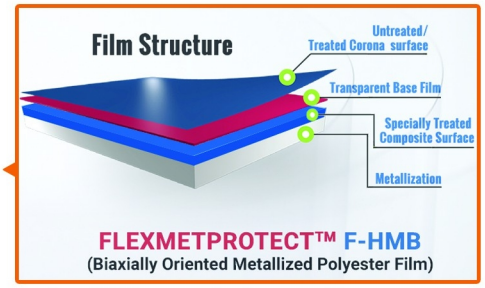
PRODUCT SPECIFICATION SHEET

FLEXMETPROTECT™ F-HMB NEW

F-HMB High Metal Adhesion Metallized - BOPET Films

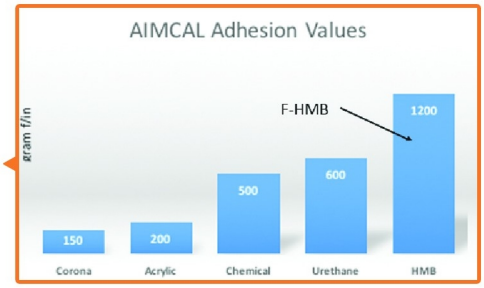
Product Description

F-HMB, Metallized Biaxially Oriented Polyester film, offers class leading metal adhesion to inks and adhesives. The metal adhesion to the PET base film will be destructive in many laminations. Applications include extrusion, solvent or solventless structures such as routinely found in lidding, pouching, bag-in-box, hot and warm fill use. The achievement of this level of adhesion is through the use of a new and proprietary inline anchor coating technology only available with Flex Films.



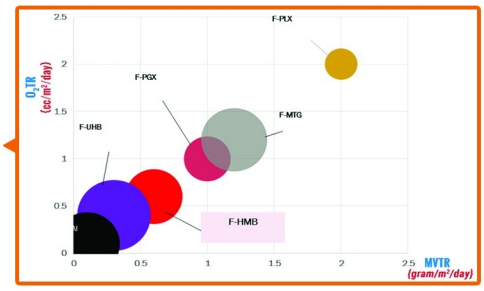
Superior Bond Performance

- Superior metal Bond between Aluminum layer and PET film
- Metal bond exceeding 1200 gf/in and destructive in most instances
- Class leading Metal adhesion compared to conventional metalized PET film
- Metal bond superior to almost any competitor film in its class



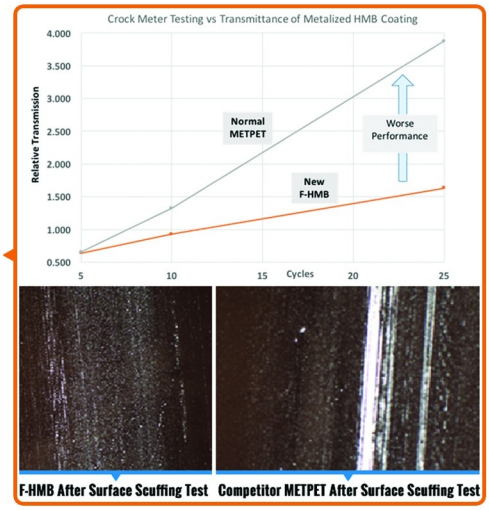
Improved Barrier Over Commodity METPET

- Class leading metal adhesion significantly improves moisture and oxygen barrier properties
- Improved barrier significantly extends shelf-life of packaged product
- Improved packaged freshness over traditional metalized films



Improved Robustness in Laminations & Converting

- Enhanced scuff and craze resistance due to better metal adhesion
- Reduced scratch and scrap due to improved metal adhesion
- Customer reported improved converting yield up to 4%
- Better yields, flexibility, and barrier presents new opportunities to convertor
- New opportunities for FOIL replacement applications



Value Proposition

Key Features

- Excellent barrier performance
- Improved product shelf-life
- Class leading metal adhesion
- Robust handling for increased converter yields and reduced costs
- Broad FDA and EU regulatory clearances* for expansive potential end-uses

Applications

- Snacks
- Dried Meats & Nuts
- Foil replacement
- Hot and Warm Fill

Film Type	Thickness Range	MVTR	O_2TR	Metal Adhesion
	µm	gram/m²/day	cc/m²/day	gram f/in Width
Corona Treated	12-50	1.2	1.2	150
Chemical Coated	12-50	1	1	500
F-HMB	12-50	0.6	0.6	1200

