

Atmosphere™ Duct Liner with ECOSE® Technology

ECOSE® Technology

ECOSE® Technology is a revolutionary binder chemistry that makes Knauf Insulation products even more sustainable than ever. It features rapidly renewable bio-based materials rather than non-renewable petroleum-based chemicals traditionally used in glass mineral wool insulation products. ECOSE® Technology reduces binder embodied energy and does not contain phenol, acrylics or artificial colors.

Application

Specifically designed as an interior insulation material for sheet metal ducts used in heating, ventilating and air conditioning. Provides an optimum combination of efficient sound absorption, low thermal conductivity and minimal airstream surface friction.

Features and Benefits

- Low thermal conductivity
- Fire-resistant, non-corrosive, durable and resilient
- Tough, tightly bonded mat facing
- Excellent sound absorption
- Energy conservation
- Better temperature control

Mechanical Fastener Location		
Velocity/FPM (meters/second)	0-2500 (0-12.7)	2501-5000 (12.7-25.4)
A From corners of duct	4" (102 mm)	4" (102 mm)
B From transverse of duct	3" (76 mm)	3" (76 mm)
C Across width of duct, on centers (min. 1/side)	12" (305 mm)	6" (152 mm)
D Across length of duct, on centers (min. 1/side)	18" (457 mm)	16" (406 mm)

- Lowers operating costs
- Greatly reduces noise from fans and mechanical equipment as well as cross-talk and air movement
- Withstands damage from normal handling and shop abuse
- If necessary, can be cleaned in accordance with NAIMA's "Cleaning Fibrous Glass Insulated Air Duct Systems Recommended Practices"
- Knauf Insulation achieved UL GREENGUARD Gold Certification. Products are certified to UL GREENGUARD standards for low chemical emissions into indoor air during product usage.
- Knauf Insulation has achieved a UL Environment claim validation for a minimum of 50% post-consumer recycled glass content in our insulation products.

Sustainability

- Carbon negative: meaning Knauf Insulation products used for thermal insulating purposes recover the energy that it took to make them in just hours or a few days, depending on the application. Once installed, the product continues to save energy and reduce carbon generation as long as it is in place.
- Glass mineral wool insulation with ECOSE® Technology contains three primary ingredients:
 - Sand, one of the world's most abundant and renewable resources
 - A minimum of 50% recycled post-consumer glass content and UL Environment verification every 6 months
 - ECOSE® Technology which reduces binder embodied energy by up to 70%

Specification Compliance

In U.S.:

- ASTM C 1071; Type I
- ASTM G 21
- ASTM G 22
- NFPA 90A and 90B

In Canada:

- CAN/ULC S102-M88
- CAN/CGSB-51.11-92

Product Features

- UL/ULC classified
- UL GREENGUARD Certified
- UL GREENGUARD GOLD Certified and UL Environment verified to be formaldehyde free
- Does not contain polybrominated diphenyl ethers (PBDE) such as Penta-BDE, Octa-BDE, or Deca-BDE
- Tested and certified to meet all the requirements of EUCEB

Technical Data

Surface Burning Characteristics

- Does not exceed 25 Flame Spread, 50 Smoke Developed when tested in accordance with UL 723, ASTM E 84, UL/ULC S102-M88 and NFPA 255

Temperature Range (ASTM C 411)

- Up to 250°F (121°C)

Air Velocity (ASTM C 1071)

- Maximum 6000 fpm (1829 mpm)
- Tested to 15,000 fpm (4572 mpm)

Corrosiveness (ASTM C 665)

- Does not accelerate corrosion on steel, copper or aluminum

Corrosion (ASTM C 1617)

- Corrosion rate in mils/yr will not exceed that of the 1 ppm chloride solution

Water Vapor Sorption (ASTM C 1104)

- Less than 3% by weight

Thermal Conductance "C" and Resistance "R" [†] (ASTN C 177)				
Mean Temperature 75°F (24°C)				
Product		Conductance "C"	Resistance "R"	
1.5 PCF	1" (24 kg/m ³ 25 mm)	.24 (.43)	4.2 (.74)	
1.5 PCF	1.5" (24 kg/m ³ 38 mm)	.17 (.97)	6.0 (1.06)	
1.5 PCF	2" (24 kg/m ³ 51 mm)	.13 (.74)	8.0 (1.41)	
2.0 PCF	.5" (32 kg/m ³ 13 mm)	.48 (2.73)	2.1 (.37)	
2.0 PCF	1" (32 kg/m ³ 25 mm)	.24 (1.36)	4.2 (.74)	
2.0 PCF	1.5" (32 kg/m ³ 38 mm)	.16 (.91)	6.3 (1.11)	

Liner Interior Width		
No. Pins	Inches	(mm)
0	≤ 8	≤ 203
2	9-16	229-406
3	17-28	432-711
4	29-40	737-1016
5	41-52	1041-1321
6	53-64	1346-1626
7	65-76	1651-1930
8	77-88	1956-2235
9	89-100	2261-2540

Forms Available			
Density	Thickness**	Width	Length
1.5 PCF	1"	34" - 36" ^{**} (864 mm - 915 mm)	50' (15.24 m)
			100' (30.48 m)
			140' (42.67 m)
			200' (60.96 m)
1.5 PCF	1.5"	46" - 48" (1168 mm - 1219 mm)	50' (15.24 m)
			90' (27.43 m)
1.5 PCF	2"	56" - 72" (1422 mm - 1829 mm)	50' (15.24 m)
			100' (30.48 m)
2.0 PCF	.5"		100' (30.48 m)
2.0 PCF	1"		50' (15.24 m)
			100' (30.48 m)

Sound Absorption Coefficients (ASTM C 423, Type A Mounting)								
Type		Octave Band Center Frequency (cycles/sec.)						
		125	250	500	1000	2000	4000	NRC
1.5 PCF	1" (24 kg/m ³ 25 mm)	.18	.36	.59	.86	.95	.90	.70
1.5 PCF	1.5" (24 kg/m ³ 38 mm)	.35	.51	.83	.93	.97	.96	.80
1.5 PCF	2" (24 kg/m ³ 51 mm)	.34	.64	.96	1.03	1.00	1.03	.90
2.0 PCF	.5" (32 kg/m ³ 13 mm)	.09	.14	.40	.60	.73	.82	.45
2.0 PCF	1" (32 kg/m ³ 25 mm)	.25	.35	.69	.89	.96	1.01	.70
2.0 PCF	1.5" (24 kg/m ³ 38 mm)	.27	.55	.87	.99	1.00	.98	.85