

Aristech Composite Sheet Thermoforming Bulletin

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ABS backed continuous cast acrylic is an original innovation of Aristech Surfaces (United States Patent 5,069,851). This product is created by using heat and pressure to intimately bond, or laminate monolithic cast acrylic to extruded ABS, creating a product that retains the desirable qualities of both products. It has the acrylic layer on the show surface, retaining the solvent resistance, gloss, and hardness of the acrylic but gains tremendous structural stability due to the ABS. Also, the ABS backing will allow adhesion with a broader range of chemistries, allowing dense urethane backing in the products. This has made it the product of choice for many luxury spa and swim spa products. While thermoforming ABS backed acrylic is very similar to the thermoforming of monolithic acrylic, there are notable differences.

- Greater care must be applied in the prevention of moisture uptake. Refer to Aristech Bulletin 165.
- The product should be used in a "first in first out" inventory control.
- Packaging should remain intact until ready for use. If all sheets are not consumed in that production run, then the packaging should be resealed before returning it to inventory to prevent moisture absorption.
- The heating cycle should range from approximately 3 minutes at the shortest to 5 minutes at the longest.

Thermoforming equipment and tooling designs vary greatly so the following recommendations should be used as guidelines only.

Using equipment with a double-oven (top and bottom heat) allows for the best results regarding heating cycle times. This also provides for a bit more forgiveness in the thermoforming cycles. Target temperatures of 370° to 390°F (188 to 199°C) for the top surface are good, with a target of 340° to 360°F (171° to 182°C for the bottom surface. Heating cycle times of approximately 2 minutes are possible with this set-up. Again, should your equipment require more time you would target the lower range and the higher range if your equipment allows for faster heat up. If the equipment allows for processing at shorter heating cycles, then there is more leeway for higher processing temperatures.

To ensure the integrity of the product, there is a physical limit to how thin a sheet can be drawn. The recommended minimum draw thickness should be no less than 0.020 inches (.5mm) for each layer. If the product is drawn thinner than those recommended thicknesses, Aristech cannot credit or warranty any failed parts.

Note: for cautions and information on exposure to any Aristech Surfaces' product, please see the applicable material safety data sheet.

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