

Description

Polyisocyanurate rigid foam

Blowing agents:

CFCs/HCFCs-free

Approvals, Homologations, Compliances

ASTM C 591–Type IV–Grade 2

Typical characteristics

Color			Green
Nominal density	ASTM D1622/EN 1602/EN ISO 845	lb/ft ³ (kg/m ³)	2 (32)
Compressive strength – Parallel (74°F/23°C)	ASTM D1621/EN 826	psi (MPa)	32.0 (0,220)
Compressive strength - Perpendicular (weakest direction), (74°F/23°C)	ASTM D1621/EN 826	psi (MPa)	22.0 (0,151)
Compressive strength – Parallel (-265°F/-165°C)	ASTM D1621/EN 826	psi (MPa)	>40.0 (0,280)
Compressive strength - Perpendicular (weakest direction), (-265°F/-165°C)	ASTM D1621/EN 826	psi (MPa)	>26.5 (0,182)
Tensile strength - Parallel (74°F/23°C)	ASTM D1623-A/EN 1607	psi (MPa)	50.0 (0,345)
Tensile strength - Perpendicular (weakest direction), (74°F/23°C)	ASTM D1623-A/EN 1607	psi (MPa)	36.0 (0,250)
Tensile strength - Parallel (-265°F/-165°C)	ASTM D1623-A/EN 1607	psi (MPa)	>41.1 (0,283)
Tensile strength - Perpendicular (weakest direction), (-265°F/-165°C)	ASTM D1623-A/EN 1607	psi (MPa)	>29.0 (0,200)
Tensile E-modulus - Parallel (-265°F/-165°C)	ASTM D1623-A/EN 1607	psi (MPa)	<470 (3,241)
Shear strength - Perpendicular (weakest direction), (74°F/23°C)	ASTM C273/EN 12090	psi (MPa)	23.0 (0,160)
Thermal conductivity - Initial (75°F/24°C)	ASTM C518/ASTM C177/EN 12667	BTU·in/hr·ft ² ·°F (mW/mK)	0.160 (22,9)
Thermal conductivity - 180 days (75°F/24°C)	ASTM C518/ASTM C177/EN 12667	BTU·in/hr·ft ² ·°F (mW/mK)	0.183 (26,0)
Coefficient of thermal stress resistance CTSR (-265°F/74°F, -165°C/+23°C)	CINI 2.7.01		>3
Poisson's Ratio (-265°F/-165°C)	ASTM D1623/EN 1607		0.4
Coefficient of linear thermal expansion CTE (-321°F/+74°F, -196°C/+23°C)	ASTM D696/EN 13471	1/°F·10E-6 (1/K·10E-6)	<33.3 (60)
Surface burning characteristics	ASTM E84	FSI	<25
Surface burning characteristics	ASTM E84	Smoke Dev.	<450
Horizontal burning characteristics	UL 94/ASTM D4986		HF-1
Leachable chlorides	ASTM C871/EN 13468	ppm	<20
pH	ASTM C871/EN 13468		6.0-7.0



Dimensional stability (-40°F/-40°C, 7 days) - linear change (length)	ASTM D2126/EN 1604	%	0.5
Dimensional stability (+212°F/+100°C, 7 days) - Linear change (length)	ASTM D2126/EN 1604	%	1.0
Dimensional stability (+158°F/70°C, 97% R.H., 7 days) - Linear change (length)	ASTM D2126/EN 1604	%	2.5
Water vapour transmission rate (74°F/23°C, 50% R.H.)	ASTM E96/EN 12086	grains/h·ft ² (g/h·m ²)	<1.573 (1,1)
Water vapor permeability (74°F/23°C,50% R.H.)	ASTM E96/EN 12086	Perm-inch (ng/s·m·Pa)	<4 (5,8)
Water absorption by volume	ASTM C272	%	<0.6
Water absorption by volume	ASTM D2842/EN 12087/ISO 2896	%	<3.5
Operating temperature		°F (°C)	-320/+300 (-196/+149)
R-Value - 180 days, 1 inch (75°F/24°C)	ASTM C518/EN 12667	hr·ft ² ·°F/BTU	5.46 (0,97)
Closed-cell content	ASTM D6226/EN ISO 4590	%	>95
Hot-Surface Performance (300°F/149°C)	ASTM C411		Pass
Surface burning characteristic, 3"panel	CAN/ULC S102-18	FSI	≤20
Surface burning characteristic, 3"panel	CAN/ULC S102-18	Smoke Dev.	≤155

Handling notice

Terms "parallel" and "perpendicular" are referred to slab/specimen/block thickness direction.

