

Paper & Board Coating Chemicals

Barrier solutions



BASF – Your partner for developing efficient barrier coatings for paper & board applications

BASF offers a portfolio of several barrier dispersions to the paper and board industry, covering the major barrier applications (e.g. oil and grease, mineral oil).

We support our customers with application advice and initial laboratory tests.

For more information, please contact your local BASF representative.

What types of barrier coatings exist?

A barrier coated package is one that is treated, coated or laminated to provide resistance to the passage of a given substance.

Types of Barrier Coatings				
Liquid	Moisture / Water vapor	Gas / Aroma / Mineral oil	Oil & Grease	Light
<ul style="list-style-type: none"> ■ Wax ■ LDPE ■ Fluorocarbons ■ Dispersions 	<ul style="list-style-type: none"> ■ PVDC ■ Silicon oxides ■ HDPE ■ Dispersions 	<ul style="list-style-type: none"> ■ Aluminium ■ EVOH ■ Silicon oxides ■ Dispersions 	<ul style="list-style-type: none"> ■ Fluorocarbons ■ LDPE ■ Wax ■ Dispersions 	<ul style="list-style-type: none"> ■ Aluminium ■ Carbon Black

Dispersion product range for barrier applications via coaters

Products	Food contact	Indicative barrier performance*						Sealability
		Liquid (Water)	MVTR (Moisture vapor transmission rate)	OTR (Oxygen transmission rate)	OGR (Oil and grease resistance)	Mineral oil	Aroma	
Epotal® 8422 X	yes			O/+	+			
Epotal® SP-101 D	yes				O	++	+	O
Epotal® SP-106 D	yes	+	+					O
Epotal® S 440 eu	yes	++			++			
Epotal® SP-229 D	yes				+			
Epotal® A 480	yes	+			+			O

* ++ = high performing, + = good, O = suitable – final performance depends on coating weight, handling and initial paper quality

How can you achieve a good barrier performance with dispersions and coating colors?

Influence factors on barrier performance	What can you do?
Base paper quality	<ul style="list-style-type: none"> Target: smooth surface of the base paper The better the quality / smoothness of the base paper, the better the barrier performance Measures: internal sizing, surface sizing, pre-coating ("barrier primer")
Number of coating layers	<ul style="list-style-type: none"> Target: pinhole-free barrier layer Measure: apply a minimum of two barrier layers (multi-layer coating) in order to minimize defects
Application system	<ul style="list-style-type: none"> Target: pinhole-free barrier coating layer with a homogenous coating weight Measure: use an appropriate coating system (curtain coater, air knife, film press, metering bar, bent blade, stiff blade) or combine any of these coating systems to apply a double layer coating
Temperature at rewinder	<ul style="list-style-type: none"> Target: no blocking at rewinder in order to avoid damage of coating layer Measure: low temperature at rewinder
Coating weight	<ul style="list-style-type: none"> Target: full coverage of surface and a sufficiently high barrier performance The higher the coating weight, the better the barrier performance Measure: determine optimum among blocking, barrier performance and costs
Foam	<ul style="list-style-type: none"> Target: barrier coating color must be free of air in order to get a pinhole-free barrier layer Measure: avoid foaming during process, from barrier coating color preparation to application, by taking appropriate measures (such as using defoamers, adjusting equipment to minimize foam formation)
Viscosity of the coating color	<ul style="list-style-type: none"> Target: good wetting of the surface to achieve excellent coverage Measure: low viscosity
Pigments	<ul style="list-style-type: none"> Target: block-free barrier coating layer Measure: use suitable pigments to reduce blocking

Overview over typical barrier test methods

Test criterion	Test method
Surface defects	<ul style="list-style-type: none"> Wipe test with oleic acid
Liquid barrier	<ul style="list-style-type: none"> Cobb test
OGR (Oil and grease resistance)	<ul style="list-style-type: none"> Oil penetration with oleic acid KIT test
Mineral oil	<ul style="list-style-type: none"> Migration of hexane through the barrier layer
MVTR (Moisture vapor transmission rate)	<ul style="list-style-type: none"> Migration of moisture through the barrier layer
Sealability	<ul style="list-style-type: none"> Labmaster Kopp 3000



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your local BASF representative.

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