



Building Leadership Excellence



# Novel Base Coat for Water-Based Barrier Systems

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**ASHLAND**<sup>®</sup>

With good chemistry great things happen.<sup>™</sup>

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**RETHINK PAPER:**  
Lean and Green

# Overview

- Ashland and Michelman have partnered to develop water-based barrier systems (WBBS) for paper and paperboard packaging
- A novel "base coat" for WBBS was recently developed and validated in several grades of paper and paperboard
- Improves water, oil and grease resistance and reduces moisture vapor transmission rate of WBBS
- Performs better and costs less than other technologies and offers a number of environmental benefits



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# Trends Driving Development and Use of WBBS

## Consumer Lifestyle



**Fast Foods +  
Health Foods +  
Fresh Foods**



**Improved OGR  
Treatments +  
Longer Shelf Life**

## Environmental



**Increased Use of  
Renewable and  
Recyclable  
Materials  
+ Compliance  
Directives**



**New Alternatives:  
WBBS and  
Bioplastics**

## Increasing Costs



**Raw Material Costs:  
Oil, Wax, Aluminum,  
Polyethylene +  
Freight and  
Logistics Costs**



**Reduced Poly and  
Wax Coat Weights  
and Aluminum  
Gauges**

## Consumer Safety



**Health Concerns:  
Mineral Oil, Wax,  
Fluorocarbon, PFOA**



**New Alternatives:  
WBBS**



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## End Uses for WBBS

- Fast food containers
- Sandwich wraps
- Pizza boxes
- Corrugated packaging
- Produce boxes
- Poultry boxes
- Pet food bags



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## Overview of Novel Base Coat for WBBS

- Ready-to-use product serves as a low-cost "primer" (2-4 g/m<sup>2</sup>)
- Applied at the size press or coater
- Modifies and improves the surface topography of paper and paperboard without sealing
- Holds more expensive top coat at surface
- FDA-approved formulation is a patent pending combination of mineral, binder and cationic crosslinker
- Marketed as **Dimension™ BC1060 converting additive**

