



Arabian Fiberglass Insulation Company Ltd.
J.V. of Zamil Industrial & Owens Corning Corp.

AFICO Thermal Insulating Wool Insulation

Technical Data Sheet
Product Code: **TIW**



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.



APPLICATION

AFICO TIW Insulation is intended for use in industrial and commercial application 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 operating at temperatures up to 540°C to 1000°F.

AFICO TIW Insulation 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 especially suitable for use in metal mesh blankets, it may also be used 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.



FACING

Available unfaced as standard.



STANDARD AVAILABLE PRODUCTS

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

TYPE I (Roll form only)						TYPE II (Batt form only)					
Thickness		Width		Length		Thickness		Width		Length	
mm	inch	mm	inch	m	ft	mm	inch	mm	inch	mm	inch
25	1					*25	*1				
38	1 ½	600	24	20	66	*38	*1 ½	600	24	1000	40
*50	*2			15	50	*50	*2				
64	2 ½	8	8	8	8	64	2 ½	8	8	8	8
*75	*3					*75	*3				
89	3 ½	1200	48	10	30	89	3 ½	1200	48	1200	48
*100	*4					*100	*4				

* Standard Products and Sizes



NOMINAL THERMAL CONDUCTIVITY

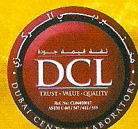
(ASTM C 167)

Mean Temperature		"K" or "λ" Value W/M.°C		Btu.in/ft².hr.°F	
24°C	75°F	TYPE I:	TYPE II:	TYPE I:	TYPE II:
		0.039	0.033	0.27	0.23
93°C	200°F	0.058	0.043	0.40	0.30
149°C	300°F	0.079	0.055	0.55	0.38



STANDARD* NOMINAL DENSITY (ASTM C 167)

TYPE I: *16 and 24kg/m³, 1.0 and 1.5 lbs/ft³ at nominal thickness
TYPE II: *38 kg/m³, 2.38 lbs/ft³ at nominal thickness





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Performance & Physical Characteristics

Thermal Resistance "R" Value

"R" is a measure of the resistance to heat flow of a material of any given thickness. ("R" = m². °C/W or hr. ft². °F/Btu.)

$$R = \frac{T}{K} \quad \text{where "T" = thickness} \\ \text{and "K" or "λ" = thermal conductivity}$$

Thermal Conductance, "C"- Value (ASTM C 518, ASTM C 177)

It is the ability of the product to conduct heat.

$$C = \frac{1}{R} = W/m^2 \cdot ^\circ C \text{ or Btu/hr.ft}^2 \cdot ^\circ F.$$

Working Temperature Limitations

Up to +540°C + 1000°F – ASTM C 411.

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.

Alkalinity

pH 9

Corrosiveness (ASTM C 665)

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

Mold Growth (ASTM D 2020, UL-181)

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

Moisture Absorption (ASTM D-07 B, ASTM C 553)

In conditions of 95% relative humidity at 49°C for 96 hours, moisture absorption is less than 0.2% by volume when tested in accordance with ASTM C553. **AFICO** products do not absorb moisture from the ambient air nor water by capillary attraction, only water under pressure can enter the insulation products but that will quickly dry out owing to the material's open cell structure.

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 'O' fire rating to the building regulations section E15

Specification Compliance

AFICO TIW Types I and II comply with the property requirement of the following specifications:

- TYPE I and II: U.S. Federal Specification HH-I-558 B, Form B, TYPE I, CLASSES 6, 7 & 8.
- TYPE II : U.S. Federal Specification HH-I-558 B, Form C, Class 10, form D, type IV, Class 14.
- ASTM C 553 : Mineral Fiber Blanket and felt Insulation.
- TIW TYPE I : ASTM C 553 Type I, Class B-3, Type II: Class F-I
- TIW TYPE II : ASTM C 553 Type I, Class B-5, Type II: Class F-I
- ASTM C 612 : Mineral Fiber, Block and Board Thermal Insulation, Class 1, 2 & 3.
- ASTM C 795 : Thermal Insulation for use over Austenitic stainless Steel.
- DCL ASTM - C 533 - C 547 - C 612 - C 665
- CE-EN 13162

Surface Burning Characteristics (UL 723, ASTM E 84, ATM E 136)

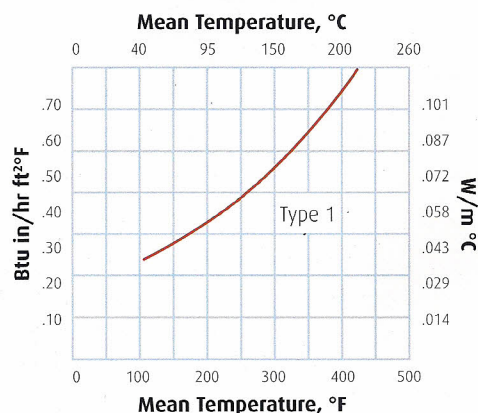
Base glass fiber is non-combustible when tested to ASTM E 84.

