

# Zythane® 4055D

## Alliance Polymers & Services - Thermoplastic Polyurethane Elastomer (Polyester)

### General Information

#### Product Description

Zythane 4055D 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 Applications:

Zythane 4055D applications include among others shoe soles, ski and skate boot shells, 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

Features	<ul style="list-style-type: none"> <li>Abrasion Resistant</li> <li>Fuel Resistant</li> </ul>	<ul style="list-style-type: none"> <li>Good Toughness</li> <li>Hydrolytically Stable</li> </ul>	<ul style="list-style-type: none"> <li>Oil Resistant</li> <li>Solvent Resistant</li> </ul>
Uses	<ul style="list-style-type: none"> <li>Automotive Interior Parts</li> <li>Cell Phones</li> <li>Footwear</li> </ul>	<ul style="list-style-type: none"> <li>Gaskets</li> <li>Industrial Applications</li> <li>Power/Other Tools</li> </ul>	<ul style="list-style-type: none"> <li>Seals</li> <li>Sporting Goods</li> <li>Wheels/Casters</li> </ul>
Appearance	<ul style="list-style-type: none"> <li>Colorless</li> </ul>		
Forms	<ul style="list-style-type: none"> <li>Pellets</li> </ul>		
Processing Method	<ul style="list-style-type: none"> <li>Injection Molding</li> </ul>		

### Properties <sup>1</sup>

Physical	Nominal Value	Unit	Test Method
Density / Specific Gravity	1.23		ASTM D792
Mechanical	Nominal Value	Unit	Test Method
Taber Abrasion Resistance	40.0	mg	ASTM D1044
Abrasion - DIN	45	mm <sup>3</sup>	DIN 53516
Elastomers	Nominal Value	Unit	Test Method
Tensile Stress (100% Strain)	2030	psi	ASTM D412
Tensile Stress (300% Strain)	4060	psi	ASTM D412
Tensile Strength (Break)	7540	psi	ASTM D412
Tensile Elongation (Break)	400	%	ASTM D412
Tear Strength <sup>2</sup>	728	lbf/in	ASTM D624
Compression Set			ASTM D395B
75°F, 22 hr	28	%	
158°F, 72 hr	43	%	
Hardness	Nominal Value	Unit	Test Method
Durometer Hardness (Shore D)	55		ASTM D2240
Thermal	Nominal Value	Unit	Test Method
Brittleness Temperature	10.0	°F	DSC
Vicat Softening Temperature	293	°F	ASTM D1525
Flammability	Nominal Value	Unit	Test Method
Flame Rating			UL 94
0.04 in		HB	
0.06 in		HB	
0.12 in		HB	

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### Processing Information

Injection	Nominal Value	Unit
Drying Temperature	185	°F
Drying Time	4.0	hr
Rear Temperature	387	°F
Middle Temperature	405	°F
Front Temperature	423	°F
Nozzle Temperature	414 to 432	°F
Processing (Melt) Temp	414 to 432	°F
Mold Temperature	81 to 144	°F
Back Pressure	43.5 to 189	psi
Screw Speed	60 to 200	rpm
Clamp Tonnage	3.0 to 5.0	tons/in <sup>2</sup>

#### Injection Notes

Injection Speed: >.4 in/sec

#### Notes

<sup>1</sup> Typical properties: these are not to be construed as specifications.

<sup>2</sup> Die C