). Exposure, intermittent or prolonged, above 80°F/27°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 55°F and 65°F (13°C and 18°C).