

Solvay Specialty Polymers Halar® 500 ECTFE Fluoropolymer (discontinued **)

Category : Polymer , Thermoplastic , Fluoropolymer , ETFE/ECTFE , ECTFE Fluoropolymer

Material Notes:

Data provided by the manufacturer. HALAR® Fluoropolymers have excellent barrier properties, high resistance to a variety of corrosive chemicals and solvents, low flammability, and ease of processing.

Order this product through the following link:

http://www.lookpolymers.com/polymer_Solvay-Specialty-Polymers-Halar-500-ECTFE-Fluoropolymer-nbspdiscontinued-.php

Physical Properties	Metric	English	Comments
Density	1.68 g/cc	0.0607 lb/in ³	
Water Absorption	<= 0.10 %	<= 0.10 %	168 hours
Moisture Absorption at Equilibrium	<= 0.10 %	<= 0.10 %	after 168 hours

Mechanical Properties	Metric	English	Comments
Hardness, Rockwell R	90	90	
Hardness, Shore D	75	75	
Tensile Strength, Ultimate	46.0 MPa	6670 psi	
Tensile Strength, Yield	29.0 MPa	4210 psi	
Elongation at Break	260 %	260 %	
Elongation at Yield	5.0 %	5.0 %	
Tensile Modulus	1.655 GPa	240.0 ksi	
Flexural Yield Strength	47.0 MPa	6820 psi	
Flexural Modulus	1.69 GPa	245 ksi	
Izod Impact, Notched	0.640 J/cm	1.20 ft-lb/in	
	@Temperature -40.0 °C	@Temperature -40.0 °F	
	NB	NB	
	@Temperature 23.0 °C	@Temperature 73.4 °F	
Tensile Impact Strength	806 kJ/m ²	384 ft-lb/in ²	ASTM D1822S
Coefficient of Friction, Dynamic	0.19	0.19	vs. steel; 50 cm/s (20 in/s); ASTM D1044
Coefficient of Friction, Static	0.19	0.19	vs. steel; ASTM D1044
Taber Abrasion, mg/1000 Cycles			CS-17 wheels; 500 g; wheels cleaned

Mechanical Properties	5.0 Metric	5.0 English	every 25 cycles Comments
Thermal Properties	Metric	English	Comments
CTE, linear	80.0 $\mu\text{m}/\text{m}\cdot^{\circ}\text{C}$	44.4 $\mu\text{in}/\text{in}\cdot^{\circ}\text{F}$	
	@Temperature -30.0 - 50.0 $^{\circ}\text{C}$	@Temperature -22.0 - 122 $^{\circ}\text{F}$	
	135 $\mu\text{m}/\text{m}\cdot^{\circ}\text{C}$	75.0 $\mu\text{in}/\text{in}\cdot^{\circ}\text{F}$	
	@Temperature 85.0 - 125 $^{\circ}\text{C}$	@Temperature 185 - 257 $^{\circ}\text{F}$	
Specific Heat Capacity	0.946 J/g- $^{\circ}\text{C}$	0.226 BTU/lb- $^{\circ}\text{F}$	
Thermal Conductivity	0.151 W/m-K	1.05 BTU-in/hr-ft ² - $^{\circ}\text{F}$	Halar® 300
Melting Point	240 $^{\circ}\text{C}$	464 $^{\circ}\text{F}$	
Maximum Service Temperature, Air	140 $^{\circ}\text{C}$	284 $^{\circ}\text{F}$	
Deflection Temperature at 0.46 MPa (66 psi)	92.0 $^{\circ}\text{C}$	198 $^{\circ}\text{F}$	
Deflection Temperature at 1.8 MPa (264 psi)	67.0 $^{\circ}\text{C}$	153 $^{\circ}\text{F}$	
Brittleness Temperature	≤ -76.0 $^{\circ}\text{C}$	≤ -105 $^{\circ}\text{F}$	
Flammability, UL94	V-0	V-0	
	@Thickness 0.180 mm	@Thickness 0.00709 in	
Oxygen Index	≥ 52 %	≥ 52 %	

Optical Properties	Metric	English	Comments
Refractive Index	1.4476	1.4476	
	@Wavelength 589 nm	@Wavelength 589 nm	
Haze	3.0 - 5.0 %	3.0 - 5.0 %	typical for HALAR films; ASTM D1003
Gloss	85 - 95 %	85 - 95 %	85-95% at 20° is typical of HALAR films; ASTM D2457

Electrical Properties	Metric	English	Comments
Electrical Resistivity	1.56e+16 ohm-cm	1.56e+16 ohm-cm	
Surface Resistance	$\geq 1.00\text{e}+17$ ohm	$\geq 1.00\text{e}+17$ ohm	ASTM D257
Dielectric Constant	2.47	2.47	
	@Frequency 1000 Hz	@Frequency 1000 Hz	

Electrical Properties	^{2.57} Metric	^{2.57} English	Comments
	@Frequency 1e+6 Hz	@Frequency 1e+6 Hz	
Dielectric Strength	14.0 kV/mm	356 kV/in	
	@Thickness 1.60 mm	@Thickness 0.0630 in	
	14.0 kV/mm	356 kV/in	
	@Thickness 3.18 mm	@Thickness 0.125 in	
	80.0 kV/mm	2030 kV/in	
	@Thickness 0.0250 mm	@Thickness 0.000984 in	
Dissipation Factor	0.0014	0.0014	
	@Frequency 1000 Hz	@Frequency 1000 Hz	
	0.013	0.013	
	@Frequency 1e+6 Hz	@Frequency 1e+6 Hz	
Arc Resistance	>= 50 sec	>= 50 sec	Test Terminated at 50 sec.; ASTM D495
Comparative Tracking Index	>= 600 V	>= 600 V	
	@Thickness 1.60 mm	@Thickness 0.0630 in	
Hot Wire Ignition, HWI	20.2 sec	20.2 sec	
	@Thickness 1.60 mm	@Thickness 0.0630 in	
High Amp Arc Ignition, HAI	>= 200 arcs	>= 200 arcs	test terminated at 200 arcs 1/16 A.S.
	@Thickness 1.60 mm	@Thickness 0.0630 in	
High Voltage Arc-Tracking Rate, HVTR	208 mm/min	8.19 in/min	
	@Thickness 1.60 mm	@Thickness 0.0630 in	

Processing Properties	Metric	English	Comments
Processing Temperature	260 - 282 °C	500 - 540 °F	

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