Technical Data Sheet

MITSUBISHI CHEMICAL

ACRYCON AC
Acrylic Powder for Embedment

ACRYCON is Polymethyl methacrylate polymer for cast molding, manufactured by Mitsubishi Chemical Corporation.

Characteristics
- Crystal clear transparency and gloss
- Superior weathering stability
- High chemical resistance
- Absence of odor and taste
- Good mechanical strength

Applications
- Push button of electrical fan
- Indicator cover of radio
- Watch crystals
- View Finder of cameras
- Fresnel lens
- Magnifying glass
- Automobile horn button
- Reflectors
- Clocks
- Acrylic Embedment

Cast Polymerization Method

1) Preparation of objects embedded in Acrylic
Objects should be cleaned and dried before placement in acrylic to fix pigment and to avoid haze. Avoid objects which contain copper as it inhibits polymerization.
If objects easily change color (yellowing), color objects before placing in acrylic. Objects should be dipped into methyl methacrylate monomers to prevent voiding.

2) Mold
Use metal mold (except copper) or mold made of acrylic resin. If producing a big lot, cut with a saw after embedding objects at the same interval.

3) Mixing ACRYCON and methyl methacrylate monomer and molding
Make viscous "syrup" by mixing ACRYCON and methyl methacrylate monomer. The typical mixing ratio is 40~50% MMA monomer to 60~50% polymer (ACRYCON). The time required to mix depends on atmosphere temperature. See below.

20°C ~ 10 min.
25°C ~ 6-7 min.
30°C ~ 3-4 min.

Pour "syrup" by mixing polymer and monomer into a mold up to the level where the object will be placed. Cover with polyethylene film, removing the film when the viscosity of syrup reaches the point that it can hold the object. Place the object and pour another layer of syrup. You can embed another object at any layer repeating the above steps.

4) Autoclaving
Use the below conditions for ACRYCON when compression autoclaving.

N_2 gas pressure	10-15 kg/cm^2
Autoclave temperature	45-60 °C
Time required for polymerization	3-8 Hours

If objects embedded in acrylic do not easily change color (yellowing) or shape, the autoclaving condition of 120°C ×2 hours can be applied.
Generally speaking, in order to obtain higher mechanical strength, higher autoclave temperature and pressure are recommended.
However, the above mentioned standard conditions may vary depending on product size, shape and thickness.

5) Heat treatment
Raise the autoclave temperature to 70~80 °C and hold for 3 hours per 15mm thickness of castings. Cool down gradually as rapid cooling may cause voiding or cracking.

Material Properties		
Product	ACP-3	ACP-10
Mw	700 x 10^3	400 x 10^3
Average Particle Size (mm)	0.09	0.08
Moisture Content (%) After drying for 3 hours at 80˚C	0.8~1.2	0.8~1.2
Type	Quick preparation	Excellent transparence

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