

DESCRIPTION

ITW Pabco/Childers Thermoclad Plus® Aluminum Roll Jacketing has a highly durable thermosetting polyester enamel coating on both sides PLUS a factory heat laminated 3 mil thick multi-layer Polyfilm Moisture Barrier (PFMB) film on the interior surface.

This finish provides improved aesthetics, increased emittance, and water and fingerprint stain resistance. Most importantly, Thermoclad Plus provides improved interior and exterior surface corrosion protection and longer service life for the aluminum jacketing used on pipe, tanks, and equipment insulation systems.

The special paint used on this jacketing is chalk and fade resistant. It exhibits better resistance to oxidation and to the effects of various corrosive environments than bare aluminum jacketing.

Like standard bare aluminum jacketing, ITW Thermoclad Plus Aluminum Jacketing is a premier protective outer surface for mechanical insulation systems. It protects the insulation and underlying pipe/tank from physical damage, UV exposure, corrosive atmospheres, and water.

ITW Thermoclad Plus Aluminum Jacketing is available in smooth, stucco embossed, and 3/16” corrugated (cross-crimped) finishes. For larger diameter or flat surfaces, use Thermoclad Plus deep corrugated sheets.

ITW Thermoclad Plus Aluminum Jacketing comes standard with a 3-mil thick polyfilm moisture barrier (PFMB) factory heat-laminated to the interior surface to help prevent corrosion of the jacketing and the underlying metal pipe, tank, or equipment.

Thermoclad Plus Aluminum Jacketing is manufactured in our ISO 9001 quality system certified plant.

POLYESTER ENAMEL PAINT DETAILS

The 420°F heat-cured polyester enamel paint on ITW Thermoclad Plus Aluminum Jacketing is 0.6 mils thick opaque white on the interior surface and 0.4 mils thick un-tinted clear on the exterior surface while the PFMB on the interior surface is a light blue color. Paint properties are:

- Minimum 80 gloss at 60°
- Minimum 50 double MEK rubs at 0.6 mil
- Minimum H pencil hardness

COMPOSITION

Commercially pure aluminum is relatively soft and less suited for use in this application. Its strength can be greatly improved by alloying with small percentages of one or more other elements such as manganese, silicon, copper, zinc, and magnesium. Additional strength can be achieved by cold working. ITW Insulation Systems carefully screens all potential aluminum coil suppliers to assure our products have the highest quality, are corrosion resistant, and comply with all relevant standards.

ITW Thermoclad Plus Aluminum Jacketing is typically manufactured using alloys 3105 or 3003 which have very similar composition and performance and are considered interchangeable for use as insulation jacketing. ITW reserves the right to ship whichever alloy is in stock at the time of order placement. One of these two specific alloys or an alternative alloy can be specified by purchaser at time of order placement but this may affect minimum quantity, lead-time, and price.

Composition Differences in Aluminum Alloys (%)

Alloy	Cu	Mn	Mg	Zn
3105	≤ 0.3	0.3-0.8	0.2-0.8	≤ 0.4
3003	0.05-0.2	1-1.5	---	≤ 0.1

EMITTANCE OF THERMOCLAD PLUS

ITW Thermoclad Plus Aluminum Jacketing has a surface emittance as measured by ASTM C1371 of 0.5 which is significantly higher than the 0.1 emittance of bare aluminum.

RECOMMENDED USES

Thermoclad Plus Aluminum Jacketing is recommended for use in all of the following insulation system applications:

- Where a higher jacket emittance is desirable to allow reduction of the insulation thickness required to achieve condensation control or personal protection
- Where additional resistance to corrosion from the external environment is required such as marine applications
- Rooftop cold pipe where an upgrade in corrosion resistance or increased emittance is desired
- Where the particular aesthetic features of ITW Thermoclad Plus Aluminum Jacketing are desired

LIMITATIONS ON USE

ITW Thermoclad Plus Aluminum Jacketing is not appropriate for the following applications:

- For vertical tank insulation system applications where the outer diameter is larger than 8 ft and where Thermoclad Plus Aluminum Jacket is desired, ITW Thermoclad Plus deep corrugated aluminum sheets should be used
- For applications where a maximum resistance to fire is required, ITW stainless steel jacketing should be used
- Where maximum resistance to corrosion is required, ITW stainless steel jacketing (T304 or T316) should be used

SURFACE FINISHES

Each of the three standard surface finishes (smooth, stucco embossed, and 3/16" corrugated) is available on ITW Thermoclad Plus Aluminum Jacketing. Each of these finishes has applications where it is recommended. For more information on finish, consult the ITW data sheet on Aluminum Roll Jacketing.

POLYFILM MOISTURE BARRIER

Polyfilm Moisture Barrier (PFMB) is an engineered multi-layer film of polyethylene and Surlyn* polymers with a total film thickness of 3 mils (76 µm) that is heat laminated in the factory to the interior surface of aluminum jacketing. ITW recommends the use of PFMB on all types of aluminum jacketing including Thermoclad Plus Aluminum to help prevent pitting, crevice, and galvanic corrosion of the interior surface of the metal jacketing and the insulated pipe, tank, or equipment.

Due to its superior performance characteristics, PFMB replaces the old moisture barrier technology of 1 to 3 mil thick polykraft.

FLAMMABILITY

ITW Aluminum Jacketing with a 3 mil polyfilm moisture barrier has been tested for flammability using the industry standard ASTM E84 test method. The results are shown below. ITW would not expect Thermoclad Plus Aluminum Jacketing to have a significantly different flammability performance.

ASTM E84 Flame Spread Index = 0
 ASTM E84 Smoke Developed Index = 5

(Tested with exterior metal surface exposed to the flame)

COMPLIANCE TO STANDARDS

All Thermoclad Plus Aluminum Jacketing from ITW Insulation Systems complies with the applicable requirements of ASTM C1729 (Aluminum Jacketing Material Standard) Type III, Grade 1 or 2 (depending on thickness), Class A which includes the strength and chemical composition requirements for compliance to ASTM B209 (Aluminum Alloy Standard).

RECOMMENDED THICKNESS

ITW recommends that the thickness of Thermoclad Plus Aluminum Jacketing used vary based on the outer diameter of the insulation system per the requirements of ASTM C1729. This recommended thickness is shown in the table below.

Outer Insulation Diameter (in)	Minimum Aluminum Jacket Thickness, inches (mm)	
	Rigid Insulation	Non-Rigid Insulation
≤ 8	0.016 (0.41)	0.016 (0.41)
Over 8 thru 11	0.016 (0.41)	0.020 (0.51)
Over 11 thru 24	0.016 (0.41)	0.024 (0.61)
Over 24 thru 36	0.020 (0.51)	0.032 (0.81)
>36	0.024 (0.61)	0.040 (1.01)