

## Water Absorption of KYDEX® Thermoplastic Sheet

For information applicable to KYDEX® FST please refer to 300 series technical briefs.

### TB - 120-B

**Water  
Absorption per  
ASTM D 570  
(ISO 62)**

Plastic materials absorb water. The slightest amount of moisture content may result in changes in dimensions or in properties such as electrical insulation resistance, dielectric losses, mechanical strength and appearance.

The determination of water absorption by a plastic specimen of defined dimensions is carried out by immersion in water for a specified time and at a specified temperature. The measured results are expressed in either milligrams absorbed water or as a percentage increase in weight. Comparison of the water absorption of various plastics is only possible if the test specimens are of identical dimensions and in the same physical state.

Test specimens are pre-dried at 55°C (122°F) for 24 hours, cooled to room temperature and weighed, before immersion in water for a specified time and at a specified temperature. Water absorption may be measured

- At 23°C (73°F): the specimens are placed in a container with distilled water at 23°C (73°F). After 24 hrs, the specimens are dried and weighed
- At 100°C (212°F): the specimens are immersed for 30 minutes in boiling water, cooled for 15 minutes in water at 23°C (73°F) and reweighed
- Until saturation: the specimens are immersed in water at 23°C (73°F) until full saturation is reached

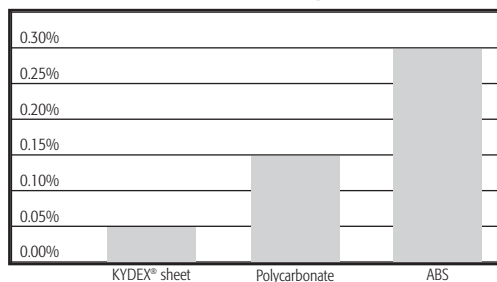
Water absorption may be expressed as:

- The mass of water absorbed
- The mass of water absorbed per unit of surface area
- A percentage of water absorbed with respect to the mass of the test specimen

**Water  
Absorption of  
KYDEX® sheet**

As opposed to hygroscopic materials such as ABS, PC, and fiberglass that readily absorbs water, KYDEX® sheet is very hydrophobic (very low water absorption). This is important when these materials are used in Radome applications, which protect enclosed antennas from the environment because the absorption of water can degrade the antenna's performance by reducing the transparency to radio frequencies and by reducing mechanical properties.

**Moisture Absorption**



**KYDEX, LLC**  
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