



IIG MinWool, LLC

A Calsilite/Johns Manville Joint Venture

Mineral Wool Insulations

MinWool-1200 Industrial Board

High Temperature Insulation

Description

IIG MinWool-1200 Industrial Board Insulation is made of inorganic fibers derived from basalt, a volcanic rock, with a thermosetting resin binder. Advanced manufacturing technology ensures consistent product quality, with high fiber density and low shot content, for excellent performance in high temperature thermal control and fire resistance applications.

Applications

MinWool-1200 Industrial Board Insulation provides excellent thermal insulation performance for mechanical/power and process piping systems operating from sub-ambient to 1200°F (649°C). These Industrial Board Insulations are easily fabricated, cutting cleanly and easily with a knife. Very low in-service shrinkage helps prevent gaps from forming at joints, preventing costly thermal leaks. The insulation is designed to be field-jacketed.

Advantages

Unique Bio-Soluble Fiber. IIG MinWool-1200 has been tested according to EU protocol ECB/TM/27, Revision 7, Directive 97/69/EC and exceeds the regulatory requirements for solubility.

Excellent Thermal Performance. Good thermal conductivity values help maximize control of heat loss, contributing to reduced operating costs and greater energy savings. High dimensional stability and low shrinkage reduce the potential for gaps forming at joints.

Good Compressive Strength. Industrial Board Insulations are semi-rigid to rigid and maintain structural integrity under severe operating conditions. Thickness stays uniform; there is less jacket damage.

Lightweight, Low Dust. Easy to handle and fabricate, these boards are easy to cut with a knife. No sawing is required. Clean handling properties help reduce irritation and minimize job clean-up time and expense. It may be installed directly on hot surfaces; system shut-down and staged heat-up are not required.

Noncombustible. These insulation boards have a flame spread rating of 5 and a smoke developed rating of 0 when tested in accordance with ASTM E 84, UL 723, CAN/ULC-S102-M. They are rated as noncombustible in accordance with ASTM E 136 and CAN4-S114-M.

Available Types

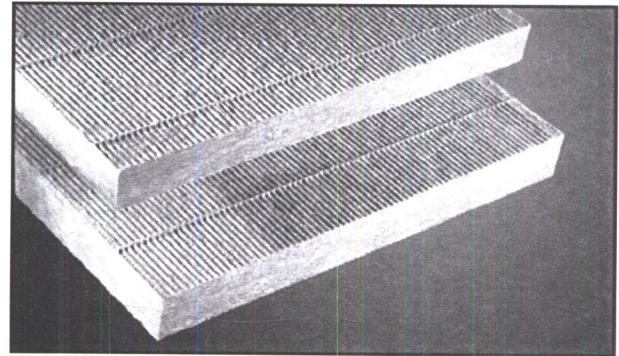
IIG MinWool-1200 Industrial Boards are available in six nominal densities in accordance with ASTM C 612 and in a range of standard thicknesses, as follows:

Nominal Density	Type					
	1230	1240	1260	1280	1210	1212
lb/ft ³	3	4	6	8	10	12
kg/m ³	48	64	96	128	160	192

Standard Size: 24" x 48" (610 mm x 1219 mm)

Standard Thicknesses: 1" to 5" (25 mm to 127 mm)

Industrial Boards are available with FSP facings on a made-to-order basis. Custom sizes are also available on a made-to-order basis.



Application Recommendations

MinWool-1200 Industrial Board Insulation can be directly installed on heated flat and curved surfaces by attaching with welded pins or studs. Pins with speed washers or studs and nuts should be installed on 16" (406 mm) spacing (max.) and not more than 4" (102 mm) from the edge of the insulation. The insulation is normally impaled over the pins or studs and the enclosing sheet metal or metal mesh is secured to the same fasteners. Joints of the sheet metal finish are offset from joints of the insulation.

For faced insulation boards, cover pins and clips with vapor-sealing pressure-sensitive patches matching the FSP facing. The insulation may also be finished with various jacketing such as sheet metal, metal mesh and insulating cement, canvass or glass fabric and paint, or rigid jacketing depending on the requirements for physical abuse, weather and chemical resistance. Jacketing may be secured using screws, rivets, or bands. If a vapor retarder is required, screws, rivets or any other penetrations must be sealed.

For temperatures over 600°F (316°C), good insulation practice suggests double-layer applications. Single-layer installation requires good workmanship to minimize heat transfer and hot or cold joints. This insulation may be installed in single or multiple layers at all temperatures up to 1200°F (649°C). In multiple-layer applications, each layer must be secured in place before the next layer is installed. Joints in multiple-layer applications should be staggered to reduce heat transfer.

Government Certification

When ordering material to comply with any government specification or any other listed specification, a statement of that fact must appear on the purchase order. Government regulations and other listed specifications require specific lot testing, and prohibit the certification of compliance after shipment has been made. There may be additional charges associated with specification compliance testing. Please refer to IIG-CSP-3 for Certification Procedures and Charges. Call customer service for more information.

