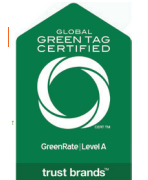




Thermal Insulating Wool Insulation (TIW)



Product Description

AFICO Thermal Insulating Wool types I and II are composed of fine, stable and uniformly textured inorganic glass fibers, off white to light tan color, highly resilient, bonded together by non-water soluble, fire-retardant special high temperature resistant thermosetting and heat resistant resin. They are free from coarse fibers and shot due to their mineral composition. Type I is available in rolls, while Type II comes in batt form only.

Facing

AFICO Thermal Insulating Wool is available unfaced as standard.

Application

AFICO Thermal Insulating Wool is intended for use in industrial and commercial applications such as thermal and acoustical insulation for boilers, vessels, precipitators, ducts, chimney liners, chimney stacks, breechings, petrochemical storage tanks, water heaters, refrigerators and freezers, ovens and cookers, washing machines, dryers and dishwasher machines and other household appliances and types of industrial equipment at temperatures up to 538°C (1000°F).

AFICO Thermal Insulating Wool is available in two types:

Type I is used in applications requiring a light weight easy to handle and install insulation such as that used in panel systems, flexible wrap, industrial ovens, or over irregular surfaces.

Type II is suitable for use in panel systems for precipitators, ducts and breechings, where more compressive strength than that afforded by Type I is required.

This light weight makes TIW types I and II insulation easy to handle and install even when large size boards are used. There is no tendency for pinhole elongation - a frequent source of heat leaks in heavier products such as Rockwool/Stonewool products.

The virtual absence of shot, and their consistent fibrous glass composition, enable TIW types I and II insulations to withstand the effects of high temperature and vibration without slumping, crumbling, or breaking.

Standard Available Products

Nominal Manufacturing Specifications. Check for availability of other dimensions and densities.

Standard Nominal Density (ASTM C167)

Type I: 16 and 24kg/m³, 1.0 and 1.5 lbs/ft³ at nominal thickness

Type II: 32 and 48kg/m³, 2.0 and 3.0 lbs/ft³ at nominal thickness

Product Type	Density		K Value@24°C		R Value / Thickness															
	Kg/m ³	Lb/ft ³	W/m ² ·K	BTU·in/hr·ft ² ·°F	25 mm	1 in.	38 mm	1½ in.	50 mm	2 in.	64 mm	2½ in.	75 mm	3 in.	89 mm	3½ in.	100 mm	4 in.		
160	16	1.0	0.037	0.26	0.68	3.78	1.03	5.75	1.35	7.57	1.73	9.69	2.03	11.35	2.41	13.47	2.70	15.14		
240	24	1.5	0.034	0.24	0.74	4.10	1.12	6.23	1.47	8.20	1.88	10.50	2.21	12.30	2.62	14.60	2.94	16.40		
320	32	2.0	0.033	0.23	0.76	4.28	1.15	6.50	1.52	8.56	1.94	10.95	2.27	12.83						
480	48	3.0	0.031	0.22	0.81	4.47	1.23	6.80	1.61	8.95										

Other thickness available upon request and verification



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Performance & Physical Characteristics

Apparent Thermal Conductivity ASTM C518, EN12667

W/m·K or Btuin/hr-ft²·°F for all product range
 "K" or "λ" value at mean temperatures
 Data for 10, 24 and 35°C mean temperature

K-Value

Product Type	Density		Mean Temperature					
	Kg/m ³	Lb/ft ³	10 °C	50 °F	24 °F	75 °F	35 °C	95 °F
TIW								
120	12	0.75	0.036	0.25	0.040	0.28	0.041	0.29
140	14	0.875	0.034	0.24	0.038	0.27	0.04	0.27
160	16	1	0.034	0.24	0.037	0.26	0.039	0.27
180	18	1.125	0.033	0.23	0.036	0.25	0.037	0.26
200	20	1.25	0.033	0.23	0.036	0.25	0.037	0.26
240	24	1.5	0.032	0.22	0.034	0.24	0.036	0.25
320	32	2	0.031	0.21	0.033	0.23	0.034	0.24
480	48	3	0.030	0.21	0.031	0.22	0.033	0.23
560	56	3.5	0.029	0.20	0.031	0.21	0.032	0.22

