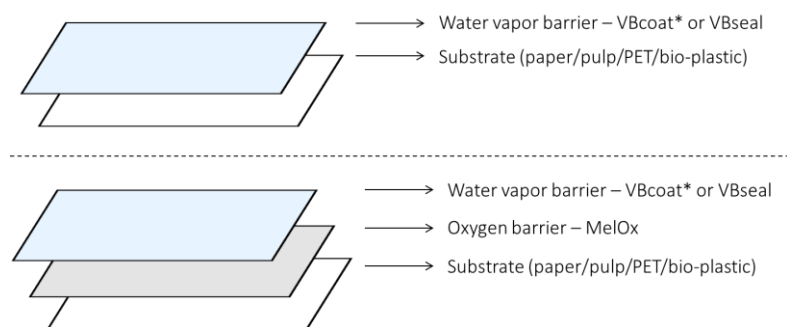


Vapor Barrier Products Data Sheet

Product Description Melodea's vapor barrier products confer high water vapor barrier performance to eco-friendly packaging products that are based on paper, paperboard, PET and bioplastics. Those products are used to reduce water vapor permeation and oil & grease penetration, together with reduced water absorption values of the substrate. Moreover, VBseal offers heat sealability. The products can be applied as a single barrier layer or on top of Melodea's oxygen barrier, MelOx.

- How to use**
- The coating formula suspension is ready to use as is. It is highly recommended not to dilute and not to modify it.
 - Mix the suspension well before applying, to assure homogeneity and fluidity. For IBCs, it is recommended to use an IBC mixer.
 - The products can be applied as a single layer or on top of MelOx, as illustrated in the figure below.
 - It is recommended to apply a total dry coating weight of 5 g/m² on paper or bio-plastic, and 2-5 µm on PET.
 - Sealing conditions should be optimized to achieve best sealing strength. Recommended sealing conditions to start with are 140-200 °C, 4 bar pressure, 1 sec dwell time.
 - The most suitable coating technologies are rod-coater, gravure, and spray.
 - It is not recommended to reuse or store the used material from the machine.

Optional layer structures for Melodea's barrier solution:



* A sealing layer should be applied on top of VBcoat in order to achieve sealability.

- Storage & shelf life**
- VBcoat exhibits good shelf-life stability of at least 12 months, and VBseal of at least 6 months in an unopened container, when stored correctly.
 - Delivered in drums or IBC's.
 - The product should be stored under frost-free conditions (> 5 °C) and under a temperature not exceeding 45 °C, out of direct sunlight.

Vapor Barrier Products Data Sheet

Properties	Test Method	VBcoat	VBseal	Units
Grade	-----	FWB07	FWBS01	-----
Product form	-----	Water suspension	Water suspension	-----
Solid content	-----	42 ± 5	40 ± 5	Wt%
pH	-----	5 - 10	5 - 10	-----
Viscosity	Brookfield, S63, 100 rpm, RT	< 800	< 800	cP
Barrier properties for coated paper:				
Water Vapor Transmission Rate (g/m ² -day-atm)	ASTM F1249-13 and F3299-18	≤ 15	≤ 20	38 °C, 90% RH
		≤ 2	≤ 2	23 °C, 50% RH
Oil & Grease barrier	TAPPI T 559 pm-96	12	12	KIT rating
Water Absorption	ISO 535	≤ 1	≤ 1	COBB 60, g/m ²
		≤ 1	≤ 1	COBB 1800, g/m ²
Sealability	ASTM F88	-----	> 4	N/15 mm
Recyclability on paper	PTS-RH 021:2012	✓	✓	-----