Above 300°F, discoloration and surface carbonization will occur, involving possible changes of the physical and mechanical properties of the material.

In some applications polyurethane may present fire risks, e.g. if exposed to fire or to excessive heat in presence of oxygen or air, including when welding or cutting with torches.

It is the Customer's responsibility to determine if product described herein is appropriate for Customer's purposes and end-use and to ensure that working place, storage and disposal practices are in compliance with any applicable law.

Remarks

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Description

Polyisocyanurate rigid foam

Blowing agents:

CFCs/HCFCs-free

Approvals, Homologations, Compliances

ASTM C591 - Type II Grade 2

Characteristics

Color			Green
Nominal density	ASTM D1622/EN 1602/EN ISO 845	lb/ft ³ (kg/m ³)	2.5 (40)
Compressive resistance – Parallel (74°F/23°C)	ASTM D1621/EN 826	psi (MPa)	45.0 (0,309)
Compressive resistance - Perpendicular (74°F/23°C)	ASTM D1621/EN 826	psi (MPa)	31.0 (0,213)
Compressive resistance – Parallel (-265°F/-165°C)	ASTM D1621/EN 826	psi (MPa)	>50.8 (0,350)
Compressive resistance - Perpendicular (-265°F/-165°C)	ASTM D1621/EN 826	psi (MPa)	>37.7 (0,260)
Tensile strength - Parallel (74°F/23°C)	ASTM D1623-A/EN 1607	psi (MPa)	63.0 (0,435)
Tensile strength - Perpendicular (74°F/23°C)	ASTM D1623-A/EN 1607	psi (MPa)	49.0 (0,340)
Tensile strength - Parallel (-265°F/-165°C)	ASTM D1623-A/EN 1607	psi (MPa)	>55.0 (0,379)
Tensile strength - Perpendicular (-265°F/-165°C)	ASTM D1623-A/EN 1607	psi (MPa)	>42.0 (0,290)
Tensile E-modulus - Parallel (-265°F/-165°C)	ASTM D1623-A/EN 1607	psi (MPa)	<670 (4,6)
Shear strength - Perpendicular (74°F/23°C)	ASTM C273/EN 12090	psi (MPa)	28.0 (0,195)
Thermal conductivity - Initial (75°F/24°C)	ASTM C518/EN 12667	BTU-in/hr-ft ² ·°F (mW/mK)	0.159 (22,8)
Thermal conductivity - 180 days (75°F/24°C)	ASTM C518/EN 12667	BTU-in/hr-ft ² ·°F (mW/mK)	0.183 (26,0)
Coefficient of thermal stress resistance CTSR (-265°F/74°F, -165°C/+23°C)	CINI 2.7.01		>4.0
Poisson's Ratio (-265°F/-165°C)	ASTM D1623/EN 1607		0.4
Coefficient of linear thermal expansion CTE (-321°F/+74°F,-196°C/+23°C)	ASTM D696/EN 13471	1/°F·10E-6 (1/K·10E-6)	<27.8 (50)
Surface burning characteristics	ASTM E84	FSI	<25
Surface burning characteristics	ASTM E84	Smoke Dev.	<450
Leachable chlorides	ASTM C871/EN 13468	ppm	<20
pH	ASTM C871/EN 13468		6.0-7.0
Dimensional stability (-40°F/-40°C, 7 days) - linear change (length)	ASTM D2126/EN 1604	%	0.5
Dimensional stability (+212°F/+100°C, 7 days) - Linear change (length)	ASTM D2126/EN 1604	%	1.0
Dimensional stability (+158°F/70°C, 97% R.H., 7 days) - Linear change (length)	ASTM D2126/EN 1604	%	±1.5



Water vapour transmission rate (74°F/23°C, 50% R.H.)	ASTM E96/EN 12086	grains/h-ft ² (g/h-m ²)	<1.66 (1,16)
Water vapor permeability (74°F/23°C,50% R.H.)	ASTM E96/EN 12086	Perm-inch (ng/s·m·Pa)	3.5 (5,1)
Water absorption by volume	ASTM C272	%	<0.5
Water absorption by volume	ASTM D2842/EN 12087/ISO 2896	%	<3.5
Operating temperature		°F (°C)	-320/+300 (-196/+149)
R-Value - 180 days, 1 inch (75°F/24°C)	ASTM C518/EN 12667	hr·ft ² ·°F/BTU	5.46 (0,97)
Closed-cell content	ASTM D6226/EN ISO 4590	%	>95
Hot-Surface Performance (300°F/149°C)	ASTM C411		Pass

