

Polyfilm Moisture Barrier

Overview

Polyfilm Moisture Barrier (PFMB) is an engineered three layer coextruded film of polyethylene and Surlyn* polymers with a total film thickness of 3 mils (76 µm).

PFMB is heat laminated in the factory to the interior surface of all types of metal jacketing for mechanical insulation to help prevent pitting, crevice, and galvanic corrosion of the interior surface of the metal jacketing and the insulated pipe, tank, or equipment.

This corrosion can occur when water enters the installed insulation system through joints or damage in the metal jacketing.

Film Construction

PFMB consists of three film layers each carefully selected to yield optimum performance. Each of the three layers is about 1 mil (25 µm) thick. The inner layer is predominantly low-density polyethylene (LDPE) for excellent adhesion after heat lamination. The middle layer is Surlyn* for strength. The top layer is predominantly high-density polyethylene (HDPE) for superior toughness and abrasion resistance. The use of three separate film layers virtually guarantees that there are no pinholes through the film because any holes in a single layer will not align with holes in the other layers.

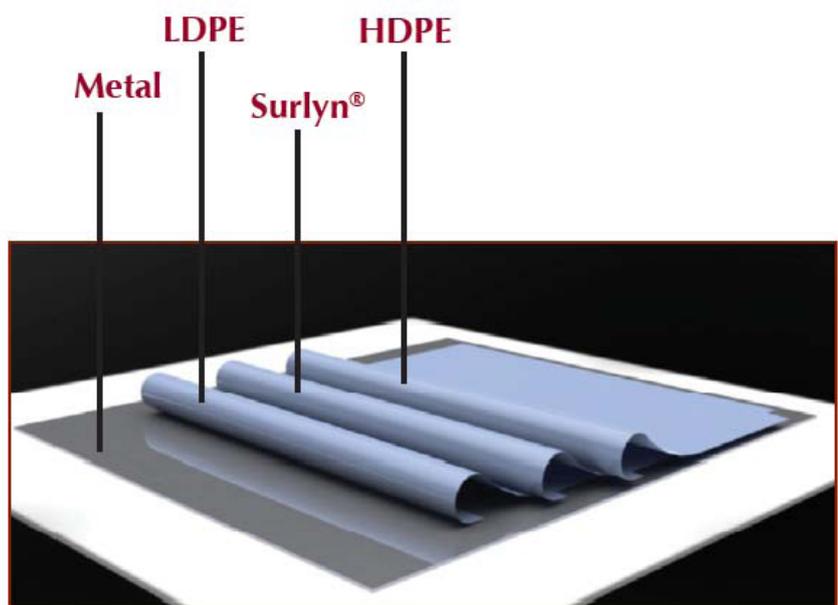
Applications

The preferred method for specifying metal jacketing is to require the use of PFMB to help prevent corrosion of the interior surface of the metal jacketing and the insulated pipe, tank, or equipment. PFMB is preferred on all types of metal jacketing including aluminum, stainless steel, galvanized steel, aluzinc, and aluminized steel types I and II to help prevent this corrosion.

PFMB is preferred on the metal jacketing for all applications of mechanical insulation including that used in hot, cold, pipe, tanks, equipment, industrial, commercial, petrochem, and oil/gas applications.

Film Appearance

PFMB Film is colored a light blue to distinguish it from other film types and to allow visual confirmation of its presence on the metal jacketing.



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Aluminum jacketing with 3 mil PFMB complies with ASTM C1729, Class A

Physical Properties ^a of Polysurlyn Moisture Barrier		
Physical Property and ASTM Test Method	Value	ASTM C1729 Requirement
Total Film Thickness, D6988, mils (µm)	3 (76)	3 (76)
Pinholes, C1729, number per 50 ft ²	0	< 5
Water Vapor Transmission Rate, F1249, 0/100% r.h., 73°F (g/100 in ² -day)	0.048 ^d	<0.1
Water Vapor Transmission Rate, F1249, 0/100% r.h., 100°F (g/100 in ² -day)	0.19 ^d	---
Flame Spread/Smoke Developed Indices ^b , E84	0/5 ^d	≤ 25/50
Maximum Long-Term Exposure Temperature ^c , °F (°C)	180 (82)	---
Maximum Intermittent Exposure Temperature ^c , °F (°C)	200 (93)	---
Temperature ^{c,e} Where Decomposition Begins, °F (°C)	410 (210)	---
Autoignition Temperature, °F (°C)	>600 (316)	---

^aData shown are typical values obtained from representative samples. This data may be used as a guide for design purposes but should not be construed as specifications.

^bFS/SD values are for aluminum jacketing with PFMB heat laminated to one surface. This numerical flame spread data is not intended to reflect hazards presented by this or any other material under actual fire conditions.

^cNote that most hot insulation systems are designed to keep the temperature of the jacketing from exceeding 140° F (60°C) for personal protection reasons.

^dITW Insulation Systems has third party test lab reports verifying these critical performance attributes.

^eVia thermo-gravimetric analysis

Suggested specification language to require that metal jacketing have a PFMB applied to it:

“Metal jacketing of all types shall have a 3 mil (76 µm) polyfilm moisture barrier factory heat laminated to the interior surface.”