



TECHNICAL INFORMATION

EFEP RP-4020 & 4040

FEATURES

EFEP RP-4020 and **RP-4040** are fluoropolymers combining the excellent physical and chemical properties derived from ETFE together with the very low melting temperature characteristic of a conventional thermoplastic. These resins have a high transparency and adhere well to many kinds of plastics and inorganic materials (glass, metals) without adhesive or etching.

BENEFITS

EFEP RP-4020 and RP-4040 offer the following advantages for a wide range of applications found in the chemical processing, semiconductor and film industries:

- Very low processing temperature and excellent thermal stability
- High transparency
- Excellent chemical resistance
- High purity
- Excellent weathering
- Improved heat sealing properties
- Low mold shrinkage (injection molding)
- Co-extrusion with other resins (nylons, EVOH, modified PE, and ETFE) without adhesive or etching

TYPICAL APPLICATIONS

Injection molding parts, mono- and multi-layer tubing, mono- and multi-layer films, bottles and containers.

TYPICAL PROPERTIES*

Property	Unit	Test Method	RP-4020	RP-4040
Specific Gravity	-	ASTM D792	1.74	1.74
Melting Point	°C	DSC	160	160
MFR (265 °C, 5kg)	g/10 min	ASTM D1238	25 ~ 50	3 ~ 8
Tensile Strength	MPa	ASTM D638	45	55
Elongation	%	ASTM D638	500	450
Flexural Modulus	MPa	ASTM D790	1300	n/a
Light Transmission (100 micron film)	%	250 nm	87	n/a

(*): Not for specification

TYPICAL PROCESSING METHODS

	Extrusion	Injection Molding	Blow Molding
RP-4020	X	X	-
RP-4040	X	-	X

The tables below show typical processing conditions for a tubing and injection molding applications.

Tubing extrusion

	Unit	RP-4040
Tubing O.D.	mm	25
Wall thickness	mm	1.8
Extruder		
Cylinder diameter	mm	55
Screw L/D	-	25
Compression ratio	-	3
Cylinder temperature:		
C1	°C	170
C2	°C	185
C3	°C	210
C4	°C	220
AD	°C	225
Die temperature	°C	210
Die I.D.	mm	36
Tip O.D.	mm	27
Screw speed	rpm	10
Line speed	m/min	0.45

Injection molding (ASTM Type 5 Dumbbell)

	Unit	RP-4020
Cylinder temperature:		
Rear	°C	180 ~ 200
Middle	°C	200 ~ 220
Front	°C	230 ~ 250
Nozzle	°C	230 ~ 250
Mold temperature	°C	30 ~ 80
Injection speed	mm/s	3 ~ 15
Injection pressure	MPa	50 ~ 100
Cooling time	s	10 ~ 40

SAFETY

When EFEP RP-4020 and RP-4040 resins are heated to temperatures above 280 °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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