COLLACRYL

Adhesives for acrylic sheets

UV-curing adhesives for acrylic sheets

General description

Adhesives for acrylic sheets activated upon UV exposure .
UV reactive adhesives polymerizing create a junction of the same material of acrylic sheets providing major resistance.
Suitable for clear or highly transparent PMMA sheets.
These adhesives are usable for bonding cast and extruded acrylic products, without cross-linking additives or abrasion-resistant surfaces: in such cases, it is better to conduct some tests to evaluate the final bonding.
Adhesives are composed of acrylic resins in methacrylic ester.

Available products :

K 200	slow viscous filler adhesive with low shrinkage
K 150	fast viscous filler adhesive
K 120	liquid adhesive ideal for capillarity or edge immersion
K 30	reactive diluent

Packaging : box containing 6 bottles of 1 liter each.
Storage : keep in a cool area (better in a refrigerator , no freezer) always protected from sunlight (also during the usage)
Dispenser : black PE dispenser or transparent dispenser covered by aluminium foil (disposable syringe?)
Tools cleaning : diluent K 30

Typical values (at 23°C and UR=50%)

	K 200	K 150	K 120
Viscosity, Brookfield (mPa*s)	1.600-1.800	1.600-1.800	700-1.000
Density (g/cm^3)	≅ 1,00	≅ 1,00	≅ 1,00
Solid content (+/- 2%)	30	28	26
Maximum dilution with K 30 (%)	10	10	30
Tensile strength (MPa) (DIN 53455 , ISO 527)	28-32	30-35	30-35

Indicative hardening time (at 23°C and UR=50% with a 20cm distance)

		K 200	K 150	K 120
UVA radiation (*)	min	20-30	15-20	15-20
Fluorescent lamp type 25	min	30-40	20-30	20-30
Direct sunlight	min	20-30	15-20	15-20
Diffused ambient light	min	150-180	20-40	20-40

(*) fluorescent tube, e.g. sunbeds (Length : 1800 mm, electric power : 160 W, UVA emission : 46 W of which UVB = 0,60 %)

Working instructions

Use the products at room temperature of 20-25 °C; if the product is stored in a refrigerator, bring it to room temperature before use.

Hardening is activated by light and, partially, by heat; after the exposure the polymerization of the adhesive continues; therefore, after 2 hours it is possible to start working on it. 24 hours are required for final resistance.

The adhesive K120 is suitable for bonding by capillarity. You can use it to bond two pieces to form right angle junctions by applying the adhesive to the junction while keeping the two pieces at 45°.
This product is suitable for bonding of acrylic sheets up to 6 mm.

Products can be mixed.

The adhesive outside of the junction and exposed to air has a slower hardening process; remove it before the exposure to UV light by using the DCL 20 Cleaner that does not damage the sheets, leaving little or no hue.
If the bonding is done within a box, the hardening is slower and the sheets might get ruined by a crazing effect.

Additional information on UV light

The fluorescent tubes are, generally, used in sunbeds; thus, when first used, 4 hours are required to reach stability; afterwards, the tubes should be turned on 30 minutes before usage. Average lifetime of tubes is 1000 hours: for maximum efficiency, tubes should be substituted after such period.

A 20cm distance between the bonding and the light source is recommended, eventually with the use of a mirror on the opposite side to improve the efficiency; greater distances require more hardening time.

Do not remain exposed for long periods to UVA light; the use of protective sunglasses class 3 or 4 (UNI EN 1836:2006 , UNI EN 1836:2008) is recommended.

Solvent based adhesive for acrylic sheets

General description

Solvent-based adhesives working by causing a controlled dissolution of the materials to bond with the consequent formation of a junction.
These adhesives are usable for bonding cast and extruded acrylic products, without cross-linking additives or abrasion-resistant surfaces: in such cases, it is better to conduct some tests to evaluate the final bonding.
Adhesives are composed of acrylic resins and organic solvents.

Available products :

K 45	viscous without dichloromethane
K 25	viscous
K D	viscous
K 60	solvent , non filling , without dichloromethane
K 90	solvent , non filling, immediate adhesion by contact

Packaging : box containing 6 bottles of 1 liter each
Storage : keep in a cool area (better in a refrigerator , no freezer)
Dispenser : PE dispenser
Tools cleaning : diluent K 60 or K 90

Typical values (at 23°C and UR=50%)

	K 45	K 25	K D	K 60	K 90
Viscosity, Brookfield (mPa*s)	900-1.200	900-1.200	900-1.200	0,8-1,0	0,8-1,0
Density (g/cm^3)	≅ 1,00	≅ 1,20	≅ 1,20	≅ 1,00	≅ 1,20
Solid content (+/- 2%)	12	12	15	1	1
Maximum dilution with K60 (%)	15				
Maximum dilution with K90 (%)		15	30		
Tensile strength (MPa) (DIN 53455 , ISO 527)	26-28	24-26	23-25	26-28	20-23

Working instructions

Use the products at room temperature of 20-25 °C; if the product is stored in a refrigerator, bring it to room temperature before use.

