TECHNICAL DATA SHEET

ALTUGLAS® ADHESIVE P12

Three-component transparent, polymerising adhesive. This adhesive is a viscous solution of PMMA in MMA monomer. A catalyst (Altuglas® Additive B) and bonding aid (Altuglas® Additive D), added at the time of use, cause the monomer to polymerise as PMMA.

APPLICATIONS

For bonding Altuglas® CN and EX in various applications such as display cases, aquariums, furniture, glove boxes, etc.
This adhesive can also be used for bonding other plastic materials, such as polystyrene and ABS, after they have first been annealed as a precaution. In such cases, prior testing is recommended.
In order to achieve optimum adhesion, the adhesive joint should be between 1mm and 3mm thick. Altuglas® edges should be chamfered for assembling angles.

TYPES OF BOND

Flat edge-to-edge bonding or V-shaped chamfers (covers, boxes, etc)
Angled bonding with chamfered edges (furniture)
This list of examples is not exhaustive.

PROPERTIES

Viscosity at 20°C (Brookfield)	:	7000 - 8000 mPa.s
Density at 20°C	:	1.05 g/cm^3
Flash point	:	10°C
Solid content	:	≈ 36%
Storage temperature	:	Maximum 30°C
Colour	:	Transparent, with a light violet tint

PRECAUTIONS IN USE

We strongly recommend that you close receptacles tightly as soon as you have taken the quantity you require.
Use precision equipment for weighing the adhesive and the B and D components: 4 parts Altuglas® Additive B and 4 parts Altuglas® Additive D per 100 parts of Altuglas® Adhesive P12, by mass or volume.
Fit caps to applicator tubes to avoid them becoming blocked and do not leave adhesive in the tubes for more than 10 minutes.
Do not apply if the temperature is lower than 17°C, in a damp atmosphere or to a damp surface.

TOXICITY AND SAFETY

Altuglas® Adhesive P12 contains MMA, which is highly flammable and its vapour can cause irritation to the skin, eyes and respiratory tract.
- Do not inhale the vapour
- Work in a well-ventilated area
- Avoid contact with the skin and eyes.

Altuglas® Adhesive P12 has a closed-vessel flash point of 10°C, which makes it flammable.
Store well away from heat and any source of ignition.
Do not smoke whilst using the product.
Altuglas® Additive B can irritate the eyes and respiratory tract. Avoid all contact with the eyes and mucous membranes.
Altuglas® Additive D contains methacrylic acid, which is corrosive and can cause burns.
For further information, see the Safety Data Sheet for each component.

STORAGE PRECAUTIONS

Unopened packages should be stored in a cool, dry, well-ventilated place. If stored closed in its original packaging, hermetically sealed and at a temperature between 8°C and 30°C, Altuglas ® Adhesive P12 and its two additives (Altuglas® Additive B and Altuglas® Additive D) can be kept for up to two years from the date of packaging. Altuglas® Additive B should be stored away from light at a temperature preferably between 8°C and 30°C.

PACKAGING

Altuglas® Adhesive P12 is supplied in full cartons of 12 containers, each holding 1 kg. Full cartons cannot be split. Containers are made of aluminium for safety and corrosion reasons. Each individual package is labelled with important information from the Safety Data Sheet and the production batch number. Containers of Altuglas® Additive B and Altuglas® Additive D are generally packed in the same carton as the Altuglas® Adhesive P12.

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TECHNICAL DATA SHEET

GUIDELINES FOR USE

Releasing internal strains:
The Altuglas® CN and EX parts to be bonded can be subject to internal strains created by various machining or forming operations. Such strains therefore need to be released by annealing, otherwise crazing will occur on contact with solvents contained in the adhesive. If machining (cutting or milling) operations have been performed with efficient cooling (clean water, water + air), it is sufficient to roughen the surfaces to be glued.
Disc polishing, forming and hot-bending lead to increased risk of crazing, justifying annealing in an oven (see Altuglas® Technical Brochure).
With laser cutting and flame polishing, it is essential that parts be annealed before any subsequent bonding operation.

Preparation of surfaces:
Polymerising adhesives work by adding material and can compensate for any roughness. The surfaces of the joint should preferably be roughened to increase the contact area. Previously machined edges should be dry-sanded and smooth surfaces roughened with sandpaper.
The surfaces to be bonded must be completely dry and clean. Remove all traces of grease from the parts to be glued, using petroleum ether or a 50/50 mixture of water/methylated spirit.
If necessary, areas adjacent to the area being glued can be protected by a special adhesive tape, made from adhesive-resistant material (e.g. polypropylene). Where necessary, pre-assemble parts using the same adhesive tape.

Applying the adhesive:
After incorporating and mixing the Altuglas® Additive B catalyst and Altuglas® Additive D accelerator, close the mixing vessel and leave to stand for 5 to 10 minutes, to allow any air bubbles to escape naturally. Do not shake during this stage. The adhesive is then usable for about 30 minutes.

When pre-assembling, adhesive may be applied to the area of the joint using a syringe or polyethylene bottle fitted with a nozzle. Other means, such as coating by casting, can be used for large surfaces. Joints should be kept under pressure by moderate clamping at between 50 and 300 g/cm^2.

Drying and hardening time:
The external surface of the glued joints will dry in approximately 2 hours at 20°C (guide time). Hardening varies with thickness, temperature and humidity. It is usually possible to handle glued objects (carefully) after 2 to 3 hours, but a minimum of 24 hours must elapse before any machining.
Complete hardening is achieved after heating in a ventilated oven for 1 to 3 hours at 80°C (or for 2 to 5 hours at 60°C for thermoformed parts).
Polymerisation of Altuglas® Adhesive P12 is accompanied by a reduction in volume of approximately 15%. The volume of adhesive to be applied must always be greater than the volume of the joint face cavity.

PROPERTIES OF JOINTS MADE WITH ALTUGLAS® ADHESIVE P12
Mechanical strength is determined by traction applied to test samples formed by end-to-end bonding. Measurements have been made using test parts heated for 4 hours at 60°C and on samples that had been left to harden naturally for 4 days at room temperature. The values below are given purely for guidance and do not in any way constitute a guarantee.
Tensile strength:

After 4 days of natural hardening:	49 to 54 Mpa
After heating at 60°C:	54 to 59 Mpa

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Altuglas® Adhesives have been developed exclusively for use with Altuglas® products. All recommendations and guidelines for use refer exclusively to Altuglas® products. Information provided in this sheet is derived from our laboratory studies and experience. It is intended as a guide in using our products and must not be regarded as specification limits. We cannot be held consequentially liable in the event of any infringement of the rights of third parties.

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