ARCEL®Resin - ULV HD
Styropek Expandable
Styrenics Product

TECHNICAL DATA SHEETS

RESIN COMPOSITION
Polyethylene/styrenic interpolymer, Expandable

PARTICLE DIAMETER
98% between 0.84 1.68 mm

SHAPE
Spherical

COLOR
White

AVERAGE VOC CONTENT

Pentane	4.5%
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 lit smoking materials and open flames.

RAW BEAD STORAGE
ARCEL ULV HD resin is a low volatile version of ARCEL resin which is not required to be kept in refrigerated storage. At ambient conditions, the shelf life will depend on the end-use density target. At 4°C (40°F) or lower, the shelf life is expected to be indefinite.

EXPANSION
ARCEL ULV HD resin can be continuously or batch expanded using conventional EPS expansion equipment. Some minor material handling modifications may be required. ARCEL ULV HD resin has been expanded in continuous expanders ranging in size from 210 to 1,135 liters (55 to 300 gallons) as well as several sizes of batch expanders.

Freshly expanded ARCEL ULV HD resin is sensitive to the thermal/mechanical shock of an airveyor. Improper conveyance may significantly increase density. A minimum of 24hrs of aging time is recommended before molding.

Minimum achievable density is expected to be:

Expansion Method	Pre-puff Density, pcf (g/l)	Foam Density, pcf (g/l)
Continuous-Single Pass	1.45 (23.2)	1.65 (26.4)
Continuous - Double Pass	0.95 (15.2)	1.10 (17.6)
Batch - Single Pass	1.25 (21.0)	1.35 (21.6)

MOLDING
Expanded particles have been molded after several months. Compared to ARCEL 730, a lower molding steam pressure and shorter steam time should be used.
Conventional EPS fill guns as small as 19 mm can be used; larger 21-22 mm fill guns and 25 mm ID fill hoses are recommended. The minimum recommended wall thickness is 18 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 notpossible, disposal to landfill or incineration in accordance with all applicable government laws and regulations is recommended. Please contact STYROPEK Beaver Valley Technology Center for more information on recycling and disposal.

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Foam Physical Properties

Property	Test Method	Units	ARCEL® ULV HD Resin										
Density	ASTM D3575	pcf	1.25	1.50	1.75	2.00	2.50	3.00	3.50	4.00	4.50	5.00	5.50
		g/l	20	24	28	32	40	48	56	64	72	80	88
Compressive Strength at 10% Strain	ASTM D3575	psi	17	21	26	30	40	50	60	71	83	94	107
Compressive Strength at 25% Strain	ASTM D3575	psi	20	26	31	36	47	59	71	83	96	110	124
Compressive Strength at 50% Strain	ASTM D3575	psi	30	36	41	47	60	74	88	104	120	137	155
Compressive Strength at 75% Strain	ASTM D3575	psi	65	74	84	94	116	140	167	195	225	258	293
Tensile Strength at Break	ASTM D3575	psi	34.3	44.4	52.9	60.3	72.6	82.6	91.1	98.5	105	110.8	116.0
Tear Strength at Max Load	ASTM D3575	lb/in	7.8	10.4	12.6	14.5	17.7	20.3	22.5	24.4	26.1	27.6	29.0
Flexural Strength at 5% Strain	ASTM C203	psi	26.9	37.5	47.5	57.0	74.2	89.2	101.9	112.3	120.5	126.5	130.1
Flexural Stress at Max Load	ASTM C203	psi	30.7	41.3	51.2	60.7	78.1	93.5	106.9	118.3	127.6	134.9	140.2
Flexural Strain at Max Load	ASTM C203	%	10.5	10.2	9.9	9.6	9.0	8.4	7.8	7.3	6.7	6.1	5.5
Puncture, Max Load	ASTM D3763	Lbf	38	47	56	65	83	101	119	137	155	173	190
Burn Rate	FMVSS302	mm/min	120.2	103.6	91.3	80.2	68.2	58.8	51.8	46.5	42.2	38.7	35.8
Thermal Resistivity	ASTMC518	Fft^2hr/ BTU in	3.79	3.87	3.92	3.97	4.01	4.01	3.97	3.90	3.82	3.73	3.64

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