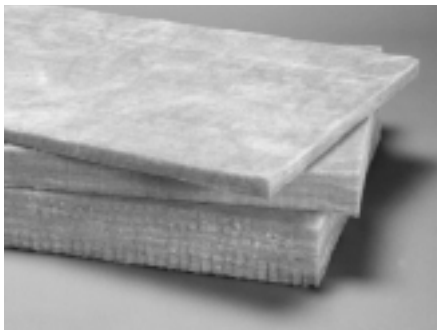
Submittal Sheet

Fiberglas® TIW Types I & II Insulations

Thermal Insulating Wool



☐ **Type I**
☐ **Type II**

Description

Fiberglas® TIW Types I and II Insulations are off-white to light tan, noncombustible wool with resilient, inorganic glass fibers bonded with a thermosetting resin. TIW Type I is available in rolls; TIW Type II comes in batts.

Uses

Fiberglas TIW Type I Insulation is used in applications up to 1000°F (538°C) at maximum recommended thickness requiring a lightweight insulation, such as that used in panel systems, flexible wrap, industrial ovens or surfaces having irregularities. Its low compressive strength does not make it suitable for use as a base wool for metal mesh blankets.

Fiberglas TIW Type II Insulation is especially suitable for use in metal mesh blankets and for use on boilers, vessels and many other types of industrial equipment operating at temperatures up to 1000°F (538°C) at maximum recommended thickness. It may also be used in panel systems for precipitators, ducts and breechings where more compressive resistance than *Fiberglas* TIW Type I Insulation is needed.

Features/Benefits

Excellent Thermal Performance

TIW's thermal efficiency contributes to lower fuel costs due to reduced heat loss.

Lightweight

Being lightweight makes *Fiberglas* TIW Types I and II Insulation easy to handle and install, even when large size panels are used. There is no tendency for pin-hole elongation under vibration situations, a frequent source of heat leaks in heavier products.

Quick, Easy Installation

Large batts or blankets cover greater areas quickly, eliminating tedious block-by-block hand lay-up and drilling for studs in hard insulations. The insulation is easily impaled over welded studs or pins, or may be held in place with wire ties, metal lath or lagging.

Noncorroding

Fiberglas TIW Types I and II Insulation can be used in direct contact with steel, copper and aluminum without corrosive effects.

Availability

TIW, Type I

STANDARD ROLL SIZES		
Widths, in. (m)	24 (0.6) 36 (0.9) 48 (1.2)	
Lengths, ft. (m)	33 (10.1) 44 (13.4) 66 (20.1)	
Thicknesses, in. (mm)	1 (25) 3 (76)	2 (51) 4 (102)

TIW, Type II

STANDARD BATTS		
in. (m)	24 x 48 36 x 48 48 x 48	(0.6 x 1.2) (0.9 x 1.2) (1.2 x 1.2)
Thicknesses, in. (mm)	1 (25) to 4 (102) in 1/2 (13) increments	

Specification Compliance

- ASTM C 553, Mineral Fiber Blanket Thermal Insulation, Types I, II, V – TIW Type I; all types – TIW Type II when specification Type VII is limited to 1000°F maximum use temperature.
- ASTM C 612, Mineral Fiber Block & Board Thermal Insulation, Types IA, II, III – TIW Type II
- ASTM C 795, Thermal Insulation for Use Over Austenitic Stainless Steel*
- ASTM C 1139, Fibrous Glass Thermal Insulation and Sound Absorbing Blanket and Board for Military Applications, Type 1, Grade 2 – TIW Type I; Type 2, Grade 2 – TIW Type II
- Mil. Spec. MIL-I-22023D (Ships), Insulation Felt, Thermal and Sound Absorbing Felt, Fibrous Glass, Flexible, Types 1 & 2, Class 3 – TIW Type I
- Nuclear Regulatory Commission Guide 1.36, Non-Metallic Thermal Insulation*
- U.S. Coast Guard Approval No. 164.009, Noncombustible Materials
- CAN/CGSB-51.11 – Type 1, Class 4 – Fiberglas TIW Types I & II Insulation

* Preproduction qualification testing complete and on file. Chemical analysis of each production lot testing required for total conformance.

Physical Property Data

Property	Test Method	Value
Equipment operating temperature range*	ASTM C 411	Up to 1000°F (538°C)
Nominal density	ASTM C 167	Type I: 1.0 pcf (16 kg/m^3) Type II: 2.4 pcf (38 kg/m^3)
Shot content	ASTM C 1335	Negligible
Water vapor sorption	ASTM C 1104	< 2.0% by weight at 120°F (49°C), 95% R.H.
Composite surface burning characteristics	UL 723,** ASTM E 84** or CAN/ULC-S102-M**	Flame spread 25** Smoke developed 50

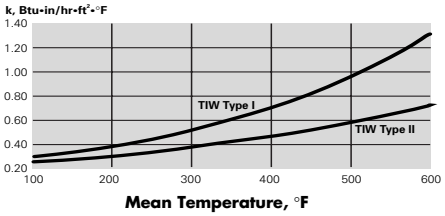
* Maximum allowable thickness at 1000°F (538°C): Type I - 8.5" (216mm); Type II - 6" (152mm).

