Styropek EXPANDABLE STYRENICS

Particle Diameter

98% between 0.7 – 1.4 mm

Color **Shape**

White Spherical

Average VOC Content

Pentane	8.8 %
Plasticizer	0.3 %

Safety

Provide adequate exhaust ventilation during resin and pre-puff storage and processing as recommended in the *ARCEL resin Safe Handling and Storage Guide* to avoid the hazardous accumulation of the pentane blowing agent. Keep product away from ignition sources.

General Information

ARCEL 640 resin has been successfully formulated for improved impact properties and is intended for high density applications. This product also has the smallest bead size of the ARCEL resin family of products.

Raw Bead Storage

Store unexpanded product below 4°C (40°F) until processed to avoid loss of expandability and potential hazardous accumulation of pentane vapor. ARCEL 640 resin can be expected to lose pentane faster than other ARCEL resin grades at ambient conditions.

Expansion

ARCEL 640 resin was developed specifically for batch pre-expansion; however, for densities greater than 2.4 pcf. Continuous expansion is also possible using conventional EPS expansion equipment.

Freshly expanded ARCEL resin is sensitive to the thermal/mechanical shock of an airveyor. Improper conveyance may significantly increase density.

Minimum achievable density is expected to be:

Expansion Method	Pre-puff Density, pcf (g/l)	Foam Density, pcf (g/l)
Continuous – Single Pass	1.85 (29.6)	2.15 (34.4)
Continuous – Double Pass	1.40 (22.4)	1.65 (26.4)
Batch – Single Pass	1.50 (24.0)	1.70 (27.2)

Molding

The optimum molding window for ARCEL 640 resin pre-puff is between 8 and 48 hours conditioning time. Longer age time may result in some loss of fusion. Adequate crush fill is required to ensure good sintering and part quality.

Conventional EPS fill guns as small as 19mm can be used; larger 21-22 mm fill guns and 25 mm ID fill hoses are recommended. Successful fill is always contingent upon part/tooling design, fill gun placement as well as mold geometry. The minimum recommended wall thickness is 15 mm, depending on design complexity and fill gun placement. Refer to the *ARCEL Resin Tooling and Part Design Guide* for more detailed information.

Environmental

STYROPEK' ARCEL resins are biologically and chemically inert. ARCEL resins are typically able to be recycled where EPS recycling facilities exist. Where recycling of STYROPEK ARCEL resins is not possible, disposal to landfill or incineration in accordance with all applicable government laws and regulations is recommended. Please contact STYROPEK Styrenics Technology Center for more information on recycling and disposal.

Foam Physical Properties

Property	Test Method	Units	ARCEL® 640 Resin					
Density	ASTM-D3575	pcf	1.85	2.50	3.00	4.00	5.00	6.00
		g/l	29.6	40	48	64	80	96
Compressive Strength at 10% Strain	ASTM-D3575	Psi	18	30	38	55	72	89
Compressive Strength at 25% Strain	ASTM-D3575	Psi	25	36	45	65	86	108
Compressive Strength at 55% Strain	ASTM-D3575	Psi	39	52	64	94	130	173
Compressive Strength at 75% Strain	ASTM-D3575	Psi	73	95	116	171	257	382
Tensile Strength at Break	ASTM-D3575	Psi	45	54	84	109	130	146
Tear Strength at Max Load	ASTM-D3575	lb/in	13.6	17.0	19.7	25.0	30.3	35.6
Flexural Strength at 5% Strain	ASTM-C203	Psi	34.1	53	67.5	96.6	125.6	154.7
Flexural Stress at Max Load	ASTM-C203	Psi	41	62	77	109	140	171
Flexural Strain at Max Load	ASTM-C203	%	12.9	12.3	11.8	10.8	9.7	8.7
Puncture, Max Load	ASTM-D3763	lbf	81	105	123	160	197	233
Burn Rate	FMVSS302	mm/min	81	62	53	41	34	29
Thermal Resistivity	ASTMC518	Fft^2hr/ BTU in						

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