

TECHNICAL DATA

EFEP RP-5000

FEATURES

EFEP RP-5000 is a fluoropolymer combining the excellent physical and chemical properties derived from ETFE together with a low processing temperature that is more compatible with engineering resins and conventional thermoplastic polymers. This resin adheres well to many kinds of plastics and inorganic materials (glass, metals) without adhesive or etching.

BENEFITS

EFEP RP-5000 can be easily co-extruded into multi-layer tubing or films and offers the following advantages for a wide range of applications found in the automotive, oil and gas, chemical processing, semiconductor and film industries:

- Very good permeation resistance to hydrocarbons
- Excellent chemical resistance
- High purity
- Improved heat aging resistance
- Co-extrusion with other resins (nylons, EVOH, modified PE, and ETFE) without adhesive or etching
- Superior adhesion strength
- Excellent weathering
- Cold impact resistance

TYPICAL APPLICATIONS

Mono- and multi-layer tubing, mono- and multi-layer films and injection molding parts.

TYPICAL PROPERTIES*

Property	Unit	Test Method	RP-5000
Specific Gravity	-	ASTM D792	1.74
Melting Point	°C	DSC	195
MFR (265 °C, 5kg)	g/10 min	ASTM D1238	20~30
Tensile Strength	MPa	ASTM D638	36 ~ 56
Elongation	%	ASTM D638	360 ~ 520
Flexural Modulus	MPa	ASTM D790	1000
Permeation Resistance (average)	g.mm/m ² .day	CE-10, 60°C 100% Methanol, 60 °C	6.5 2

(*): Not for specification

TYPICAL PROCESSING METHODS

	Extrusion	Injection Molding
RP-5000	X	X

The tables below show typical processing conditions for a multi-layer tubing (outer layer: PA12, inner layer: RP-5000), injection molding and film application:

Co-extrusion of PA12 and EFEP RP-5000

	Unit	RP-5000	PA12
Extruder			
Cylinder diameter	mm	30	40
Screw L/D	-	24	24
Compression ratio	-	3	3
Cylinder temperature:			
C1	°C	260	210
C2	°C	260	220
C3	°C	260	230
AD	°C	265	245
Die temperature	°C	280	
Die I.D.	mm	16	
Tip O.D.	mm	12	
Tubing O.D.	mm	8	
Total wall thickness	mm	1	
Layer thickness	mm	0.25	0.75

Film extrusion

	Unit	RP-5000
Film		
Width	mm	450
Thickness	mm	0.13
Extruder		
Cylinder diameter	mm	50
Screw L/D	-	29
Compression ratio	-	2.6
Cylinder temperature:		
C1	°C	200
C2	°C	230
C3	°C	245
C4	°C	255
AD	°C	260
Die temperature	°C	265
Cooling roll	°C	100
Screw speed	rpm	10
Line speed	m/min	0.6

Injection molding (ASTM Type 5 Dumbbell)

	Unit	RP-5000
Cylinder temperature:		
Rear	°C	200 ~ 220
Middle	°C	220 ~ 240
Front	°C	250 ~ 270
Nozzle	°C	250 ~ 270
Mold temperature	°C	30 ~ 100
Injection speed	mm/s	3 ~ 15
Injection pressure	MPa	50 ~ 100
Cooling time	s	10 ~ 40

SAFETY

When EFEP RP-5000 resin is heated to temperatures above 300 °C, some decomposition products may be given off. These decomposition products may be harmful, and inhalation of these fumes must be avoided. Process equipment and working area must be adequately ventilated.

For further information, please refer to the material safety datasheet for these products and the *Guide to the Safe Handling of Fluoropolymer Resins* published by SPI Inc., 1801 K Street, NW, Suite 600K, Washington, DC, 20006-1301 (202-974-5200) or e-mail your questions to EFEP@daikin-america.com.

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