

## 3M Dyneon™ PFE 300Z Clear Perfluoroelastomer System

Category : Polymer , Thermoset , Fluoropolymer, TS , Thermoset Fluoroelastomer , Rubber or Thermoset Elastomer (TSE)

### Material Notes:

Features and Benefits: Proprietary polymer and catalyst system enables the manufacture of optically clear finished parts  
Proportionate polymer and catalyst package simplifies the mixing process  
Low extractables, low outgassing, and low particle generation for ultra high purity applications  
Phosphorous-free and silica free formulation reduces the potential for contamination  
Excellent temperature resistance optimizes performance in extreme environments (continuous, in-service temperatures to 300°C with peaks up to 350°C)  
Excellent compression set offers enhanced sealing force retention and seal life  
Smaller, easy to store units for clean room handling  
Information provided by the Dyneon division of 3M.

Order this product through the following link:

[http://www.lookpolymers.com/polymer\\_3M-Dyneon-PFE-300Z-Clear-Perfluoroelastomer-System.php](http://www.lookpolymers.com/polymer_3M-Dyneon-PFE-300Z-Clear-Perfluoroelastomer-System.php)

Physical Properties	Metric	English	Comments
Mooney Viscosity	80 @Temperature 121 °C	80 @Temperature 250 °F	ML 1+10

Mechanical Properties	Metric	English	Comments
Hardness, Shore A	60	60	Press Cure 10 Minutes @ 165°C (350°F) Ramp Post Cure in Air; ASTM D2240
	56 @Time 86400 sec	56 @Time 24.0 hour	Press Cure 10 Minutes @ 165°C (330°F) Ramp Post Cure in Air, Time Held at 300°C (572°F); ASTM D2240
	57 @Time 14400 sec	57 @Time 4.00 hour	Press Cure 10 Minutes @ 165°C (330°F) Ramp Post Cure in Air, Time Held at 300°C (572°F); ASTM D2240
Tensile Strength at Break	13.2 MPa @Time 86400 sec	1910 psi @Time 24.0 hour	Press Cure 10 Minutes @ 165°C (330°F) Ramp Post Cure in Air, Time Held at 300°C (572°F); ASTM D412 Die D Dumbbells
	13.8 MPa @Time 14400 sec	2000 psi @Time 4.00 hour	Press Cure 10 Minutes @ 165°C (330°F) Ramp Post Cure in Air, Time Held at 300°C (572°F); ASTM D412 Die D Dumbbells
Elongation at Break	295 %	295 %	Press Cure 10 Minutes @ 165°C (350°F) Ramp Post Cure in Air; ASTM D412 Die D Dumbbells
	275 % @Time 86400 sec	275 % @Time 24.0 hour	Press Cure 10 Minutes @ 165°C (330°F) Ramp Post Cure in Air, Time Held at 300°C (572°F); ASTM D412 Die D Dumbbells
	295 % @Time 14400 sec	295 % @Time 4.00 hour	Press Cure 10 Minutes @ 165°C (330°F) Ramp Post Cure in Air, Time Held at 300°C (572°F); ASTM D412 Die D Dumbbells

Mechanical Properties	Metric	English	Comments
100% Modulus	0.00130 GPa @Time 86400 sec	0.174 ksi @Time 24.0 hour	Press Cure 10 Minutes @ 165°C (330°F) Ramp Post Cure in Air, Time Held at 300°C (572°F); ASTM D412 Die D Dumbbells
	0.00130 GPa @Time 14400 sec	0.189 ksi @Time 4.00 hour	Press Cure 10 Minutes @ 165°C (330°F) Ramp Post Cure in Air, Time Held at 300°C (572°F); ASTM D412 Die D Dumbbells
Compression Set	8.0 % @Treatment Temp. 200 °C, Time 79200 sec	8.0 % @Treatment Temp. 392 °F, Time 22.0 hour	Method B, -214 O-rings, Press Cure 10 Minutes @ 165°C Ramp Post Cure in Air; ASTM D395
	15 % @Treatment Temp. 250 °C, Time 79200 sec	15 % @Treatment Temp. 482 °F, Time 22.0 hour	Method B, -214 O-rings, Press Cure 10 Minutes @ 165°C Ramp Post Cure in Air; ASTM D395
	16 % @Treatment Temp. 200 °C, Time 252000 sec	16 % @Treatment Temp. 392 °F, Time 70.0 hour	Method B, -214 O-rings, Press Cure 10 Minutes @ 165°C Ramp Post Cure in Air; ASTM D395
	19 % @Treatment Temp. 250 °C, Time 252000 sec	19 % @Treatment Temp. 482 °F, Time 70.0 hour	Method B, -214 O-rings, Press Cure 10 Minutes @ 165°C Ramp Post Cure in Air; ASTM D395
	19 % @Treatment Temp. 250 °C, Time 252000 sec	19 % @Treatment Temp. 482 °F, Time 70.0 hour	4 hrs, Method B, -214 O-rings; ASTM D395
	20 % @Treatment Temp. 250 °C, Time 252000 sec	20 % @Treatment Temp. 482 °F, Time 70.0 hour	4 hrs, Method B, -214 O-rings; ASTM D395
	20 % @Treatment Temp. 200 °C, Time 605000 sec	20 % @Treatment Temp. 392 °F, Time 168 hour	Method B, -214 O-rings, Press Cure 10 Minutes @ 165°C Ramp Post Cure in Air; ASTM D395
	22 % @Treatment Temp. 250 °C, Time 605000 sec	22 % @Treatment Temp. 482 °F, Time 168 hour	24 hrs, Method B, -214 O-rings; ASTM D395
	24 % @Treatment Temp. 250 °C, Time 605000 sec	24 % @Treatment Temp. 482 °F, Time 168 hour	Method B, -214 O-rings, Press Cure 10 Minutes @ 165°C Ramp Post Cure in Air; ASTM D395