The pieces can be handled with or worked at the least four hours after the bonding; maximum bond strength will be reached 24 hours later.
In the case of K 90 solvent, the bonding is immediate.

Products can be mixed.

The adhesive coming out of the junction can be taken away by using the cleaner DCL 20 hat does not damage the sheets, leaving little or no hue.
The K 90 solvent is aggressive towards the sheet, eventually causing a crazing effect.
If the bonding is done within a box, the hardening is slower and the sheets might get ruined by a crazing effect.

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General working features

Safety
For the full information please check the safety data sheets (SDS).
All products are exclusively for professional use.

Equipment

Use dosing flasks with a spout or polyethylene (PE), polypropylene (PP) or polyamide (PA) syringes; do not use PVC containers.

Cleaning

Plastic sheets are charged with static electricity and, thus, tend to attract dust.
Dirt has to be cleaned with a soft, non-abrasive cloth and without pressure to avoid scratches.
It can be used with water and a small quantity of mild soap or with antistatic detergent (Cleaner DCL 80).
Glass cleaning products and alcohol can be used as long as the contact is fast.
Cleaning must be done at ambient temperature and not under direct sunlight.

Bonding acrylic sheets

Surfaces to bond must be smooth or, eventually, treated with sandpaper (using grits from 320 to 600).
Excessive roughness can cause the formation of bubbles.
To avoid the formation of bubbles, treat the edges with K60 or K90 solvent to polish it.
Beware that K90 solvent is more aggressive than the K60.
For a better bonding, apply a small pressure (i.e. about 100g/cm^2) on the parts to bond.
To protect the surfaces from the solvents, use mono adhesive PE tapes.
Bonding laser cut edges can result in a crazing effect: test the material.
High levels of humidity are negative for bonding.

Annealing

To avoid a crazing effect of certain pieces (such as the extruded sheets or injected pieces) an annealing in an oven at 70- 80°C for several hours is required.
We suggest about 2 hours plus an additional 20 minutes for every millimeter of thickness.
Final cooling should be done slowly in the oven.
To obtain a better resistance to strain, bonded pieces should undergo an analogous annealing process.
Final toughness should increase of about 3 – 5 MPa.

Bonding with other products

Bonding can be done with a neutral, non acidic, silicone and without solvents or with specific cyanoacrylate glues for small surfaces and low temperature changes.
Adhesion of acrylic sheets with other materials is possible. Users should test the products.
For optimal bonding, surfaces should be cleaned from dusts and degreased.

Possible pairings with other materials (Testing before is recommended).

Use non acetic neutral silicone without solvents or specific cyanoacrylate glues with:
glass, ceramics, metals, concrete, stone, wood, PC (polycarbonate), PES (polyester), PSU (polysulfone), PPO (polyphenylene oxide), ABS, PS(polystyrene) UP(unsaturated polyester), rigid PVC.
Solvent-based adhesives without dichloromethane such as K45 and K60 with: ABS, PS, CAB (cellulose acetobutyrate) and rigid PVC.
UVA - curing adhesives K 200 with: clear pieces of PC, ABS, PS, CAB.

Waste

Plastic waste must be disposed of by specialized companies, according to local laws.

Disclaimer

Information on the proper use and maintenance of the products has a descriptive purpose and illustrates its characteristics and its possible uses. However, it does not constitute any warranty, express or implied.

The customer has the obligation to carefully check and test, on his sole responsibility, the goods with professionally qualified personnel and is responsible for the use of the received products.

Information contained within these sheets is based on our knowledge ; we reserve the right to change such information without any prior notice.

Additional information on sales

Products sold by Plastidite SpA must be transported, stored, worked, installed and used by professionally qualified personnel, according to the specifications and to the safety regulations described in this product sheet.

Any damage caused by the freight must be certified by a copy of the delivery document, stamped and signed.

Claims from the customer must be submitted with a written reference to the invoice of the claimed material and Plastidite SpA has the right to inspect and test it. If the claim is acknowledged, Plastidite SpA will substitute the material.