**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.

**STANDARD AVAILABLE PRODUCTS**

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

<table>
<thead>
<tr>
<th>Thickness (mm)</th>
<th>Type I Roll</th>
<th>Type II Batt</th>
</tr>
</thead>
<tbody>
<tr>
<td>Width (mm)</td>
<td>Thickness (mm)</td>
<td>Width (mm)</td>
</tr>
<tr>
<td>25</td>
<td>1</td>
<td>20</td>
</tr>
<tr>
<td>38</td>
<td>1 ½</td>
<td>600</td>
</tr>
<tr>
<td>50</td>
<td>2</td>
<td>50</td>
</tr>
<tr>
<td>64</td>
<td>2 ½</td>
<td>15</td>
</tr>
<tr>
<td>75</td>
<td>3</td>
<td>75</td>
</tr>
<tr>
<td>89</td>
<td>3 ½</td>
<td>1200</td>
</tr>
<tr>
<td>100</td>
<td>4</td>
<td>10</td>
</tr>
</tbody>
</table>

**FACING**

Available unfaced as standard.

**STANDARD NOMINAL DENSITY**

(ASME C 167)

| Type I | 16 and 24 kg/m³, 1.0 and 1.5 lbs/ft³ at nominal thickness |
| Type II| 38 kg/m³, 2.38 lbs/ft³ at nominal thickness |
Thermal Insulating Wool Insulation

Performance & Physical Characteristics

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 = m² °K/W or hr °F/Btu.)

\[ R = \frac{T}{K} \]

where “T” = thickness
and “K” or “λ” = thermal conductivity

Thermal Conductance, “C”- Value

(ARTM C 518, ASTM C 177)

“C” is the ability of the product to conduct heat.

\[ C = \frac{1}{R} \]

where “T” = Thickness
and “K” or “λ” = Thermal conductance

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.

Surface Burning Characteristics

(ASTM E 84, UL 723)

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

<table>
<thead>
<tr>
<th></th>
<th>Flame Spread</th>
<th>Smoke Developed</th>
<th>Fuel Contributed</th>
</tr>
</thead>
<tbody>
<tr>
<td>TYPE I</td>
<td>0</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>TYPE II</td>
<td>0</td>
<td>0</td>
<td>0</td>
</tr>
</tbody>
</table>

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 Insulation** Types I and II comply with the property requirement of the following specifications:

- ASTM C 553 :
- 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 665
- CE-EN : 1121-CPD-BA0137

Compressive Strength

PSF at 10% Deformation : 5
PSF at 25% Deformation : 10

Thermal Conductivity (ASTM C-177)

![Thermal Conductivity Graph](image)
Performance & Physical Characteristics

Acoustical Performance (ASTM C 423)

<table>
<thead>
<tr>
<th>Product Type &amp; Thickness</th>
<th>Sound Absorption Coefficients Octave Band Center Frequencies, Hz</th>
</tr>
</thead>
<tbody>
<tr>
<td>TIW TYPE 1 Unfaced</td>
<td>125 230 500 1000 2000 4000 NRC</td>
</tr>
<tr>
<td>25 mm</td>
<td>0.10 0.32 0.64 0.85 0.90 0.89 0.70</td>
</tr>
<tr>
<td>50 mm</td>
<td>0.25 0.75 1.05 1.08 0.95 1.00 0.95</td>
</tr>
<tr>
<td>75 mm</td>
<td>0.46 1.03 1.29 1.06 1.02 1.10 1.10</td>
</tr>
<tr>
<td>100 mm</td>
<td>0.57 1.21 1.23 1.06 1.06 1.05 1.15</td>
</tr>
</tbody>
</table>

Installation Recommendation

**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 Installation 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 way from the heated surfaces, secured to buck-stays or breeding and ductwork angle iron stiffeners.
MAINTENANCE

No maintenance is required. **AFICO Thermal 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** fiberglass 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 **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 result of any installation containing their products. This warranty disclaimer includes all implied warranties, including the warranties of 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**, member of Zamil Industrial (ZI), with headquarters and production facilities located in Dammam, Saudi Arabia, 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 from as well as through a vast and reliable network of local distributors.

Special products are manufactured on request.

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**AFICO PRODUCTS**

<table>
<thead>
<tr>
<th>Products Code</th>
<th>Product Name</th>
</tr>
</thead>
<tbody>
<tr>
<td>BKT</td>
<td>Acoustic Ceiling Panels</td>
</tr>
<tr>
<td>ACP</td>
<td>Blanket Insulation</td>
</tr>
<tr>
<td>DLT</td>
<td>Board Insulation</td>
</tr>
<tr>
<td>FDW</td>
<td>Roof Deck Board Insulation</td>
</tr>
<tr>
<td>FDW</td>
<td>Cavity Wall Insulation</td>
</tr>
<tr>
<td>MBL</td>
<td>Pre-engineered Metal Building Insulation</td>
</tr>
<tr>
<td>DLT</td>
<td>Faced Duct Wrap</td>
</tr>
<tr>
<td>DLT</td>
<td>Duct Liner</td>
</tr>
<tr>
<td>DLT</td>
<td>Duct Liner Board</td>
</tr>
<tr>
<td>PI</td>
<td>Heavy Density Pipe Insulation</td>
</tr>
<tr>
<td>PBI</td>
<td>Pipe Wrap Insulation</td>
</tr>
<tr>
<td>TIW</td>
<td>Thermal Insulating Wool</td>
</tr>
<tr>
<td>QL</td>
<td>Quiet Liner</td>
</tr>
<tr>
<td>QLB</td>
<td>Quiet Liner Board</td>
</tr>
</tbody>
</table>

For more information call the insulation professionals:

**AFICO**

H.O. & Factory: P.O. Box 1289, Dammam 31431, Saudi Arabia
Tel: +966 13 847 2901 / 847 1519 / 847 2301
Fax: +966 13 847 3605
E-mail: info@afico.com.sa

Dammam Office: P.O. Box 1289, Dammam 31431, Saudi Arabia
Tel: +966 13 847 2901 / 847 1519
Fax: +966 13 847 3605
E-mail: info@afico.com.sa

Riyadh Office: P.O. Box 251, Riyadh 11411, Saudi Arabia
Tel: +966 11 472 5555 ext. 5980
Fax: +966 11 291 0162
E-mail: info@afico.com.sa

Jeddah Office: P.O. Box 7504, Jeddah 21472, Saudi Arabia
Tel: +966 12 670 0020 ext. 134
Fax: +966 12 671 4566
E-mail: info@afico.com.sa

Gulf Regional Office: P.O. Box 44493, Deira, Dubai, U.A.E.
Tel: +971 4 294 1211
Fax: +971 4 294 1168
E-mail: info@afico.com.sa

Export Office: P.O. Box 90 284, Jdeidet El Metn, Beirut – Lebanon
Tel: +961 1 900962
Fax: +961 1 900963
E-mail: info@afico.com.sa

info@afico.com.sa  www.afico.com.sa

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Our GREEN promise:

- 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.