MinWool-1200 Industrial Board

High Temperature Insulation

Specification Compliance

Maximum Continuous Use Temperature, ASTM C 411	1200°F (649°C)
ASTM C 612	Types 1A, IB, II, III, IVA, -- All Boards; Types 1260, 1280, and 1212 Also Meet Type IVB
Flame Spread/Smoke Developed, ASTM E 84, UL 723, CAN/ULC-S102-M	5/0
ASTM E 136	Noncombustible
In-Service Shrinkage, ASTM C 356	0% at 1050°F (566°C); <1% at 1200°F (649°C)
Water Vapor Sorption, ASTM C 1104	<1% By Weight at 120°F (49°C), 95% RH
Shot Content, ASTM C 1335	20%
US Coast Guard (164.109/7/0)	164.109 (Noncombustible)
CAN/CGSB-51.10	Type 2, Class 4 - Types 1240, 1260, 1280; Type 1, Class 4 - Types 1210, 1212
EU Protocol for Bio-Soluble Fiber	Passes
Compressive Strength, ASTM C 165 (Minimum) at 10% Deformation	Compressive Type

Strength	1230	1240	1260	1280	1210	1212
lb/ft ²	0.30	25	75	120	250	250
kPa	0.01	1.2	3.6	5.8	12.0	12.0

Thermal Performance (I-P Units)

Mean Temp. (°F)	Apparent Thermal Conductivity, Btu·in/(hr·ft ² ·°F)					
	1230	1240	1260	1280	1210	1212
25	0.21	0.21	0.22	0.22	0.22	0.22
75	0.25	0.24	0.23	0.23	0.23	0.23
100	0.27	0.26	0.25	0.25	0.25	0.25
200	0.34	0.32	0.30	0.30	0.30	0.30
300	0.43	0.40	0.36	0.36	0.35	0.35
400	0.55	0.49	0.42	0.42	0.41	0.40
500	0.70	0.62	0.53	0.49	0.47	0.46
600	0.87	0.75	0.63	0.56	0.54	0.52
700	1.06	0.90	0.75	0.64	0.62	0.59

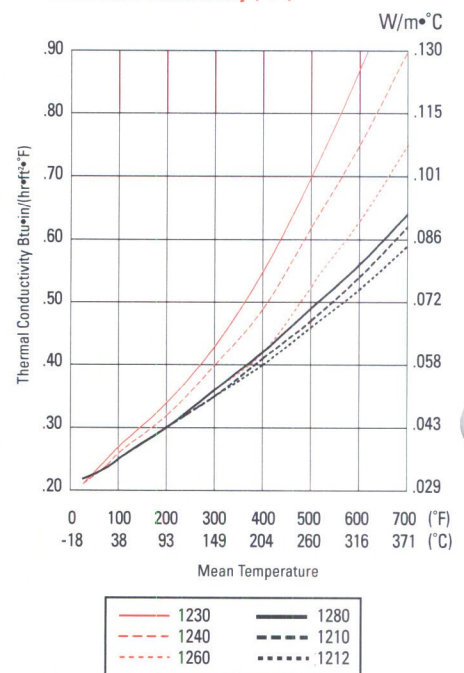
Thermal Performance (SI Units)

Mean Temp. (°C)	Apparent Thermal Conductivity, W/m ² ·°C					
	1230	1240	1260	1280	1210	1212
-4	0.030	0.030	0.032	0.032	0.032	0.032
24	0.036	0.035	0.033	0.033	0.033	0.033
38	0.039	0.037	0.036	0.036	0.036	0.036
93	0.049	0.046	0.043	0.043	0.043	0.043
149	0.062	0.058	0.052	0.052	0.050	0.050
204	0.079	0.071	0.061	0.061	0.059	0.058
260	0.101	0.089	0.076	0.071	0.068	0.066
316	0.125	0.108	0.091	0.081	0.078	0.075
371	0.153	0.130	0.108	0.092	0.089	0.085

Acoustical Performance

Type	Thickness		Sound Absorption Coefficients						
	(in)	(mm)	1/3 Octave Band Center Frequencies, Hz						
	125	250	500	1000	2000	4000	NRC		
1240	1 1/2	38	0.13	0.48	1.02	1.08	1.02	1.01	0.90
	2	51	0.20	0.61	1.07	1.06	1.04	1.07	0.95
	4	102	0.88	1.14	1.17	1.08	1.06	1.10	1.10
	6	152	1.32	1.14	1.11	1.09	1.06	1.07	1.10
1260	1 1/2	38	0.18	0.62	1.08	1.08	1.03	1.07	0.95
	2	51	0.25	0.85	1.15	1.10	1.04	1.06	1.05
	3	76	0.80	1.07	1.11	0.99	0.98	0.96	1.05
	4	102	0.99	1.01	1.10	1.03	1.03	1.05	1.05
1280	1 1/2	38	0.13	0.64	1.08	1.08	1.04	1.07	0.95
	2	51	0.32	0.90	1.11	1.07	1.01	1.05	1.00
	4	102	1.11	0.91	1.03	1.03	1.06	1.07	1.00

Thermal Conductivity ("k")



Industrial Insulation Group, LLC is a Calsilite/Johns Manville joint venture. IIG manufactures MinWool-1200 mineral fiber pipe, block and a variety of other insulations; Thermo-12[®] Gold Calcium Silicate pipe and block insulation; Super Firetemp[®] fireproofing board; Sproule WR-1200[™] Perlite pipe and block insulation; high temperature adhesives, and insulating finishing cement.

For Customer Service and Order Placement
 (866) 444-4380
 Fax: (866) 444-4766

For Sales Information
 (800) 866-3234
 Fax: (610) 358-0602

For Technical Information
 (800) 872-0338
 Fax: (970) 858-9641



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The physical and chemical properties of the MinWool-1200 Industrial Board High Temperature Insulation presented herein represent typical, average values obtained in accordance with accepted test methods and are subject to normal manufacturing variations. They are supplied as a technical service and are subject to change without notice. Numerical flame spread and smoke developed ratings are not intended to reflect hazards presented by these or any other materials under actual fire conditions. Check with the Customer Service Office to assure current information. **All Industrial Insulation Group products are sold subject to IIG Limited Warranty and Limitation of Remedy. For a copy of the IIG Limited Warranty and Limitation of Remedy, call (800) 334-7997.**