Handling notice

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Description

Polyisocyanurate rigid foam

Blowing agents:

CFCs/HCFCs-free

Approvals, Homologations, Compliances

ASTM C591 - Type III

Characteristics

Color			Green
Nominal density	ASTM D1622/EN 1602/EN ISO 845	lb/ft ³ (kg/m ³)	3 (48)
Compressive resistance – Parallel (74°F/23°C)	ASTM D1621/EN 826	psi (MPa)	58.1 (0,400)
Compressive resistance - Perpendicular (74°F/23°C)	ASTM D1621/EN 826	psi (MPa)	40.6 (0,280)
Compressive resistance – Parallel (-265°F/-165°C)	ASTM D1621/EN 826	psi (MPa)	>68.0 (0,469)
Compressive resistance - Perpendicular (-265°F/-165°C)	ASTM D1621/EN 826	psi (MPa)	>58.0 (0,400)
Flexural strength - Parallel, Met.I (74°F/23°C)	ASTM C203/EN 12089	psi (MPa)	55.0 (0,379)
Flexural strength - Perpendicular, Met.I (74°F/23°C)	ASTM C203/EN 12089	psi (MPa)	55.0 (0,379)
Tensile strength - Parallel (74°F/23°C)	ASTM D1623-A/EN 1607	psi (MPa)	83.0 (0,570)
Tensile strength - Perpendicular (74°F/23°C)	ASTM D1623-A/EN 1607	psi (MPa)	60.0 (0,413)
Tensile strength - Parallel (-265°F/-165°C)	ASTM D1623-A/EN 1607	psi (MPa)	>67.0 (0,461)
Tensile strength - Perpendicular (-265°F/-165°C)	ASTM D1623-A/EN 1607	psi (MPa)	>60.0 (0,413)
Tensile E-modulus - Parallel (-265°F/-165°C)	ASTM D1623-A/EN 1607	psi (MPa)	<820 (5,7)
Shear strength - Perpendicular (74°F/23°C)	ASTM C273/EN 12090	psi (MPa)	29.0 (0,200)
Thermal conductivity - Initial (75°F/24°C)	ASTM C518/EN 12667	BTU·in/hr·ft ² ·°F (mW/mK)	0.159 (22,8)
Thermal conductivity - 180 days (75°F/24°C)	ASTM C518/EN 12667	BTU·in/hr·ft ² ·°F (mW/mK)	0.185 (26,3)
Coefficient of thermal stress resistance CTSR (-265°F/74°F, -165°C/+23°C)	CINI 2.7.01		>4.0
Poisson's Ratio (-265°F/-165°C)	ASTM D1623/EN 1607		0.4
Coefficient of linear thermal expansion CTE (-321°F/+74°F,-196°C/+23°C)	ASTM D696/EN 13471	1/°F·10E-6 (1/K·10E-6)	<27.8 (50)
Surface burning characteristics	ASTM E84	FSI	<25
Surface burning characteristics	ASTM E84	Smoke Dev.	<450
Leachable chlorides	ASTM C871/EN 13468	ppm	<20
pH	ASTM C871/EN 13468		6.0-7.0
Water vapour transmission rate (74°F/23°C, 50% R.H.)	ASTM E96/EN 12086	grains/h·ft ² (g/h·m ²)	<1.25 (0,88)
Water vapor permeability (74°F/23°C,50% R.H.)	ASTM E96/EN 12086	Perm-inch (ng/s·m·Pa)	3 (4,38)
Water absorption by volume	ASTM C272	%	<0.5



Water absorption by volume	ASTM D2842/EN 12087/ISO 2896	%	<2.5
Operating temperature		°F (°C)	-300/+258 (-184/+125)
R-Value - 180 days, 1 inch (75°F/24°C)	ASTM C518/EN 12667	hr·ft ² ·°F/BTU	5.40 (0,95)
Closed-cell content	ASTM D6226/EN ISO 4590	%	>95
Hot-Surface Performance (300°F/149°C)	ASTM C411		Pass

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