

**Product Data Sheet**

**A. L. Hyde announces the addition of a new line of products geared toward the electronics market, Hydrel. Hydrel is a family of materials that are “electronically active”.**

Most unfilled thermoplastic materials have surface resistivity in the range of  $10^{14}$  to  $10^{16}$ . Surface resistivity relates to the ability of electricity to move across the surface of a material. Most unfilled plastics with a resistivity in the range of  $10^{14}$  to  $10^{16}$  act like insulators and will pick up a static electrical charge. If any of these plastics with a static electrical charge are in close proximity to sensitive electronic components then they could damage the components by “discharging” the electrical charge built up on the surface. This “discharge” is caused by the static electrical charge built up on the surface of an insulative plastic, downloading onto a material that will attract the electrical charge (a material with a sufficiently different electrical potential). Most sensitive electronic components will attract a charge in this manner.

Under the right conditions insulative plastics can build up an electrical surface charge of up to 30,000 to 40,000 volts. Sensitive electronic components can be damaged by as little as 20 volts. This discharge of electricity is known as electrostatic discharge or “ESD”.

**The Hydrel® product line from A.L. Hyde is a family of stock shape thermoplastics that have unique additives that can be tailored to meet many of the needs in various electronic applications. The Hydrel family of materials will not maintain an electrical charge, thus there is no potential for “ESD” which will damage sensitive electronic components.**

Hydrel® is a Trademark of A.L. Hyde Company

JW695A

We believe this information is the best currently available on the subject. It is subject to revision as additional knowledge and experience are gained. A.L. Hyde Company makes no guarantee of results and assumes no obligation of liability whatsoever in connection with this information. Anyone intending to use recommendations contained in this publication should first satisfy himself that the recommendations are suitable for his use and meet all appropriate safety and health standards. This publication is not a license to operate under, or intended to suggest infringement of any existing patents. References to products not of A.L. Hyde manufacture do not indicate endorsement of named products or unsuitability of other similar products.

The Hydrel product line can come in a wide range of base thermoplastic resins from amorphous materials like polycarbonate to crystalline materials like acetal or nylon. The Hydrel family of materials can not only come in a wide range of thermoplastics resins but also, each resin can be tailored to provide a different level on “electrical activity”. The range of surface resistivity is shown below (ohms/sq.).

- $10^{16}$  –  $10^{12}$  – Insulative materials
- $10^{11}$  –  $10^5$  – Dissipative materials
- $10^4$  –  $10^2$  – Conductive materials
- $10^1$  –  $10^{-4}$  – ESD shielding materials

The plastics that can pick up a charge and damage electronic components are in the “insulative material” range listed above. Once you achieve a surface resistivity below  $10^{11}$  then the material will dissipate the charge and has less of a propensity to damage the electronic part. So materials in the “dissipative”, “conductive” and the “ESD” shielding range will have this characteristic.

The Hydrel family of products can provide materials in stock shape form, from 1/4” diameter to 6” diameter rod and from 1/4” thick to 4” thick slab machining stock. These materials can be based on many different resin grades and many different additive packages to meet the performance you need in your electronics application.

*For more information contact A.L. Hyde Company, or your local distributor of Hyde quality engineering thermoplastics.*

**Your local distributor:**

ALH44696