

3M Dyneon™ 301Z Translucent Perfluoroelastomer System

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

Material Notes:

Features and Benefits:Excellent plasma resistance with low particle count Low extractables, low outgassing, and low particle generation for ultra high purity applicationsPhosphorous-free and silica free formulation reduces the potential for contaminationExcellent 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 lifeSmaller, easy to store packages for clean room handlingInformation provided by the Dyneon division of 3M.

Order this product through the following link:

http://www.lookpolymers.com/polymer_3M-Dyneon-301Z-Translucent-Perfluoroelastomer-System.php

Physical Properties	Metric	English	Comments
Specific Gravity	2.10 g/cc	2.10 g/cc	
Mooney Viscosity	110 @Temperature 121 °C	110 @Temperature 250 °F	ML 1+10

Mechanical Properties	Metric	English	Comments
Hardness, Shore A	72	72	Press cure 10 Minutes @ 165°C, Ramp Post Cure in Air ASTM Die D Dumbbells
	70 @Treatment Temp. 300 °C, Time 1.21e+6 sec	70 @Treatment Temp. 572 °F, Time 336 hour	
Tensile Strength at Break	18.9 MPa	2740 psi	Press cure 10 Minutes @ 165°C, Ramp Post Cure in Air ASTM Die D Dumbbells
Elongation at Break	260 %	260 %	Press cure 10 Minutes @ 165°C, Ramp Post Cure in Air ASTM Die D Dumbbells
100% Modulus	0.00360 GPa	0.522 ksi	Press cure 10 Minutes @ 165°C, Ramp Post Cure in Air ASTM Die D Dumbbells
Compression Set	26 % @Treatment Temp. 250 °C	26 % @Treatment Temp. 482 °F	Method B, -214 O-rings; ASTM D395
	21 % @Treatment Temp. 230 °C, Time 252000 sec	21 % @Treatment Temp. 446 °F, Time 70.0 hour	Method B, -214 O-rings; ASTM D395
	26 %	26 %	

Mechanical Properties	Metric	English	Comments
	@Treatment Temp. 250 °C, Time 252000 sec	@Treatment Temp. 482 °F, Time 70.0 hour	Method B, -214 O-rings; ASTM D395
	29 %	29 %	
	@Treatment Temp. 230 °C, Time 605000 sec	@Treatment Temp. 446 °F, Time 168 hour	Method B, -214 O-rings; ASTM D395
	32 %	32 %	
	@Treatment Temp. 275 °C, Time 252000 sec	@Treatment Temp. 527 °F, Time 70.0 hour	Method B, -214 O-rings; ASTM D395
	33 %	33 %	
	@Treatment Temp. 250 °C, Time 605000 sec	@Treatment Temp. 482 °F, Time 168 hour	Method B, -214 O-rings; ASTM D395
	33 %	33 %	
	@Treatment Temp. 230 °C, Time 1.21e+6 sec	@Treatment Temp. 446 °F, Time 336 hour	Method B, -214 O-rings; ASTM D395
	38 %	38 %	
	@Treatment Temp. 275 °C, Time 605000 sec	@Treatment Temp. 527 °F, Time 168 hour	Method B, -214 O-rings; ASTM D395
	40 %	40 %	
	@Treatment Temp. 250 °C, Time 1.21e+6 sec	@Treatment Temp. 482 °F, Time 336 hour	Method B, -214 O-rings; ASTM D395
	52 %	52 %	
	@Treatment Temp. 275 °C, Time 1.21e+6 sec	@Treatment Temp. 527 °F, Time 336 hour	Method B, -214 O-rings; ASTM D395

Thermal Properties	Metric	English	Comments
Maximum Service Temperature, Air	300 °C	572 °F	
	350 °C	662 °F	peak

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

Component Elements Properties	Metric	English	Comments
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Fluorine F Component Elements Properties	73 % Metric	73 % English	Comments
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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	60.0 - 80.0 °C	140 - 176 °F	

Descriptive Properties	Value	Comments
Color	White	
Dry Heat Resistance of Vulcanizate - 100% Modulus	2.24 MPa	300°C; 336 hours
	2.28 MPa	300°C; 168 hours
	2.41 MPa	300°C; 70 hours
	2.79 MPa	275°C; 336 hours
	3.17 MPa	275°C; 168 hours
	3.31 MPa	250°C; 336 hours
	3.41 MPa	275°C; 70 hours
	3.55 MPa	250°C; 70 hours
	3.69 MPa	250°C; 168 hours
Dry Heat Resistance of Vulcanizate - Elongation	265 percent	250°C; 168 hours
	270 percent	250°C; 70 hours
	280 percent	275°C; 70 hours
	280 percent	275°C; 168 hours
	290 percent	250°C; 336 hours
	310 percent	275°C; 336 hours
	335 percent	300°C; 70 hours
	355 percent	300°C; 168 hours
	380 percent	300°C; 336 hours
Dry Heat Resistance of Vulcanizate - Shore A Hardness	69	300°C; 168 hours

Descriptive Properties	70 Value	300°C; 336 hours Comments
	70	300°C; 70 hours
	71	275°C; 336 hours
	72	250°C; 336 hours
	73	275°C; 70 hours
	73	275°C; 168 hours
	74	250°C; 70 hours
	74	250°C; 168 hours
Dry Heat Resistance of Vulcanizate - Tensile Strength at Break	17.8 MPa	300°C; 336 hours
	18.5 MPa	300°C; 168 hours
	18.9 MPa	300°C; 70 hours
	20.8 MPa	275°C; 336 hours
	21 MPa	250°C; 70 hours
	22.1 MPa	250°C; 168 hours
	22.4 MPa	275°C; 70 hours
	23 MPa	250°C; 336 hours
	23.6 MPa	275°C; 168 hours
Form	Slab	
MH, Maximum Toque	5.9 inch-lb	100 cpm, 0.5° Arc, 10 Minutes @ 165°C
ML, Minimum Torque	1.9 inch-lb	100 cpm, 0.5° Arc, 10 Minutes @ 165°C
t2, Time to 2 Inch-lb Rise from Minimum	2.2 Minute	100 cpm, 0.5° Arc, 10 Minutes @ 165°C
t'50, Time to 50% Cure	2.2 Minutes	100 cpm, 0.5° Arc, 10 Minutes @ 165°C
t'90, Time to 90% Cure	5.8 Minutes	100 cpm, 0.5° Arc, 10 Minutes @ 165°C

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