** The surface burning characteristics of these products have been determined in accordance with UL 723, ASTM E 84 or CAN/ULC-S102-M. This standard should be used to measure and describe the properties of materials, products or assemblies in response to heat and flame under controlled laboratory conditions and should not be used to describe or appraise the fire hazard or fire risk of materials, products or assemblies under actual fire conditions. However, results of this test may be used as elements of a fire risk assessment which takes into account all of the factors which are pertinent to an assessment of the fire hazard of a particular end use. Values are reported to the nearest 5 rating.

Thermal Insulating Wool

Fiberglas® TIW Types I & II Insulations

Thermal Conductivity



Apparent thermal conductivity curve determined in accordance with ASTM Practice C 1045 with data obtained by ASTM Test Method C 177. Values are nominal, subject to normal testing and manufacturing tolerances.

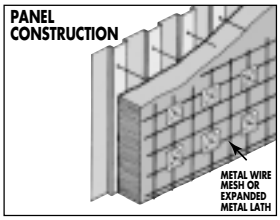
Mean Temp. °F	k Btu•in/hr•ft²•°F	Mean Temp. °C	λ W/m•°C
TIW Type I			
75	0.27	25	0.039
100	0.29	50	0.044
200	0.39	100	0.058
300	0.52	150	0.075
400	0.70	200	0.099
500	0.96	250	0.131
600	1.31	300	0.173

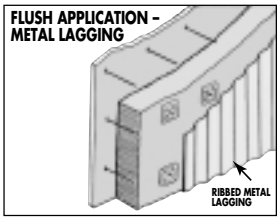
Mean Temp. °F	k Btu•in/hr•ft²•°F	Mean Temp. °C	λ W/m•°C
TIW Type II			
75	0.23	25	0.033
100	0.24	50	0.036
200	0.30	100	0.044
300	0.37	150	0.054
400	0.46	200	0.066
500	0.58	250	0.080
600	0.73	300	0.098

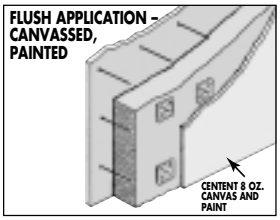
Thermal Performance, ASTM C 680

Thickness,		Operating Temperature, °F (°C) 400 (204)		600 (316)		800 (427)		1000 (538)	
in.	(mm)	HL	ST	HL	ST	HL	ST	HL	ST
TIW Type I									
1	(25)	110	182	265	282	525	415	912	568
2	(51)	62	144	148	209	298	301	529	417
3	(76)	43	128	103	177	207	247	370	340
4	(102)	33	118	79	158	159	216	283	293
5	(127)	27	112	64	146	128	195	230	261
6	(152)	22	108	54	137	108	180	193	239
7	(178)	19	105	46	131	93	169	167	221
8	(203)	17	102	41	126	82	160	146	208
TIW Type II									
1	(25)	85	163	182	232	329	318	538	421
2	(51)	47	131	100	174	180	230	295	299
3	(76)	32	118	69	150	124	192	203	245
4	(102)	25	110	52	136	94	170	155	213
5	(127)	20	105	42	127	76	156	125	193
6	(152)	17	102	36	121	64	146	105	178

The above table provides approximate heat loss values (HL), Btu/hr•ft², and Surface Temperatures (ST), °F, for flat surfaces. Values are based on horizontal heat flow, vertical flat surface, 80°F ambient temperature, still air, weathered aluminum jacket. To convert heat loss values to W/m2, multiply values by 3.15. To convert surface temperatures, use the formula: °C = (°F-32)/1.8.







Application Recommendations

Fiberglas TIW Types I and II Insulations can be installed directly on heated flat and curved surfaces by attaching with welded pins or studs and finishing with sheet metal or metal mesh and insulating cement, then canvassed and painted. Pins with speed washers or studs and nuts should be installed on 16" (400mm) (maximum) spacing and not more than 4" (100mm) from the edge of the insulation. The insulation is normally impaled over the pins or studs and the enclosing sheet metal or metal mesh secured to the same fasteners. Joints of the sheet metal finish are offset from joints of the insulation.

For temperatures over 400°F (204°C), good insulation practice suggests double layer application, regardless of insulation type. Single layer installation of any type of insulation material requires good workmanship to minimize heat loss and hot spots at insulation joints. *Fiberglas* TIW Types I and II Insulations may be installed in either single or multiple layers at all temperatures up to 1000°F (538°C). Maximum allowable thicknesses at that temperature: TIW Type I, 81/2" (216mm); TIW Type II, 6" (152mm).

OWENS CORNING WORLD HEADQUARTERS
ONE OWENS CORNING PARKWAY
TOLEDO, OHIO, USA 43659

1-800-GET-PINK
www.owenscorning.com

Pub. No. 5-IN-14729-J Printed in USA, June 2001