



# Zythane® 7090AF

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

### General Information

#### Product Description

Zythane 7090AF is a FR polyether-based TPU specifically formulated with non-halogenated flame retardants for extrusion applications with ease of processing. 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 7090AF applications include among others, cable sheathing, spiral and pneumatic tubing, film, irrigation hoses, conveyor hoses, fire hoses, hydraulic hoses, cable jacketing, flat flex cables, automotive sensor cables. LOI is about 23%.

#### General

Features	<ul style="list-style-type: none"> <li>Abrasion Resistant</li> <li>Flame Retardant</li> <li>Fuel Resistant</li> </ul>	<ul style="list-style-type: none"> <li>Good Processability</li> <li>Good Toughness</li> <li>Halogen Free</li> </ul>	<ul style="list-style-type: none"> <li>Hydrolytically Stable</li> <li>Oil Resistant</li> <li>Solvent Resistant</li> </ul>
Uses	<ul style="list-style-type: none"> <li>Automotive Applications</li> <li>Cable Jacketing</li> </ul>	<ul style="list-style-type: none"> <li>Film</li> <li>Hose</li> </ul>	<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>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	1.26		ASTM D792
Mechanical	Nominal Value	Unit	Test Method
Taber Abrasion Resistance	40.0	mg	ASTM D1044
Abrasion - DIN	32	mm <sup>3</sup>	DIN 53516
Elastomers	Nominal Value	Unit	Test Method
Tensile Stress (100% Strain)	1450	psi	ASTM D412
Tensile Stress (300% Strain)	2180	psi	ASTM D412
Tensile Strength (Break)	4790	psi	ASTM D412
Tensile Elongation (Break)	500	%	ASTM D412
Tear Strength <sup>2</sup>	388	lbf/in	ASTM D624
Compression Set			ASTM D395B
75°F, 22 hr	20	%	
158°F, 72 hr	43	%	
Hardness	Nominal Value	Unit	Test Method
Durometer Hardness (Shore A)	90		ASTM D2240
Thermal	Nominal Value	Unit	Test Method
Brittleness Temperature	-36.0	°F	DSC
Vicat Softening Temperature	234	°F	ASTM D1525
Flammability	Nominal Value	Unit	Test Method
Flame Rating			UL 94
0.04 in		V-0	
0.06 in		V-0	
0.12 in		V-0	

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### Processing Information

Injection	Nominal Value	Unit
Drying Temperature	185	°F
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: >0.4 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	414	°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