

A breakthrough in metal adhesion



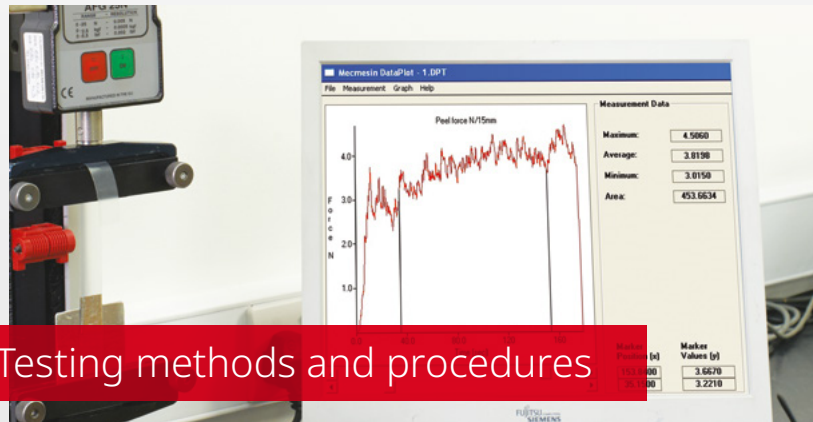
VACUUM METALLIZING

BOBST AluBond®

Poor metal **adhesion**

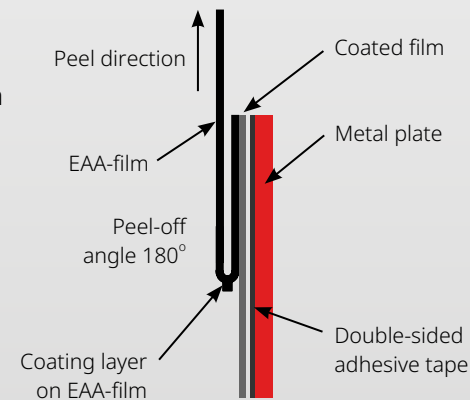
Traditional metallization (even with Plasma treatment) can result in poor metal to polymer substrate bonding, this produces de-lamination which leads to packaging failure.

Metal adhesion has long been a challenge in the converter packaging world due to this inter-layer bonding failure. Currently there is increasing demand globally for higher levels of metal adhesion on metallized film.



Testing methods and procedures

The qualitative adhesion tape test does not offer a reliable or accurate adhesion measurement. The use of a metal plate backing will allow better determination of the peel strength and mode of failure.



Peel Test Diagram (EMA Method)

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At a glance

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BOBST has developed an innovative approach to address poor metal adhesion through its vacuum metallizers, eliminating the need for chemically treated films.

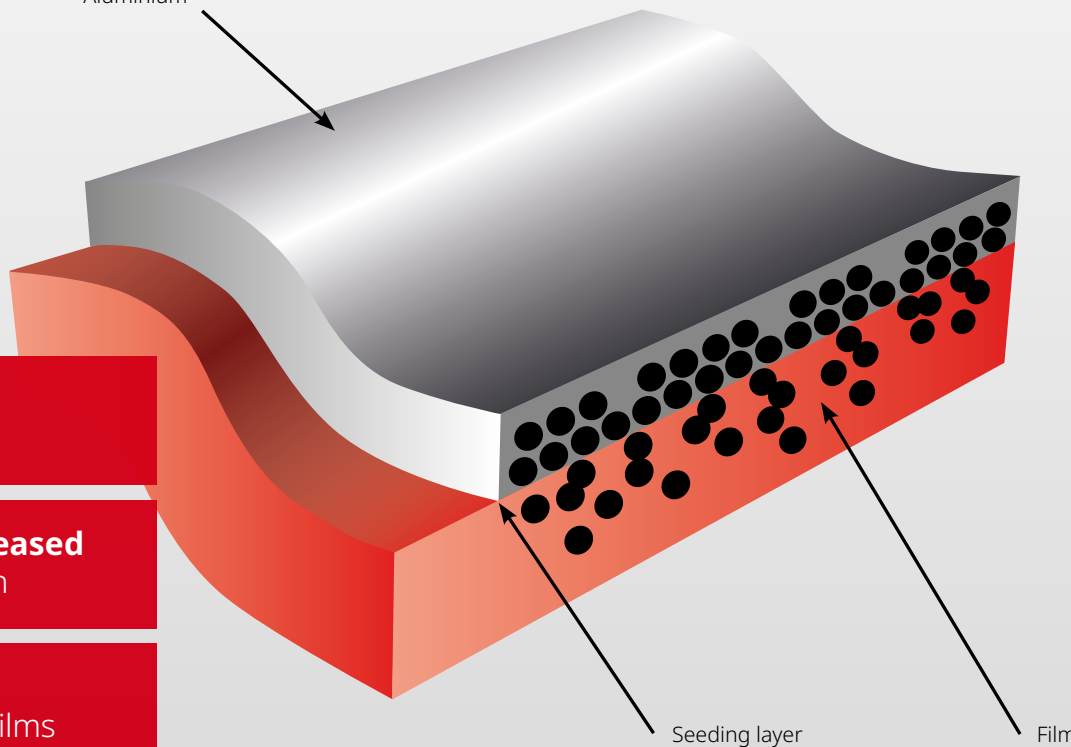
High bonding strength is achieved on any substrate with the **BOBST AluBond®** unique metallizing process. This is an advanced metal adhesion technology where metal adhesion values can be achieved of up to 5N/15mm. In some cases, adhesion levels are so high that it even leads to film tear during the peel test.

Additionally **AluBond®** enhances oxygen and water vapor barrier levels on BOPP and CPP films.