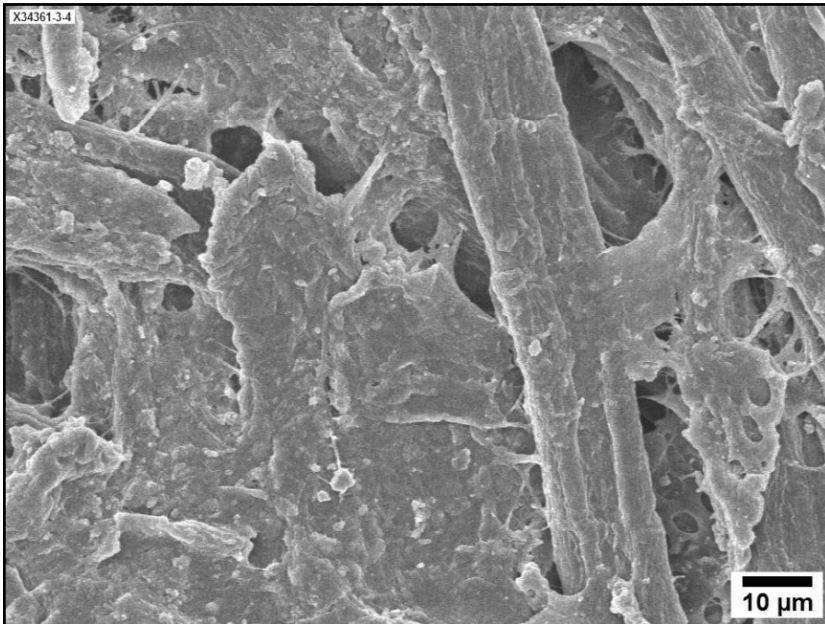


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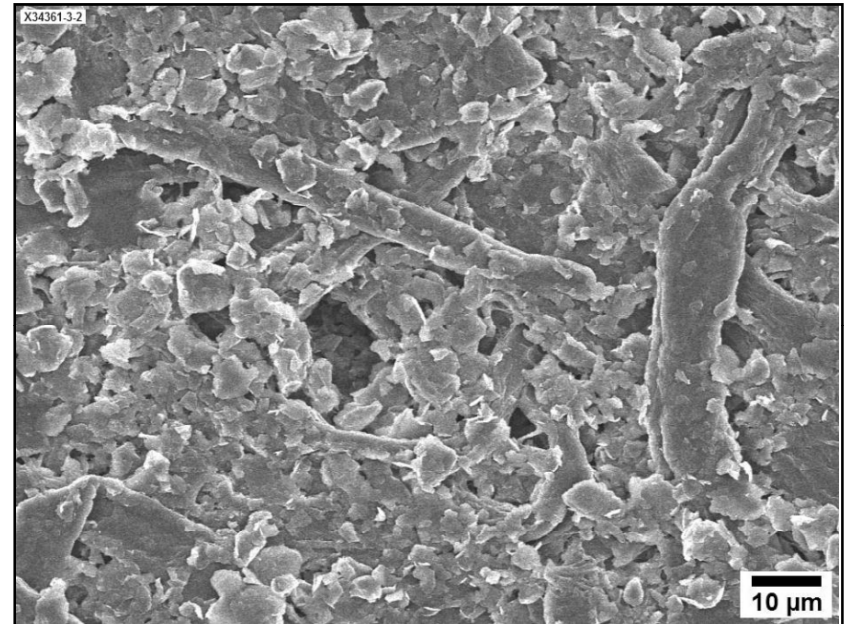


# Comparison of Untreated and Treated Sheets



**Untreated Sheet**

Open surface allows water, oil  
and grease penetration



**Treated Sheet - Base Coat**

Surface closure improves the  
performance of WBBS



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# Benefits of Novel Base Coat for WBBS

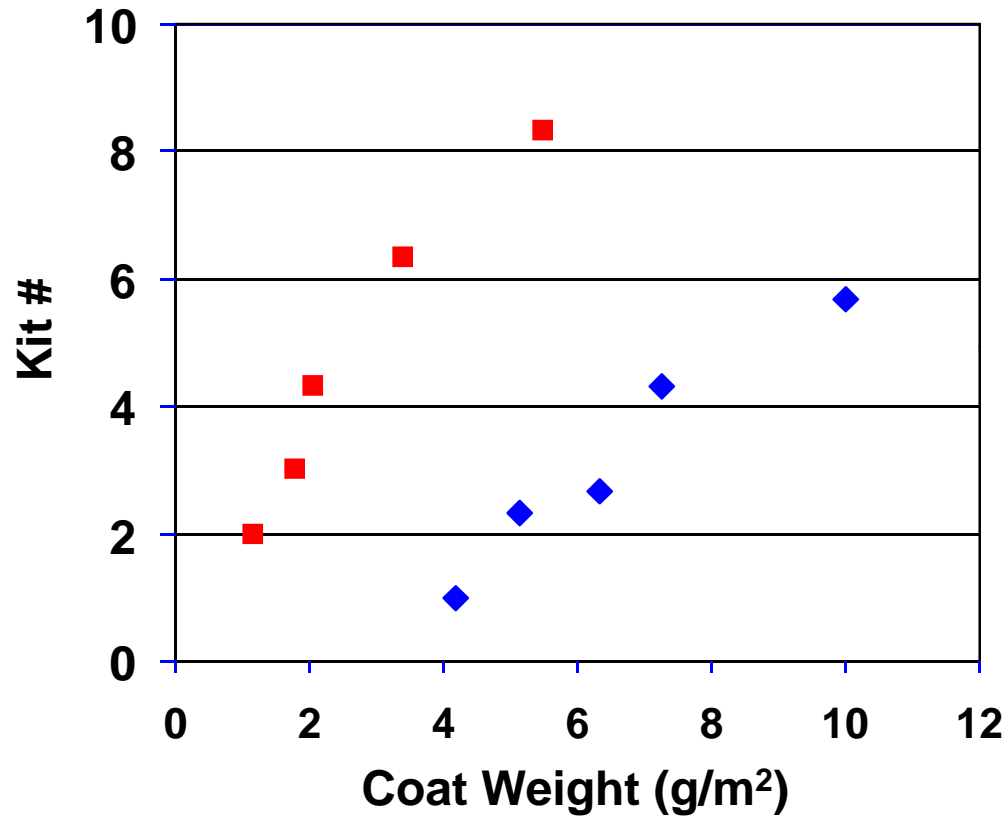
- Improved water, oil and grease resistance
- Reduced moisture vapor transmission
- Reduced cost of total barrier package
- Reduces or replaces wax and polyethylene coatings
- Eliminates the use of fluorocarbons
- Allows for the increased use of renewable materials and improves the ease of recycling



