

# Zythane® 4060D

Thermoplastic Polyurethane Elastomer (Polyester)

Alliance Polymers & Services

## Message:

Zythane 4060D is a polyester--based TPU specifically formulated for injection molding applications. It exhibits excellent abrasion resistance and toughness and has good hydrolytic stability, oil, fuel and solvent resistance. It is supplied uncolored in pellet form.

Typical Application:

Zythane 4060D applications include among others shoe soles, ski and skate boot shells, other sporting goods, caster wheels, animal tags, good overmolded adhesion to certain EP (ex: PC, ABS, PMMA), couplings, gaskets and seals, tool handles, industrial parts, mobile phone cases, armrests, golf disks, mining screens.

| General Information          |                        |                   |             |
|------------------------------|------------------------|-------------------|-------------|
| Features                     | Solvent resistance     |                   |             |
|                              | Good wear resistance   |                   |             |
|                              | Fuel resistance        |                   |             |
|                              | Oil resistance         |                   |             |
|                              | Good toughness         |                   |             |
|                              | Hydrolysis stability   |                   |             |
| Uses                         | Wheels                 |                   |             |
|                              | Washer                 |                   |             |
|                              | Power/other tools      |                   |             |
|                              | Industrial application |                   |             |
|                              | Seals                  |                   |             |
|                              | Car interior parts     |                   |             |
|                              | Mobile phone           |                   |             |
|                              | Sporting goods         |                   |             |
| Appearance                   | Footwear               |                   |             |
|                              | Colorless              |                   |             |
| Forms                        | Particle               |                   |             |
| Processing Method            | Injection molding      |                   |             |
| Physical                     | Nominal Value          | Unit              | Test Method |
| Specific Gravity             | 1.23                   | g/cm <sup>3</sup> | ASTM D792   |
| Hardness                     | Nominal Value          | Unit              | Test Method |
| Durometer Hardness (Shore D) | 60                     |                   | ASTM D2240  |
| Mechanical                   | Nominal Value          | Unit              | Test Method |
| Taber Abrasion Resistance    | 45.0                   | mg                | ASTM D1044  |
| Abrasion - DIN               | 50                     | mm <sup>3</sup>   | DIN 53516   |
| Elastomers                   | Nominal Value          | Unit              | Test Method |
| Tensile Stress               |                        |                   | ASTM D412   |
| 100% strain                  | 16.0                   | MPa               | ASTM D412   |

|                             |               |                    |             |
|-----------------------------|---------------|--------------------|-------------|
| 300% strain                 | 27.0          | MPa                | ASTM D412   |
| Tensile Strength (Break)    | 55.0          | MPa                | ASTM D412   |
| Tensile Elongation (Break)  | 420           | %                  | ASTM D412   |
| Tear Strength <sup>1</sup>  | 137           | kN/m               | ASTM D624   |
| Compression Set             |               |                    | ASTM D395B  |
| 24°C, 22 hr                 | 38            | %                  | ASTM D395B  |
| 70°C, 72 hr                 | 48            | %                  | ASTM D395B  |
| Thermal                     | Nominal Value | Unit               | Test Method |
| Brittleness Temperature     | -7.78         | °C                 | DSC         |
| Vicat Softening Temperature | 157           | °C                 | ASTM D1525  |
| Flammability                | Nominal Value |                    | Test Method |
| Flame Rating                |               |                    | UL 94       |
| 1.00 mm                     | HB            |                    | UL 94       |
| 1.50 mm                     | HB            |                    | UL 94       |
| 3.00 mm                     | HB            |                    | UL 94       |
| Injection                   | Nominal Value | Unit               |             |
| Drying Temperature          | 90.0          | °C                 |             |
| Drying Time                 | 4.0           | hr                 |             |
| Rear Temperature            | 165           | °C                 |             |
| Middle Temperature          | 204           | °C                 |             |
| Front Temperature           | 220           | °C                 |             |
| Nozzle Temperature          | 215 - 225     | °C                 |             |
| Processing (Melt) Temp      | 215 - 225     | °C                 |             |
| Mold Temperature            | 25.0 - 60.0   | °C                 |             |
| Back Pressure               | 0.600 - 1.40  | MPa                |             |
| Screw Speed                 | 60 - 200      | rpm                |             |
| Clamp Tonnage               | 4.1 - 6.9     | kN/cm <sup>2</sup> |             |
| Injection instructions      |               |                    |             |
| Injection Speed: >.4 in/sec |               |                    |             |
| NOTE                        |               |                    |             |
| 1.                          | C mould       |                    |             |

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