Thermal Resistance "R" Value (ASTM C 167)

"R" is a measure of the resistance to heat flow of a material of any given thickness. ("R" = m²K/W or hr-ft²·°F/Btu)

$$R = \frac{T}{K} \quad \text{Where "T" = Thickness}$$

$$R = \frac{T}{\lambda} \quad \text{Where "K" or "λ" = Thermal Conductivity}$$

Thermal Transmittance "U" Value (ASTM C 168)

"U" is a measure of how much heat is lost through a given thickness of a particular material. ("U" = W/m²·°C or Btu/hr-ft²·°F)

$$U = \frac{1}{Rt} \quad \text{Where "Rt" = Total Thermal Resistance}$$

Composed of all elements/layers

U-Values are calculated from the thermal resistances of the parts making up a particular part of the structure. Transmission of heat is opposed in varying amounts dependent on material and surface.

U-Value (of building element) = 1 / (Rso+Rsi R1+Rs...)

Where Rso is the fixed external resistance
 Rsi is the fixed internal resistance
 R1, R2 etc are resistivity of all elements within the application including that of cavities within the construction.

Example calculation:

Layer & Material	Thickness & Conductivity	R Value
Rso - Fixed external resistance	-	0.40 m ² ·K/W
Rsi - Fixed internal resistance	-	0.13 m ² ·K/W
R1 - Fiberglass insulation	0.100 m; 0.035 W/mK	2.85 m ² ·K/W
R2 - Clay bricks	0.105 m; 0.710 W/mK	0.15 m ² ·K/W
R3 - Concrete blocks	0.100 m; 0.018 W/mK	0.55 m ² ·K/W
R4 - Plaster	0.013 m; 0.016 W/mK	0.08 m ² ·K/W
Total		4.16 m ² ·K/W

Therefore the overall wall element U-value = 1 / R = 1 / 4.16 = 0.24 W/m²K

Surface Burning Characteristics (ASTM E84, UL723)

Base glass fiber is non-combustible when tested.

Facing	Flame Spread	Smoke Developed
Type I	0	0
Type II	0	0

Working Temperature Limitations

Operating temperature up to 538°C (1000°F). At excessive temperatures, a limited migration of binder may occur in the insulation in contact with the hot surface. This in no way impairs the performance of the insulation

Mold Growth (ASTM C 1338)

Does not breed or sustain mold, fungus, bacteria or rodents.

Corrosiveness (ASTM C 665)

Chemically inert. Will not cause or accelerate corrosion of steel, stainless steel, copper or aluminum, due to its particular inorganic and mineral composition.

Alkalinity (ASTM C 871)

pH 9

Non-Fibrous (Shot) Content (ASTM C1335)

Not applicable to glass mineral fiber products

Specification Compliance

AFICO Thermal Insulating Wool Types I and II comply with the property requirements of the following specifications:

ASTM C553: Mineral Fiber Blanket and felt insulation

TIW TYPE I: ASTM C 553 Type I

TIW TYPE II: ASTM C 553 Type I

ASTM C612: Mineral Fiber, Block and Board Thermal Insulation, Class 1,2 &3

ASTM C795: Thermal Insulation for use over Austenitic stainless Steel

DCL: ASTM C665

CE-EN: 1121-CPD-BA0137

SASO: SASO GSO EN 13162

License # 20240660861

Global Green Tag : ARA:DS01:2025:GR

Global Green Tag : ARA:DS01:2024:PH

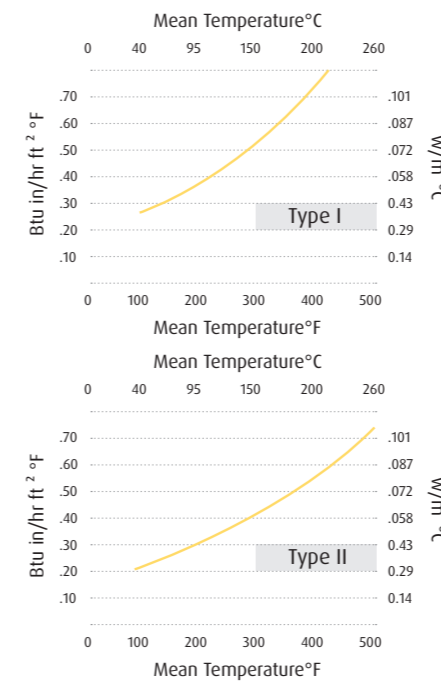
Emirates GBC : EmiratesGBC

SCS Global : SCS-HPD-09461

SCS-RC-02810

SCS-IAQ-07373

SCS-EPD-08452



Fire Properties

B.S. 476 PART 4: Non Combustible

B.S. 476 PART 5: Ignitability

B.S. 476 PART 6: Fire Propagation

B.S. 476 PART 7: Surface Spread of Flame

Class '0' fire rating to the building regulations sections E15

Acoustical Performance (ASTM C 423)

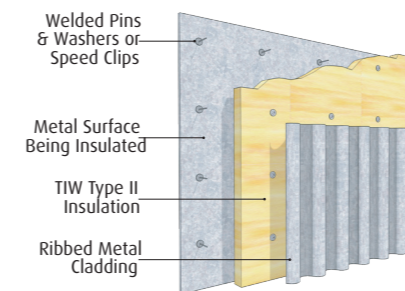
Product Type & Thickness	Unfaced	Sound Absorption Coefficients						
		Octave Band Center Frequencies, Hz						
TIW Type I		125	230	500	1000	2000	4000	NRC
25 mm	1"	0.10	0.32	0.64	0.85	0.90	0.89	0.70
50 mm	2"	0.25	0.75	1.03	1.07	0.95	1.00	0.95
75 mm	3"	0.46	1.03	1.20	1.06	1.02	1.10	1.10
38 mm	4"	0.57	1.21	1.23	1.06	1.06	1.05	1.15

Installation Recommendation

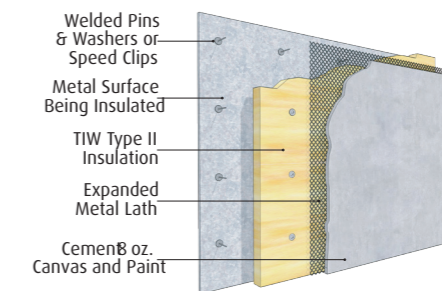
AFICO Thermal Insulating Wool Type I and Type II can be installed directly to flat and curved surfaces by attaching with welded pins or studs and finishing with sheet metal or metal mesh and insulating cement, canvasses and painted. Pins with speed washers or studs and nuts should be installed at a maximum spacing of 400 mm and not more than 100 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 the joints of the insulation. For temperatures over 200°C, good insulation practice suggests double layer installation of any type of insulating material requires good workmanship to minimize heat loss and hot spots at insulation temperatures up to 540°C.

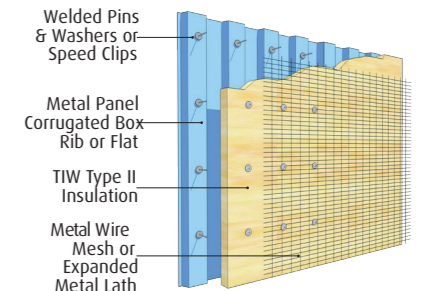
AFICO Thermal Insulating Wool Type II can be used in panel systems by securing it to the panel, by pins and clips, with metal mesh. The panels can be erected flush to heated surfaces or away from the heated surfaces, secured to buck-stays or breeding and ductwork angle iron stiffeners.