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Aluminium



High adhesion
on metallized films

Significantly increased
dyne level retention

Enhanced barrier
on BOPP and CPP films

Seeding layer

Film

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What is BOBST AluBond®?

The **BOBST AluBond®** process promotes chemical anchoring (chelation) of the first aluminium particles creating a metallizing seeding layer that provides superior bond strength properties.

Very high adhesion is achieved when there are direct chemical bonds between the aluminium coating and the polymer surface. Increased chemical bonding by the creation of the seeding layer increases lamination bond strength and leads to high performance during lamination, extrusion and coating processes hence preventing failure of the packaging.

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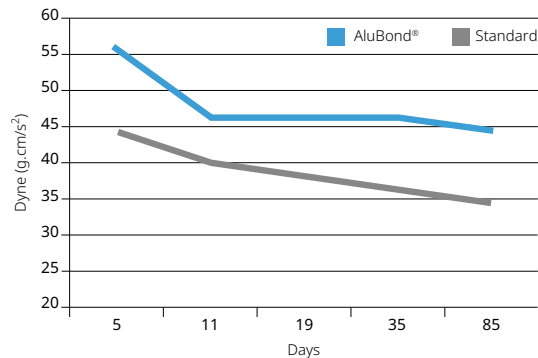
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BOBST AluBond® also significantly increases dyne level retention. This is an added benefit to the improved metal bonding strength which translates in improved ink wettability during printing and enhances structure stability during lamination. **BOBST AluBond®** generates added value by extending surface energy stability on metallized films over a long period of time and may eliminate the need for an additional surface treatment boost i.e. corona refresh prior to converting.

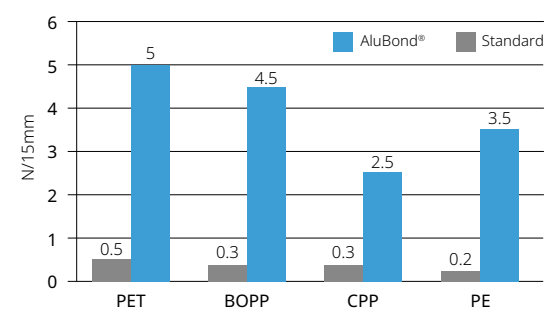
Figure 1:
AluBond®
Dyne Level
Over Time
on CPP*



BOBST AluBond® has been shown to greatly increase metal bond strength and metal adhesion on the most commonly used substrates (PET, BOPP, CPP and PE) during aluminium vacuum metallization.

BOBST AluBond® stimulates the chemical bonding at the interface hence facilitating an improved nucleation and growth of the aluminium deposition.

Figure 2:
Peel Force
Values**



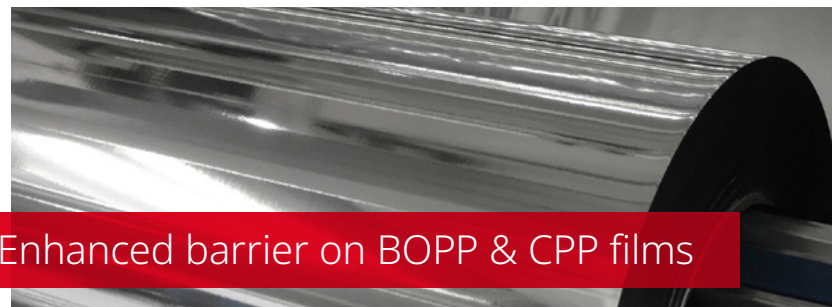
* NOTE: Ambient conditions of the test like humidity level may affect surface energy values.
 ** NOTE: Peel force values can be largely affected by the film formulation and are only shown for guidance purposes. BOBST cannot offer adhesion guarantees unless a test with customer's film has been performed.

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Enhanced barrier on BOPP & CPP films

When **AluBond®** is applied to BOPP and CPP films it provides enhancement of oxygen and water vapor barrier performance.

CPP	OD	OTR* cm ³ /(m ² d)	WVTR** g/(m ² d)
AluBond®	2.3	3.17 ± 0.42	0.05 ± 0.00
AluBond®	2.7	2.60 ± 0.09	0.04 ± 0.00
AluBond®	3.3	2.48 ± 0.21	0.03 ± 0.00
Datasheet information	2.5	50	0.15

BOPP	OD	OTR* cm ³ /(m ² d)	WVTR** g/(m ² d)
AluBond®	2.5	8.45 ± 0.08	0.06 ± 0.01
AluBond®	2.8	5.12 ± 0.34	0.03 ± 0.00
AluBond®	3.3	4.82 ± 0.57	0.03 ± 0.00
Datasheet information	2.5	50	0.4

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*OTR 23 °C, 50% RH
**WVTR 37.8 °C, 90% RH

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Digital age manufacturing happening with BOBST Connect

BOBST Connect is an end-to-end, user-centric digital platform that enhances and increases your packaging productivity. It's designed to help you make the most of the data your machine generates, improving efficiency across your value chain.

As well as exceptional data insights, BOBST Connect helps to orchestrate and improve your whole production process, from your PDF to the finished product and quality report. It brings data and digital services together in one fully connected platform, with machine insights and expertise built in.

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Performance analysis

- Production insights, including interaction of OEE components
- Identify and eliminate performance gaps

Accurate reporting

- Meaningful insights on OEE and downtime
- Accurately measure target speed and quality losses
- Trend analysis over time

Progress indicator

- Highlights extensive production deviations
- Empowers timely interventions

Remote assistance

- Priority access to technical specialists
- Video with Augmented Reality expert support based on real-time data
- Available 24/7 (optional)

Shift management

- Optimize planning time
- Deliver overall resource efficiency

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