Attribute	Typical Properties	Notes
Thickness	8µm-50 µm	
Metal Adhesion	>1200 gf/in	
Metal Gloss	780 GU	2.5OD
MD/TD Shrinkage	1.5/0 %	150C/30 min

Lower O_2TR, MVTR - Longer shelf-life and improved packaged freshness

CONTACT INFORMATION - 1221 North Black Branch Road, Elizabethtown, KY 42701 +1 (270) 982 3456 +1 (270) 982 3457 enquiry@flexfilm.com www.flexfilm.com

Made in the USA | TDS Issued on 02-02-2018

*Consult with Flex Films for Further Detail

F-HMB, Metallized Biaxially Oriented Polyester Film

TECHNICAL DATA SHEET

Product Description:

➢Base polyester is a specialized design for high adhesion when metalized

Application:

➢Flexible packaging

➢Lamination

➢Hot fill applications up to 80°C .

Key Features:

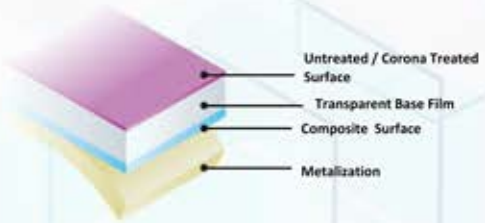
➢Excellent barrier properties

➢High metal bond strength

➢Good machinability & handling properties

PROVISIONAL ONLY

Film Structure



FLEXMETPROTECT™ **F-HMB-M** is a metalized polyester film. The film is either Untreated or Corona Treated on the other surface. The film is available with optical densities ranging from 2.6 to 3.0 giving the customer the ability to use for a diverse range of applications. The metalization is available on the plasma treated surface giving a bond strength between the metal and the film a minimum of 1000gm/25mm.This film grade is suitable for flexible packaging including hot fill applications up to 80C.

PROPERTIES		TEST METHOD (ASTM)	UNIT	TYPICAL VALUES				
OPTICAL DENSITY*** (TOLERANCE: +/- 5%) (***Customer to specify the OD value as per their specification.)				Very High Density (VHD) 2.8 - Special Application				
THICKNESS		Internal	Micron (Gauge)	10 (40)	12 (48)	15 (60)	19 (76)	23 (92)
YIELD			m^2/kg $in^2/lb.$	71.42 (50318)	59.52 (41934)	47.62 (33550)	37.59 (26483)	31.05 (21876)
SURACE TENSION (range) (Plain surface) (Corona Treated surface)		D-2578	Dyne/cm			42-44 52-64		
COF (max) (MI/MO)		D-1894	-			0.50		
TENSILE STRENGTH AT BREAK (min)	MD	D-882	Kg/cm^2	1900	1900	1900	1900	1900
	TD			2000	2000	2000	2000	2000
	MD		(Psi)	27000	27000	27000	27000	27000
	TD			28500	28500	28500	28500	28500
ELONGATION AT BREAK (min)	MD		%	105	105	105	110	115
	TD			85	85	85	85	90
Metal Adhesion		Internal	gf/Inch			>1200		
LINEAR SHRINKAGE (max) (30 Minute at 150°C)	MD	D-1204	%			1.5		
	TD					0.6		
GLOSS (min) (Metalized surface) (Bare surface)		D-2578	-			820 700		
						VHD		
MVTR (max) (38°C & 90%RH)		F-1249	$gm/m^2/day$ $(gm/100in^2/day)$			0.65 0.04		
OTR (max) (23°C & 0%RH)		D-3985	$cc/m^2/day$ $(cc/100in^2/day)$			0.65 0.04		

The inherent surface tension of the untreated side of any PET film is a minimum of 42 dyne/cm.

MI - Metal Wound In / MO - Metal Wound Out

STORAGE & HANDLING

FLEXMETPROTECT™ needs to be stored in a warehouse below 35°C (95°F) and should not be exposed to direct sunlight, bright light sources, or high humidity. If the material is stored in the recommended conditions, FLEXMETPROTECT™ is suitable for use within 6 month from the date of manufacturing.

FOOD CONTACT

FLEXMETPROTECT™ complies with EU and FDA regulations on plastic materials used for food grade application. Specific documents and SDS are available on request.

DISCLAIMER