Flush Application Metal Lagging



Flush Application Canvassed, Painted

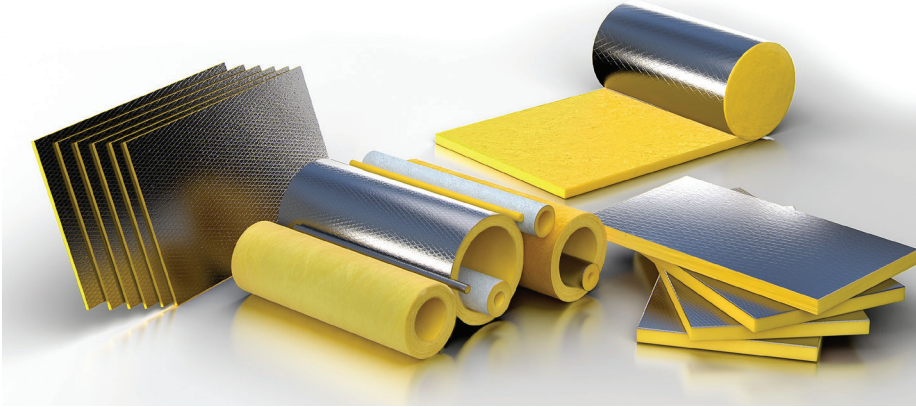


Panel Construction





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The AFICO Product Range includes

- Cavity Wall Insulation • Blanket Insulation • Duct Liner Board • Duct Liner • Faced Duct Wrap • Quiet Liner
- Thermal Insulating Wool • Pipe Wrap Insulation • Quiet Liner Board • Acoustical Ceiling Panels • Board Insulation
- Roof Deck Board Insulation • Heavy Density Pipe Insulation • HD Series Blanket Insulation
- Pre-engineered Metal Building Insulation • Mechanical Board Insulation

Call us today for more information & professional guidance:

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Please send all email inquiries to info@afico.com.sa



People & Planet Always First

AFICO's products are all energy saving, environmentally friendly, use even more recycled materials and contribute to the fight against global warming.

A Subsidiary of



AFICO operates as a subsidiary of Gulf Insulation Group, With Owens Corning serving as its technology partner

Maintenance

No maintenance is required. AFICO Thermal Insulating Wool products have a high resistance to accidental damage from knocks and handling during installation and maintenance. Dimensionally stable under varying conditions of temperature and humidity, rot proof, odorless, non-hygroscopic and will not sustain vermin or fungus due to its inorganic and mineral compositions.

The product will maintain its thermal properties throughout the lifetime of the construction and will not age. AFICO fiberglass is non-toxic and presents no hazard to health.

Storage

To avoid moisture in the building construction, AFICO insulation products stored outside must be kept dry. We recommend AFICO products to be always stored in covered and dry areas. AFICO is not liable for the damage resulting from inadequate utilization, loading and off-loading and mishandling of its products.

Warranty

See manufacturer's General Terms and Conditions of Sale. As AFICO and/or OCF has no control over installation design, installation workmanship, accessory materials, or conditions of application, AFICO and/or OCF does not warrant the performance or results of any installation containing their products. This warranty disclaimer includes all implied warranties, including the warranties or merchantability and fitness for a particular purpose.

Arabian Fiberglass Insulation Company AFICO reserves the right to alter product specifications without prior notice, as part of its policy of continued development and improvement. The installation methods described in this leaflet are not compulsory. The choice of materials and methods of fixing are the decision of the specifier, consultant or contractor. For further information or advice on specification of products, contact your local, sales office.

Availability

Manufactured by Arabian Fiberglass Insulation Company, Ltd. (AFICO), a subsidiary wholly owned by Gulf Insulation Group. AFICO has headquarters and production facilities located in Dammam, Saudi Arabia, operating under license from and utilizing the manufacturing specifications and technology of Owens-Corning Corporation (OCF), Toledo, Ohio, U.S.A.

Marketed throughout Saudi Arabia, the G.C.C. countries, the Middle East, and the Far East, AFICO products are available directly as well as through a vast and reliable network of local distributors.

Special products are manufactured on request.



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