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Vacuum Aluminum Metallized 4.5 Micron BOPET polyester Film

4.5微米真空镀铝BOPET聚酯薄膜

Document No. 文件编号	Revision 版本	Issue date 签发日期	Document type 文件类型
APIG-PDS-BPE-024-2026	**Rev. 1.0**	**2026-11-07**	**Product Data Sheet / 产品规格书**

Metallized aluminium foil PET, 4.5μm, for printing, lamination and flexible packaging, supply to metallized film and capacitor makers.

PET镀铝膜，4.5微米，用于印刷、复合与软包装，供应镀铝膜与电容器制造商。

1. TECHNICAL PROPERTIES 技术参数

Property 项目 Specification 规格	
Thickness 厚度	4.5 / 6 / 9 / 12 μm base film
Base film	BOPET (PET)
Metallisation 真空镀层	Vacuum deposited aluminium, silver appearance
Metallised thickness	20 - 60 nm Al (per specification)
Width 幅宽	1,000 - 1,570 mm
Roll length 卷长	3,000 - 12,000 m
Adhesion 粘接力	Class 1 - 2 (tape test)
Barrier	Oxygen transmission < 1 cc/m²/day (dry room)
Surface resistance	≤ 2 Ω/sq (conductivity requirement)

2. TYPICAL APPLICATIONS 典型应用

Metallized polyester film for flexible packaging, decoration, capacitors and reflective layers

3. PRODUCT DESCRIPTION 产品说明

Vacuum Aluminum Metallized 4.5 Micron BOPET polyester Film

4.5 微米真空镀铝 BOPET 聚酯薄膜，银色，基膜厚度可选 4.5/6/9/12 μm。

Vacuum aluminum metallized 4.5-micron (4.5um) BOPET (VMPET) is a high-performance, ultra-thin specialty material.

In this configuration, the 4.5μm polyester base provides the structural carrier, while a nanometer-scale layer of vaporized aluminum provides high-reflectivity and barrier properties.

Here is a detailed breakdown of its properties, applications, and technical significance.

1. Key Technical PropertiesUltra-Thin Gauge: At 4.5 microns, it is one of the thinnest commercially available metallized films.

This allows for maximum "yield" (more square meters per kilogram of material).

High Barrier Performance: The aluminum layer significantly reduces the Oxygen Transmission Rate (OTR) and Water Vapor Transmission Rate (WVTR) compared to clear film.

Thermal Stability: As a BOPET-based material, it maintains dimensional stability at highertemperatures (melting point ≈ 260° C), which is critical for heat-sealing and high-speedlamination.

Optical Density (OD): Typically ranges from 1.8 to 2.5. This determines the "brightness"and opacity of the silver finish.

High Tensile Strength: Despite its thinness, the biaxial orientation gives it the mechanicalstrength to be processed on industrial coating and slitting machines without stretching orsnapping

2. Primary Applications

A. Thermal Transfer Ribbons (TTR) - Premium Grade

The Role: Metallized 4.5um BOPET is often used as the base for high-end resin or wax-resin ribbons.

The Benefit: The metallization can act as a "heat-shield" or a primer layer that improvesthe release of the ink and protects the print head from overheating.

B. High-Performance Lamination (Flexible Packaging)

The Role: It acts as the middle barrier layer in a multi-layer structure (e.g.,BOPP /VMPET 4.5m / PE).

The Benefit: It provides the barrier of a much thicker film while keeping the totalpackaging weight extremely low. This is ideal for snack food pouches and "lightweighting"initiatives.

C. Insulation & Electronics

The Role: Used in Cryogenic Insulation (multi-layer insulation or MLI) and radiantbarriers.

The Benefit: The silver surface reflects up to 98% of radiant heat. Its ultra-thin natureallows for many layers to be wrapped in a small space (crucial for aerospace and LNG tankinsulation).

Capacitors: Some ultra-thin metallized BOPET is used in the manufacturing of filmcapacitors.

D. Decorative & Yarn Applications

The Role: Slit into tiny strips to create Metallic Yarn (Lurex) for textiles.

The Benefit: Provides high shine and metallic luster while remaining soft enough to bewoven into fabrics.

3. Comparison: Metallized vs. Aluminum Foil

4. Technical Keywords for Sourcing

When communicating with suppliers (like Shuangxing, Toray, or CloudFilm), use thesespecific terms:

VMPET 4.5mic: Short for Vacuum Metallized PET.

Metal Bond Strength: The force required to peel the aluminum from the PET (crucial forlamination).

Dyne Level: Usually needs to be > 42 dyne for lamination adhesive to stick.

Yield (m2/kg): For 4.5uum, the yield is approximately 158 m2/kg.

Pro-Tip for Purchasing:

If you are buying 4.5um Metallized Off-grade (Substandard), it is excellent for paper-to-cardboard lamination (like luxury cigarette or liquor boxes). The paper provides the strength,and the "substandard" metallization still provides 100% of the required metallic aesthetic for amuch lower price.

5. HS CODE & REMARKS 海关编码与备注

Item 项目 Value 内容	
HS Code 海关编码	3920620000
Product Code 产品编号	APIG-BPE-024

Values above are the supply range published on this product page; blank cells are to be supplied. No test value, certificate number or customer name has been added.

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海关注册编码 Customs Reg. Code: 3401961393