

# HYDLAR®

## Engineering Thermoplastic Composite Reinforced with Pultruded Aramid Fiber

HYDLAR® possesses a combination of physical properties that cannot be found in any other commercially available engineered plastic. Design engineers have created a family of superior wear and abrasion resistant thermoplastics using aramid fiber reinforcement.

- **HYDLAR®Z** (Nylon / Aramid Fiber composite)
- **HYDLAR®ZT** (Nylon / Aramid Fiber / PTFE composite)
- **HYDLAR®ZM** (Nylon / Aramid Fiber / Molybdenum Disulphide composite)

- **High Strength Rods and Plates**
- **Extremely Wear Resistant**
- **Increased Surface Temperature Capability**
- **Highly Resistant to Abrasion**
- **No Galling of Mating Wear Surfaces**
- **Good Dimensional Stability**
- **Outstanding Machinability**

*HYDLAR® is applicable to a wide variety of industrial applications where high strength, extreme wear resistance and low abrasiveness are required. Typical applications would be wear strips, bearings, bushings, rollers, gears and wherever wear and abrasion resistant materials are required.*

# TYPICAL PROPERTY VALUES

| PROPERTIES                              | Test Methods                     | Units                         | Injection Molded & Extruded |                        |                        |                        |
|---|----------------------------------|-------------------------------|-----------------------------|------------------------|------------------------|------------------------|
|   |                                  |                               | Nylon 6/6                   | Nylon 6/6 30% GF       | HYDLAR® Z              |                        |
| <b>PHYSICAL</b>                         | Base Material                    | -                             | -                           | None                   | Glass                  | Aramid                 |
|   | Content                          | -                             | %                           | 0%                     | 30%                    | N/A                    |
|   | Specific Gravity 73°F            | D792                          | -                           | 1.14                   | 1.38                   | 1.16                   |
|   | Water Absorption 24 hrs          | D570                          | %                           | 1.2                    | .7                     | .8                     |
|   | Water Absorption Saturation 73°F | D570                          | %                           | -                      | -                      | -                      |
|   |                                  |                               |                             | 8.5                    | 5.4                    | 6.3                    |
| <b>MECHANICAL</b>                       | Tensile Strength                 | D638                          | psi x 10 <sup>3</sup>       | 12.0                   | 27.0                   | 16.0                   |
|   | Tensile Modulus                  | D638                          | psi x 10 <sup>6</sup>       | -                      | 1.5                    | 1.3                    |
|   | Elongation                       | D638                          | %                           | 66.0                   | 3.0                    | 4.0                    |
|   | Flexural Strength                | D790                          | psi x 10 <sup>3</sup>       | 17.4                   | -                      | 23.0                   |
|   | Flexural Modulus                 | D790                          | psi x 10 <sup>6</sup>       | .41                    | 1.3                    | 0.9                    |
|   | Notched Izod Impact              | D256                          | ft lbs/in                   | 1.0                    | 2.0                    | 2.7                    |
|   | Compressive Strength             | D695                          | psi x 10 <sup>3</sup>       | 13.0                   | 24.0                   | 19.3                   |
|   | Wear Factor***                   | D3702                         | -                           | 860 to 1100            | 424                    | 79 - 128               |
|   | Galling of Mating Test Surface   | -                             | -                           | Minor                  | Severe                 | None                   |
|   | <b>THERMAL</b>                   | Heat Deflection Temp. 264 psi | D648                        | ° F                    | 194                    | 180                    |
| Continuous Use Temp.                    |                                  | -                             | ° F                         | 210                    | 230                    | 300                    |
| Coefficient of Linear Thermal Expansion |                                  | D696                          | in / in /°F                 | 4.0 x 10 <sup>-5</sup> | 1.3 x 10 <sup>-5</sup> | 1.6 x 10 <sup>-5</sup> |
|   |                                  |                               |                             |                        |                        |                        |

\*\*\*ASTM Thrust Washer Test: PV=2,500 P=250PSI V=10 f.p.m.

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## MATERIAL AVAILABILITY

**Rods:** Diameters: 1/4" - 6"

Length: Dia. 1/4" to 4-3/4", - 10 ft.  
Dia. 5.0" and greater - 5 ft.

**Plates:** 1/4" - 2" thick 24" x 48"

## Shapes Specification (Typical)

## Primary Specification (Resin) (Typical)

*Profiles, tubes, and special sizes are custom-produced on request.*



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