	Flame Spread	Smoke Developed	Fuel Contributed
TYPE I	15	5	0
TYPE II	20	0	0

Compressive Strength

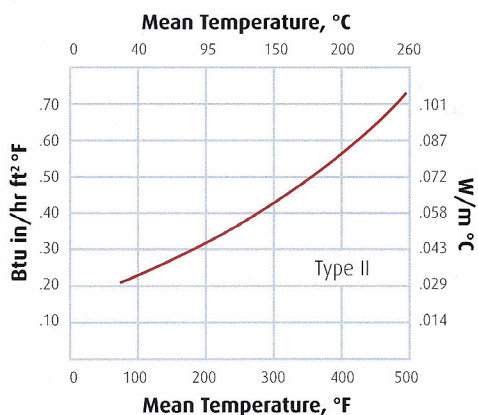
TYPE II: 1.34 KPA at 25% Deformation

Thermal Conductivity (ASTM C-177)





Performance & Physical Characteristics



Sound Absorption Coefficient

Product Type & Thickness		Octave Band Center Frequencies, Hz						
		125	230	500	1000	2000	4000	NRC
TIW TYPE 1	25 mm	.10	.32	.64	.85	.90	.89	.70
TIW TYPE 1	50 mm	.25	.75	1.03	1.07	.95	1.00	.95
TIW TYPE 1	75 mm	.46	1.03	1.20	1.06	1.02	1.10	1.10
TIW TYPE 1	100 mm	.57	1.21	1.23	1.06	1.06	1.05	1.15

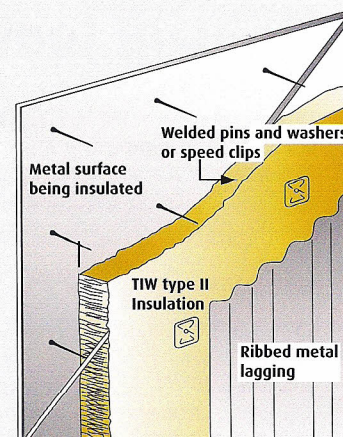
Installation

AFICO TIW Insulation 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, canvassed 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.

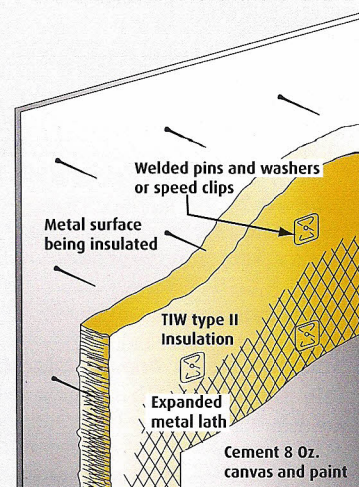
The insulation is normally impaled over the pins or studs and the enclosing sheet metal or metal mesh is secured to the same fasteners. Joints of the sheet metal finish are offset from the joints of the insulation. For temperatures over 200°C, good insulation practice suggests double layer installation of any type of insulating material requires good workmanship to minimize heat loss and hot spots at insulation temperatures up to 540°C.

AFICO TIW 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.

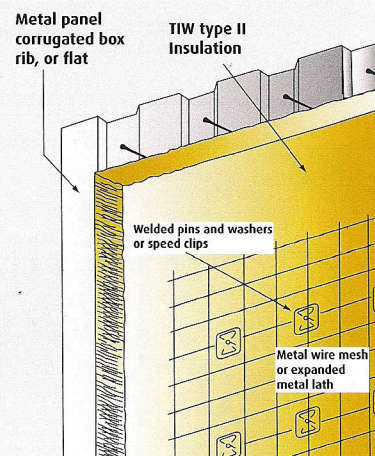
Flush Application Metal Lagging



Flush Application Canvassed, Painted



Panel Construction





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MAINTENANCE

No maintenance is required. **AFICO Thermal Insulating Wool Insulation** 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, odourless, 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** fibreglass is non toxic and not hazardous 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 OC has no control over installation design, installation workmanship, accessory materials, or conditions of application, **AFICO** and/or OC 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 **AFICO** materials and methods of fixing are the decision of the specifier, consultant or contractor. For further information or advice on specification of **AFICO** products, contact your local sales office.



AVAILABILITY

Manufactured by **Arabian Fiberglass Insulation Company, Ltd. (AFICO)**, member of **Zamil Industrial**, with headquarters and production facilities located in Dammam, Saudi Arabia, under license from and utilizing the manufacturing specifications and technology of **Owens-Corning Corporation (OC)**, 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 from **AFICO** as well as through a vast and reliable network of local distributors.

Special products are manufactured on request.



AFICO PRODUCTS

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



PRODUCTS CODE

ACP
BKT
HDB
BD
RI
RD
CWI
MBI
FDW
DL
DLB
MBD
PI
PWI
TIW
AQL
AWF
PDB

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Authorized Distributor

Our GREEN promise:
the healthy solution

- ENERGY SAVING
- ENVIRONMENTALLY FRIENDLY
- RECYCLED MATERIALS
- SOLUTION FOR GLOBAL WARMING



AFICO is committed to a greener, cleaner environment. AFICO have responded to this call for conservation by increasing the amounts of recycled materials in our products.