CC 10-12 P Series

METHACRYLATE STRUCTURAL ADHESIVE
PRELIMINARY TECHNICAL DATA SHEET

ADHESIVE DESCRIPTION

ACRALOCK CC 10-12P CLR is an advanced, two components, 10:1 mix ratio, crystal clear adhesive with same braking index as standard Acrylic sheets.
CC 10-12P CLR is available in 10 min working time and 2 viscosity grades and designed to bond as received clear plastics like PMMA, PETG, PC, PVC and others with no or little surface preparation [a,b] for all applications where a crystal clear appearance of the bondline is necessary.
Packaging options include 50 & 490 ml side by side cartridges and 2l, 20 l & 200 l drum containers for application with meter-mix dispensing equipment.

PERFORMANCE HIGHLIGHTS

Working time 10 minutes
Crystal Clear, purple
UV stable
Gap fill 0,05 to 4 mm
Low Sagging with HV grade
Stable formulations
Metal Bonding Formulation

BENEFITS

Enough time for small to medium assembly applications
No yellow colored bondline between parts
Non yellowing
Thin film to medium gap application possible
Vertical surface and overhead applications possible
Shelf-life 6 months
Plastic to Metal substrate combination possible

PRODUCT PROPERTIES @ 22° C

Product	Adhesive/Activator	Working Time (Minutes)	Fixture Time (Minutes)
CC 10-12 PCLR	CC 10-12PA / 12 BCLR	8 - 12	< 45
CC 10-12 PHVCLR	CC 10-12PHVA / 12 BCLR	8 - 12	< 45

TYPICAL ADHESIVE WET PROPERTIES

Property	Component A	Component B	A + B mixed
Colour	Clear Purple	Clear Off White	Crystal Clear
Mix Ratio (Volume)	10	1	
Mix Ratio (Weight)	10	1	
Viscosity kps (Pa.s)	8 – 15 *1.)	0,07 – 0,1	
Viscosity kps (Pa.s)	2 – 4 *2)	0,07 – 0,1	
Density (g/cm^3)	0,97 – 1,02	1,08 – 1,15	1,01

Remarks: *1.) CC10-12PHVA
*2.) CC10-12PA

TYPICAL ADHESIVE CURED PHYSICAL PROPERTIES

Tensile strength:	1500 (10 MPa)
Elongation:	5 - 15 %
Lap Shear strength, ASTM D1002:	1500 psi (10 MPa)
Operating Temperature:	- 40 – 100°C
Max Temperature resistance:	160°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 100° C with intermittent exposure of -55 to 160° C (see note c).

RECOMMENDED SUBSTRATES (See important notes below)

Polyesters	Acrylics	PVC/FPVC/CPVC	Vinyl Esters
PMMA	ABS	Styrenics	Polycarbonate
PET	NBS	SAN	ASA

SUITABLE SUBSTRATES (See important notes below)

Metals	Wood

NOT RECOMMENDED FOR BONDING

Polyolefins	Polyacetals	PTFE	Glas

TYPICAL LAP SHEAR STRENGTH VALUES @ 22°C, ISO 1465

CC10-12PCLR:

PVC pultruded:	7,5 MPa [f] (substrate failure)	Aluminium AW 5754:	14 MPa [g] (adhesive failure)
PC:	8,5 MPa [f] (substrate failure)	Stainless Steel 1.4301:	15 MPa [g] (adhesive failure)
ABS:	5 MPa [f] (substrate failure)	Carbon Steel S355:	14 MPa [g] (adhesive failure)
PMMA:	6 MPa [f] (substrate failure)	Galvanized Steel Z275:	7,5 MPa [g] (adhesive failure)
PETG UV:	6 MPa [f] (substrate failure)	Carbonfibre Epoxy Laminate:	15 MPa [g] (cohesive failure)

CC10-12PHVCLR:

PVC pultruded:	7,5 MPa [f] (substrate failure)	Aluminium AW 5754:	14 MPa [g] (adhesive failure)
PC:	8,5 MPa [f] (substrate failure)	Stainless Steel 1.4301:	15 MPa [g] (adhesive failure)
ABS:	5 MPa [f] (substrate failure)	Carbon Steel S355:	14 MPa [g] (adhesive failure)
PMMA:	6 MPa [f] (substrate failure)	Galvanized Steel Z275:	7,5 MPa [g] (adhesive failure)
PETG UV:	6 MPa [f] (substrate failure)	Carbonfibre Epoxy Laminate:	15 MPa [g] (cohesive failure)

[e]: bondline gap 0,5 mm, IPA wipe
[f]: bondline gap 0,5 mm, IPA wipe, Modified Kataplasmacycle EN9142, -30/+70°C, 12h each, 5 cycles
[g] bondline gap 0,5 mm, Abrading 40 grit sandpaper, AP1 wipe, Modified Kataplasmacycle EN9142, -30/+85°C, 12h each, 5 cycles
[h] bondline gap 0,5 mm, AP1 wipe, Modified Kataplasmacycle EN9142, -30/+85°C, 12h each, 5 cycles

IMPORTANT NOTES

a.) 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. Kataplasmacylce testing EN9142 gives good basic testing for pass/fail evaluation on every substrate surface.

1. 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.
2. Metals as received aluminum, stainless steel, cold rolled steel, carbon steel are bondable without preparation, EBS strongly suggest only using faster curing versions with working times less $\leq$ 40 minutes, if bonding metal to metal in thin bond gaps > 0,015" bond gap must be maintained.
3. Thermoset composites are generally bonded without preparation, however mold releases and process can produce varied bonding performance and testing should be performed.

b.) It is the user's responsibility to determine the suitability of each adhesive for its intended use on substrates and application. EBS strongly recommends laboratory and end-use testing representative of the environmental conditions and how the bonded assembly will be used. Read and understand TDS and MSDS before using. Bonds are generally resistant to the effects of heat, water and moisture, aqueous chemicals and most petroleum hydrocarbons, including gasoline, motor oil and diesel fuel. Not recommended for immersion or long term exposure to concentrated acids or bases, or aggressive organic solvents such as toluene, ketones, and esters. It is the user's responsibility to determine the suitability of each adhesive for its intended use and application. Please contact EBS for technical assistance.

c.) Bonds are resistant to intermittent exposures from -55 to 160° 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 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 (5°C and 8°C).

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 - GmbH 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 (hereinafter referred to as "EBS") adhesives are supplied in dual component cartridges, 20 litres pails and 200 litres 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 0,05mm and maximum gap of 4 mm. *All adhesives with working times below 30 minutes can boil in gaps approaching 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.