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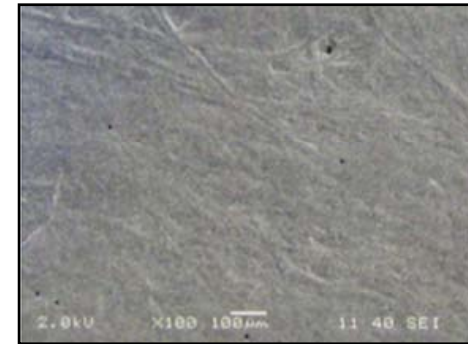
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# Base Coat\* / Top Coat – OGR Data



◆ Michem® Coat 51 ■ Dimension™ BC1060

\*Coater Applied

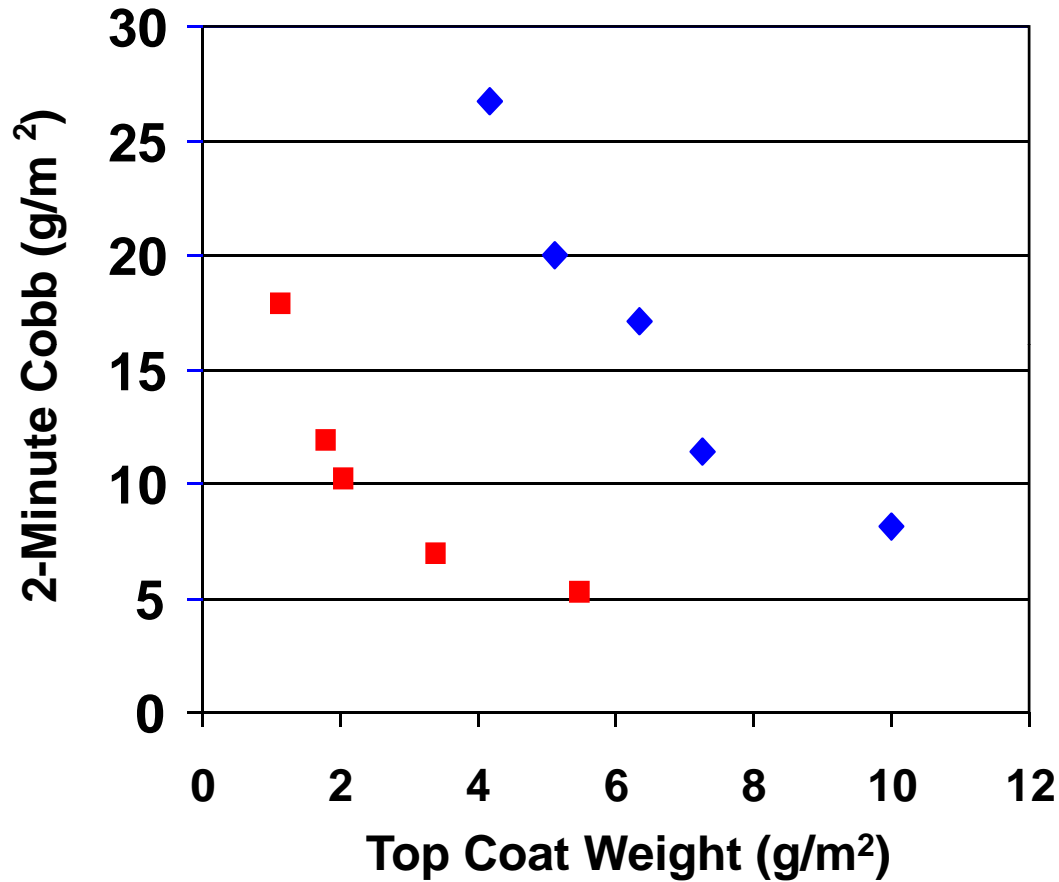


**Base coat allowed a 53% reduction in top coat weight!**





# Base Coat\* / Top Coat – Cobb Data



◆ Michem® Coat 51 ■ Dimension™ BC1060

\*Coater Applied



# Thank You!



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