

# Zythane® 5090A

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

### General Information

#### Product Description

Zythane 5090A is a polyester-based TPU specifically formulated for extrusion 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 5090A applications include among others spiral and pneumatic tubing, round and V belting, blow molded bellows.

#### 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>Tubing</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>Blow Molding</li> </ul>	<ul style="list-style-type: none"> <li>Extrusion</li> </ul>	<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	23.0	mg	ASTM D1044
Abrasion - DIN	22	mm <sup>3</sup>	DIN 53516
Elastomers	Nominal Value	Unit	Test Method
Tensile Stress (100% Strain)	870	psi	ASTM D412
Tensile Stress (300% Strain)	2470	psi	ASTM D412
Tensile Strength (Break)	6380	psi	ASTM D412
Tensile Elongation (Break)	560	%	ASTM D412
Tear Strength <sup>2</sup>	504	lbf/in	ASTM D624
Compression Set			ASTM D395B
75°F, 22 hr	23	%	
158°F, 72 hr	43	%	
Hardness	Nominal Value	Unit	Test Method
Durometer Hardness			ASTM D2240
Shore A	90		
Shore D	40		
Thermal	Nominal Value	Unit	Test Method
Brittleness Temperature	-24.0	°F	DSC
Vicat Softening Temperature	270	°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		

### Processing Information

Injection	Nominal Value	Unit
Drying Temperature	185	°F

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Injection	Nominal Value	Unit
Drying Time	4.0	hr
Rear Temperature	365	°F
Middle Temperature	392	°F
Front Temperature	401	°F
Nozzle Temperature	401 to 419	°F
Processing (Melt) Temp	401 to 419	°F
Mold Temperature	77 to 140	°F
Back Pressure	72.5 to 145	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

Extrusion	Nominal Value	Unit
Drying Temperature	185	°F
Drying Time	4.0	hr
Cylinder Zone 1 Temp.	365	°F
Cylinder Zone 2 Temp.	392	°F
Cylinder Zone 3 Temp.	401	°F
Die Temperature	41	°F

### Extrusion Notes

Gate Temperature: 205°C (401°F)

### Notes

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

<sup>2</sup> Die C