Technical Information

ACRIFIX™ 1S 0117 PURE Specialty Bonding Agent

Product and Use

ACRIFIX™ 1S 0117 solvent acrylic cement is a clear, fluid adhesive free of dichlormethane (methylene chloride) and was developed utilizing a patented formula to provide an alternative to cements containing dichloromethane.

Applications

Preferably used for making T-joints and bonding narrow areas of all kinds of acrylic (PMMA) to itself, (i.e. ACRYLITE® FF, ACRYLITE® Resist™, and ACRYLITE® GP acrylic sheet or parts made from ACRYLITE® molding compounds), as well as to other thermoplastics such as ABS, PS and PVC.

Bonds produced from ACRIFIX 1S 0117 solvent cement are strong and clear and firm within a short time. Rapid further treatment is possible. The cement does not cause crazing or blushing (whitening) when used as recommended under normal conditions. ACRIFIX 1S 0117 is not gap-filling. Conduct prior tests if necessary.

Typical Values of Properties

Viscosity; Brookfield II/12/68°F/20°C: 0.8 cp

Density/68°F/20°C: ~ 0.98 g/cm3

Refractive index n_D^{20}: ~ 1.38

Color: clear

Flash point (Closed Cup): < 39°F / 4°C

Solids content: ≤ 1%

Storage stability: 2 years in original container, if stored properly. Maximum 86°F / 30°C

Packaging materials: Glass and aluminum vials varnished on the inside

Curing: Physically by evaporation and absorption in the jointed parts

Safety Measures and Health Protection

Irritating to eyes, respiratory system and skin. Sensitization by skin contact possible. Keep away from any source of ignition. Wear suitable protective gloves to avoid contact with skin. Avoid eye contact. In operations where eye or face contact could occur, wear eye protection such as chemical splash-proof goggles or a face shield. In the event of contact with eyes, rinse immediately with plenty of water and consult a doctor.

Contains flammable liquid and vapor which can be harmful if inhaled. Keep away from heat, sparks and flame. Avoid breathing vapor. Keep container closed. Use adequate ventilation.

Bonding Technique

Fix the parts to be bonded in the desired position. Introduce ACRIFIX 1S 0117 into the joint either from a glue dispenser or disposable syringe, and avoid bubble formation. It can be used for making T-joints and bonding narrow areas of ACRYLITE FF, ACRYLITE Resist and ACRYLITE GP sheet. It can be utilized in the same applications as dichloromethane based cements as long as proper precautions are observed. It will not fill gaps caused by unfinished edges. It is recommended that edges be either scraped or milled to produce a flat level cementing surface. Technique is always an issue, but in general, bubble free joints are more readily obtained using this cement than other commercial solvent cements due to the fact that it is less viscous and flows better upon application. The resulting bond will be firm in a relatively short period of time depending on the substrate and will have high ultimate strength.

Note: For best results, work on a flat and level surface. ACRYLITE FF, ACRYLITE Resist and ACRYLITE GP sheet each behave differently when used with this cement; therefore, application instructions are slightly different for each:

ACRYLITE FF sheet: Best results are achieved by using the shim sizes and shim removal times as recommended. When removing the shims, be careful not to take them out too abruptly. Due to the fact that the tack time is slow, it is possible to move the part with the slightest force. After 1.5 to 2 minutes from time of application of cement, apply a pressure of 1.0 to 2.0 psi for 2 to 3 minutes. To obtain greater strength, apply a weight of 1.0 to 2.0 pounds per square inch of bonded surface area for 30 to 45 minutes for sheet of thickness less than 0.236". Apply the weight for 15 to 30 minutes for sheet thickness greater than 0.236". The finished piece can be further processed after 2.5 to 3.5 hours and will increase in bond strength over the next few weeks.

ACRYLITE Resist sheet: Utilize the capillary method with 0.004" shims for sheet thickness greater than or equal to 0.236", and 0.002" shims for sheet less than 0.236" in thickness. Remove shims within a few seconds after application of cement. Apply a weight of 1.2 to 2.0 pounds per square inch of bonded surface area for 15 to 30 minutes which will insure greater ultimate adhesion. The piece can be processed after 2 to 3 hours and will increase in bond strength over the next few weeks.

ACRYLITE GP sheet: It is recommended shims not be used with ACRYLITE GP sheet. Only use shims if there is difficulty in getting cement into the joint. In order to keep ACRYLITE GP sheet from moving, especially for thinner materials, a jig should be used to support the sheet. After 3 to 5 minutes from time of application of cement, apply a pressure of 1.5 to 2.5 psi for 2 to 3 minutes. To achieve higher strength, apply a weight of 1.0 to 2.0 pounds per square inch of bonded surface area for 45 to 60 minutes for sheet thickness less than 0.236". Apply the weight for 30 to 45 minutes for sheet thickness greater than 0.236". The finished piece can be further processed after 3 to 4 hours and will increase in bond strength over the next few weeks.