Mechanical Properties	Metric	English	Comments
	@Treatment Temp. 250 °C, Time 605000 sec	@Treatment Temp. 482 °F, Time 168 hour	24 hrs, Method B, -214 O-rings, ASTM D395
	25 %  @Treatment Temp. 200 °C, Time 1.21e+6 sec	25 %  @Treatment Temp. 392 °F, Time 336 hour	Method B, -214 O-rings, Press Cure 10 Minutes @ 165°C Ramp Post Cure in Air; ASTM D395
	26 %  @Treatment Temp. 275 °C, Time 79200 sec	26 %  @Treatment Temp. 527 °F, Time 22.0 hour	Method B, -214 O-rings, Press Cure 10 Minutes @ 165°C Ramp Post Cure in Air; ASTM D395
	28 %  @Treatment Temp. 250 °C, Time 1.21e+6 sec	28 %  @Treatment Temp. 482 °F, Time 336 hour	Method B, -214 O-rings, Press Cure 10 Minutes @ 165°C Ramp Post Cure in Air; ASTM D395
	33 %  @Treatment Temp. 275 °C, Time 252000 sec	33 %  @Treatment Temp. 527 °F, Time 70.0 hour	Method B, -214 O-rings, Press Cure 10 Minutes @ 165°C Ramp Post Cure in Air; ASTM D395
	36 %  @Treatment Temp. 275 °C, Time 605000 sec	36 %  @Treatment Temp. 527 °F, Time 168 hour	Method B, -214 O-rings, Press Cure 10 Minutes @ 165°C Ramp Post Cure in Air; ASTM D395
	53 %  @Treatment Temp. 275 °C, Time 1.21e+6 sec	53 %  @Treatment Temp. 527 °F, Time 336 hour	Method B, -214 O-rings, Press Cure 10 Minutes @ 165°C Ramp Post Cure in Air; ASTM D395

Optical Properties	Metric	English	Comments
Transmission, Visible	25 %	25 %	translucent, but thickness not quantified

Component Elements Properties	Metric	English	Comments
Fluorine, F	72.4 %	72.4 %	

Processing Properties	Metric	English	Comments
Feed Temperature	50.0 - 70.0 °C	122 - 158 °F	
Die Temperature	70.0 - 90.0 °C	158 - 194 °F	
Head Temperature	70.0 - 90.0 °C	158 - 194 °F	

Screw Cooling Temperature Processing Properties	60.0 - 80.0 °C Metric	140 - 176 °F English	Comments
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Descriptive Properties	Value	Comments
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Color	Translucent, Clear-Amber	
Dry Heat Resistance of Vulcanizate - 100% Modulus	1.103 MPa	300°C; 336 hours
	1.13 MPa	300°C; 168 hours
	1.17 MPa	300°C; 70 hours
	1.62 MPa	250°C; 70 hours
	1.72 MPa	200°C; 168 hours
	1.75 MPa	250°C; 336 hours
	1.83 MPa	200°C; 70 hours
	1.86 MPa	250°C; 168 hours
	2.03 MPa	200°C; 336 hours
	275°C; 168 hours MPa	°C; hours
	275°C; 70 hours MPa	°C; hours
Dry Heat Resistance of Vulcanizate - Elongation	250 percent	275°C; 70 hours
	255 percent	250°C; 168 hours
	270 percent	275°C; 168 hours
	275 percent	200°C; 168 hours
	280 percent	200°C; 336 hours
	280 percent	250°C; 70 hours
	280 percent	250°C; 336 hours
	290 percent	200°C; 70 hours
	370 percent	300°C; 70 hours
	375 percent	300°C; 168 hours
	380 percent	300°C; 336 hours
Dry Heat Resistance of Vulcanizate - Shore A Hardness	55	275°C; 70 hours
	55	275°C; 168 hours

Descriptive Properties	56 Value	300°C; 336 hours Comments
	57	300°C; 70 hours
	57	300°C; 168 hours
	60	250°C; 336 hours
	60	250°C; 70 hours
	61	250°C; 168 hours
	63	200°C; 70 hours
	64	200°C; 168 hours
	65	200°C; 336 hours
<b>Dry Heat Resistance of Vulcanizate - Tensile Strength at Break</b>	10.89 MPa	275°C; 168 hours
	11.51 MPa	300°C; 336 hours
	12.89 MPa	300°C; 168 hours
	12.96 MPa	275°C; 70 hours
	15.2 MPa	300°C; 70 hours
	16.89 MPa	250°C; 336 hours
	17.72 MPa	250°C; 168 hours
	18.34 MPa	200°C; 70 hours
	19.51 MPa	250°C; 70 hours
	19.96 MPa	200°C; 168 hours
	20.86 MPa	200°C; 336 hours
<b>Form</b>	Slab	
MH, Maximum Toque	3.7 inch-lb	100 cpm, 0.5° Arc, 10 Minutes @ 165°C
ML, Minimum Torque	1.0 inch-lb	100 cpm, 0.5° Arc, 10 Minutes @ 165°C
t2, Time to 2 Inch-lb Rise from Minimum	3.2 Minute	100 cpm, 0.5° Arc, 10 Minutes @ 165°C
t'50, Time to 50% Cure	2.1 Minutes	100 cpm, 0.5° Arc, 10 Minutes @ 165°C
t'90, Time to 90% Cure	5.2 Minutes	100 cpm, 0.5° Arc, 10 Minutes @ 165°C

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