

ACRIFIX® 5R 0194

5-Component Polymerization Adhesive

Product and Use

Type

5-Component polymerization adhesive. Clear, slightly purplish viscous solution of an acrylic resin in methyl methacrylate, which polymerizes completely upon addition of ACRIFIX® CA 0030, ACRIFIX® PR 0031, ACRIFIX® CL 0033 and ACRIFIX® AC 0032.

Applications

Preferably used for clear butt joints and for large-area laminates of thick PLEXIGLAS® GS blocks in the aquarium construction sector. The cured joints are virtually colorless and contain extremely low proportions of residual solvent after annealing.

Storage/Transport

Keep container tightly closed in a cool place. UN 1133

Working Instructions

Preparing the Parts to Be Bonded

Degrease the surfaces to be bonded with ACRIFIX® TC 0030. Internally stressed parts must be annealed before bonding in order to avoid stress cracking. The annealing conditions depend on the type of material, the degree of forming and the thickness of the parts to be bonded. Parts made of extruded acrylic should be annealed as a matter of principle. Typical annealing times (at 3mm material thickness) are 2 to 4 hours in an airflow oven at 70 to 80 °C – also for cast acrylic. For further details, consult our Guidelines for Workshop Practice „Joining PLEXIGLAS®“.

Preparing the Adhesive

ACRIFIX® 5R 0194 is processed according to the typical formulation described under „Curing.“ The recommended mixing ratio of the components ACRIFIX® CA 0030, ACRIFIX® PR 0031, ACRIFIX® CL 0033 and ACRIFIX® AC 0032 must be strictly observed. Depending on application, the adhesive composition can be diluted with up to 20 % ACRIFIX® TC 0030.

Important note: ACRIFIX® CA 0030 and ACRIFIX® AC 0032 must not enter into contact with each other in their concentrated form, since this involves the risk of spontaneous reactions. Therefore, it is advisable to mix the adhesive composition briefly upon addition of each component. Finally, stir the total composition, avoiding air entrapment as far as possible (5-10 min). In the covered container, any air bubbles may be allowed to rise to the surface of the adhesive, but they can also be removed in a vacuum desiccator (min. 200 mbar).

Bonding Technique

Fix the parts to be bonded in the desired position and apply suitable adhesive tape to seal the joint and to protect surrounding areas if necessary. Introduce ACRIFIX® 5R 0194 into the joint either directly from the mixing vessel or by means of a glue dispenser without air entrapment. For bonding small areas, apply the adhesive as a four-lobed (shamrock-shaped) blob and fold down the top panel carefully from one edge.

Other Measures

Roughing with abrasive paper (grit 230 to 320) improves the adhesion to untreated surfaces of cast acrylic. Severely stressed bonds or those intended for outdoor exposure should be annealed for 2 to 4 hours at 70 to 80 °C **immediately** after curing. ACRIFIX® 5R 0194 must not get into closed cavities (e.g. double glazing, tube interiors), since the curing process is severely hampered in these places and stress cracking in the bonded parts may be the result. For further details please see our Guideline "Joining, Ref. No.: 311-3".

Properties of Bonds

(ACRIFIX® 5R 0194 undiluted or diluted up to 20 %)

Subsequent treatment of bonded items:
4 to 6 hours after curing, sanding and polishing after 24 hour

Tensile shear strength ($v = 5 \text{ mm/min}$):

PLEXIGLAS® GS 233/0F00

adhesive layer thickness 1 mm:

40 ± 5 MPa (non-annealed),

50 ± 5 MPa (annealed for 5 hrs at 80 °C)

PLEXIGLAS® GS 233/0F00

adhesive layer thickness 3 mm:

35 ± 5 MPa (non-annealed),

45 ± 5 MPa (annealed for 5 hrs at 80 °C)

Appearance:

clear, almost colorless (slightly purplish)

Limitation of Liability

Our ACRIFIX® adhesives and other service products were developed exclusively for use with our PLEXIGLAS® products and are specially adjusted to the properties of these materials. Any recommendations and guidelines for workshop practice therefore refer exclusively to these products.

Claims for damages, especially under product liability laws, are ruled out if made in connection with the use of products from other manufacturers. For further information on safety measures, the exclusion of health risks when handling adhesives and on their disposal, see our Safety Data Sheet.

Availability according to the current sales range.

Typical Values

Properties	Values
Viscosity; Brookfield II/12/20 °C:	600 to 2100 mPa • s (ACRIFIX® 5R 0194) 500 to 600 mPa • s (ACRIFIX® 5R0194 + 20 % ACRIFIX® TC 0030)
Density (20 °C):	~ 1.02 g/cm ³
Refractive index n_D^{20} :	~ 1.44
Color:	clear, slightly purplish
Flash point DIN 53213:	~ 10 °C
Solids content:	~ 30 ± 2 %
Storage stability:	2 years after filling, if correctly stored
Packaging materials:	colored glass and aluminum
Thinner:	ACRIFIX® TC 0030, max. 20 %
Cleaning agents for equipment:	ACRIFIX® TC 0030, ethyl acetate
Storage temperature:	max. 30 °C

Curing

System:	5-component polymerization adhesive
Recommended mixing ratio:	95.7 parts ACRIFIX® 5R 0194 0.5 parts ACRIFIX® CA 0030 0.3 parts ACRIFIX® PR 0031 3.0 parts ACRIFIX® AC 0032 0.5 parts ACRIFIX® CL 0033 Dilution with up to 20 % ACRIFIX® TC 0030 is possible.
Curing time (at 200 g adhesive, 20 °C):	~ 60 min (ca. 150 min with 20 % ACRIFIX® TC 0030)
Pot life (at 200 g adhesive, 20 °C):	20 to 30 min (ca. 60 min with 20 % ACRIFIX® TC 0030)

Safety Measures and Health Protection

Labeling according to Regulation (EC) 1272/2008

Danger: contains methylmethacrylate.



Highly flammable liquid and vapour (H225)

Causes skin irritation. (H315)

May cause an allergic skin reaction. (H317)

May cause respiratory irritation. (H335)

Keep away from heat/ sparks/open flames/hot surfaces. — No smoking. (P210)

Avoid breathing dust/fume/gas/mist/vapours/spray. (P261)

Wear protective gloves/protective clothing/eye protection/face protection. (P280)

IF ON SKIN: Wash with plenty of soap and water. (P302+P352)

Dispose of contents according to local disposal regulations. (P501)

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Evonik is a worldwide manufacturer of PMMA products sold under the PLEXIGLAS® trademark on the European, Asian, African and Australian continents and under the ACRYLITE® trademark in the Americas.

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