

## AerForm<sup>®</sup> LHR

### Thermoforming Application Guide

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**Caution!!!** The face side is susceptible to scratching prior to forming. Care must be exercised in handling, storage, drying, etc.

#### Storage

Raw materials should be stored in cool, dry areas. Ideal conditions are 70°F (21°C), 30% Relative Humidity.

#### Drying Time

Drying AerForm<sup>®</sup> LHR prior to processing is essential to ensure uniform surface quality. An improperly dried sheet can result in blisters in the thermoformed sheet.

- It is advisable to hang sheets vertically or provide drying racks which allow the heated air to pass between each sheet. Stacking the sheet without racks can result in inadequate drying of the center piece.
- 0.045" – 0.085" (1.1mm – 2.2mm) should be dried at 160°F  $\pm$  5° (71°C) for 16-24 hours
- 0.105" – 0.125" (2.7mm – 3.2mm) should be dried at 170°F  $\pm$  5° (77°C) for 16-24 hours (over drying/excessive drying can cause a discoloration of the decorative surface)

**NOTE:** It's the user's responsibility to determine the best set of conditions for successful forming of parts.

**Warranty:** *Because of the potential defects that may arise from an undried sheet, Schneller's Limited Product Warranty for AerForm<sup>™</sup> LHR is valid only if the sheets have been dried per the recommendations listed above.*

#### Thermoforming Process

- Heating rates (dwell times) will vary depending on equipment and the type of heat source. At Schneller's test facility, cycle time development begins at approximately 1 second per .001" of sheet thickness.
- Best results are achieved by uniformly heating the sheet, utilizing lower power settings and longer cycle times during the thermoforming process.
- Temperature controlled molds are ideal, with a recommended mold temperature of 150°F  $\pm$  10° (65°C  $\pm$  5°)

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- Recommended Forming Temperature: 300° - 330°F (150° - 165°C) AerForm<sup>®</sup> LHR should never be heated beyond 330° F. Top and bottom heaters are highly recommended to successfully thermoform AerForm<sup>®</sup> LHR. The majority of the heat should be applied to the backside (60% backside / 15% frontside) of the product to achieve the best surface quality and retain adequate texture on the finished part.
- A vacuum of 24" of hg, rapidly applied and maintained, is recommended to eliminate introducing stress into the finished part.

#### Suggested Cleaning Agents

- Household Cleaners (Formula 409)
- Isopropyl Alcohol

#### AerForm<sup>™</sup> LHR Solvent Bonding

The clear protective surface on the decorative (face) side of AerForm<sup>®</sup> LHR is not receptive to bonding. However, if this surface is removed/abraded, it is possible to bond to the decorative side.

The backside of AerForm<sup>®</sup> LHR can be bonded together with a general purpose PVC pipe cement, or by solvent bonding with a 50:50 blend of THF (tetrahydrofuran) and NMP (n-methylpyrrolidone).

**NOTE:** The AerForm<sup>®</sup> processing guide was derived from a thermoforming machine using cal rod heating elements. The top heater was 6" from the material and the bottom heater was 21" from the material. The top heat is set at 15% and the bottom heat at 60%. The material cycles into the heaters and returns where the tool is moved up into the material. This process takes approximately 8-10 seconds. The vacuum is approximately 24" with a surge tank.

This process guide is to be used as a guideline and if different machinery is being used, adjustments will have to be made accordingly.