Other Fabrication Tips

Some typical tack times are listed at right.

The quality of a bond depends largely on the careful preparation of the surface to be joined and the bonding techniques utilized. Tack time varies with the substrate being used.

	0.118"	0.236"
ACRYLITE Resist	10 to 15 sec.	5 to 10 sec.
ACRYLITE FF	60 to 90 sec.	10 to 15 sec.
ACRYLITE GP	2.5 to 4 min.	20 to 30 sec.

Tack time here is defined as the amount of time it takes before a butt joint, 6 inches in length, can be picked up by the bonded end and will not separate itself from the surface of the other piece. In general, particularly for thinner materials, tack times are longer for ACRYLITE GP and ACRYLITE FF sheet when using this cement compared to other commercial solvent cements. ACRIFIX 1S 0117 cement has similar tack times for ACRYLITE Resist sheet.

The table at right provides helpful hints on how to get the best possible bonds.

ACRYLITE FF, ACRYLITE GP and ACRYLITE Resist sheet each behave differently when used with this cement; therefore, application, instructions are slightly different for each.

	ACRYLITE Resist	ACRYLITE FF	ACRYLITE GP
Shims size	<0.236" sheet 0.002"	<0.236" sheet 0.002"	none
	≥0.236" sheet 0.004"	≥0.236" sheet 0.004"	see below
Remove shims	<0.236", 5 to 10 sec.	<.236", 30 to 60 sec.	N/A
	≥0.236", < 5 sec.	≥0.236", < 10 to 20 sec.	
Time before pressure	45 to 60 sec.	1.5 to 2 min.	3 to 5 min.
Amount of pressure	5 to 15 psi	1.0 to 2.0 psi	1.5 to 2.5 psi
Duration of pressure	2 to 3 min.	2 to 3 min.	2 to 3 min.
Amount of weight	1.0 to 2.0 pounds per square inch of bonded surface - same for all three materials		
Duration of weight			
min	<0.236" 15 to 30 min.	<0.236" 30 to 45 min.	<0.236" 45 to 60 min.
min	≥0.236" 15 to 30 min.	≥0.236" 15 to 30 min.	≥0.236" 30 to 45 min.
Time before processing	2 to 3 hours	2.5 to 3.5 hours	3 to 4 hours

Appearance: Clear

Annealing: Crazing will occur if high internal stress from fabrication is not relieved. Internal stress can be minimized by careful fabrication and annealing before the cementing. To anneal ACRYLITE sheet, place it in an air circulating oven at 180°F for an hour for each millimeter of thickness (minimum of two hours). For example, a 6.0 mm (0.236") sheet would be annealed for six hours. For more information, refer to ACRYLITE FF sheet Fabrication Technical Brief #12, Annealing.

Shipping: ACRIFIX 1S 0117 solvent cement is shipped in 1 gal., 1 pt. and 4 oz. quantities. It is classified as an Adhesive, Flammable Liquid, UN 1133.

Limitation of Liability: Our ACRIFIX adhesives and other auxiliary agents were developed exclusively for use with our ACRYLITE acrylic sheet products and are specially adjusted to the properties of these materials. Any recommendations and guidelines for workshop practice therefore refer exclusively to these products. Seller's liability shall be limited to the purchase price of the product supplied (or to have been supplied) hereunder in respect of which damages are claimed. All technical or other advice by seller, whether or not at buyer's request, with respect to the product, its processing, further manufacture, other use or resale or otherwise, is given gratis by seller and seller shall not be liable for, and buyer assumes all risk of, such advice and the results thereof. SELLER SHALL IN NO EVENT BE LIABLE FOR ANY INDIRECT, SPECIAL, CONSEQUENTIAL, INCIDENTAL OR OTHER DAMAGES, AND REGARDLESS WHETHER THE CLAIM IS BASED ON WARRANTY, CONTRACT, TORT, STRICT LIABILITY, NEGLIGENCE OR OTHERWISE. Upon satisfactory proof of claim by buyer, and as buyer's exclusive remedy, seller will, within a reasonable time, supply buyer with replacement product of the same or equivalent type, free of charge, freight prepaid or, at seller's option, refund the purchase price for the product upon return of the product or other delivered material, or the unused portion thereof. Buyer charges for replacements and returns for credit will not be allowed unless authorized by seller in writing.

For further information on safety measures, the exclusion of health risks when handling adhesives and on their disposal, see our Safety Data Sheet.

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Evonik Cyro LLC
379 Interpace Parkway
Parsippany, NJ 07054
800.631.5384
www.cyro.com
email: acrifix@evonik.com

EVONIK INDUSTRIES

3568-1108-Cyro