New Bio-Based Solutions for Paper and Packaging

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Eco-Friendly Solutions Through Bio-Based Chemistry

New Bio-Based Solutions for Paper and Packaging

AquaSol Paper Polymers introduces

- AquaBloc - Oil & Grease Resistance Barrier
- AquaFix - Coating Rheology and Water Retention

Bio based polymers

- Sustainable
- Recyclable
- Repulpable

FDA compliant for food contact

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AquaBloc

Fluorocarbon and Wax Free

Oil & Grease Resistance Barrier Agents

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Why AquaBloc?

Growth of oil & grease resistant paper industry requirements creates the need for a new class of products

- Environmental concerns (recycling, bio-persistence) of existing solutions
- Packaging trends moving from synthetic, non-recyclable materials to sustainable, recyclable, repulpable natural materials
- Increasing cost of non bio-based options

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AquaBloc

A new class of naturally based polymer products designed for oil & grease barrier applications.

- Fluorochemical and wax free oil and grease resistance
- Easy make-down with existing equipment
- Products for size presses and coaters
- Single application for KIT values ranging for 3-7 with low pickup levels
- Higher KIT values possible with higher pickup levels or double coats
- FDA approved for food contact

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AquaBloc

Designed for rod, blade and metered size press coaters and all types of size press units

AquaBloc 403SP

- Size presses
- Low viscosity tolerant applications
- Easy make-down and use in existing equipment

AquaBloc 403C

- Rod, blade and metered size press coaters
- High viscosity tolerant applications
- Excellent strength and coater runnability

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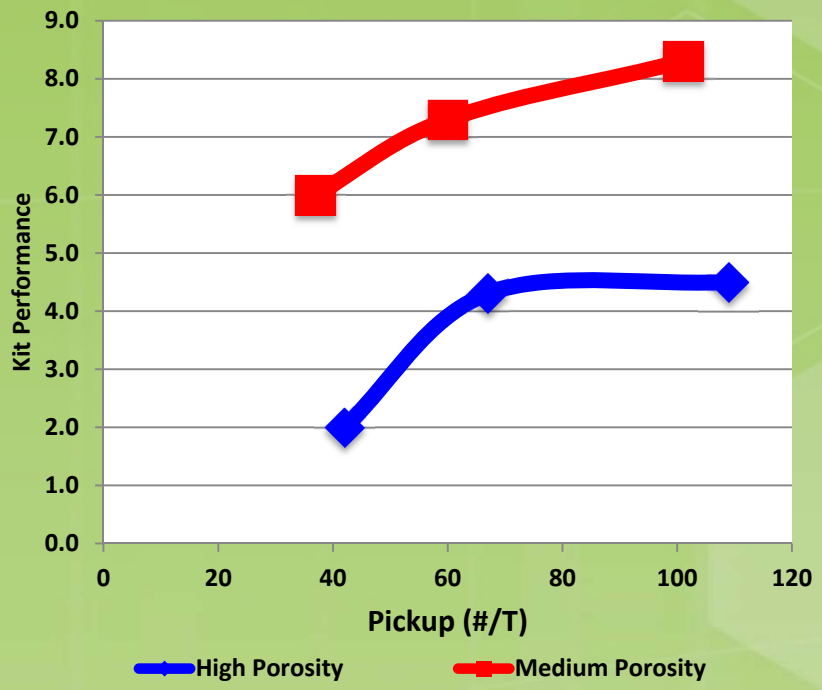
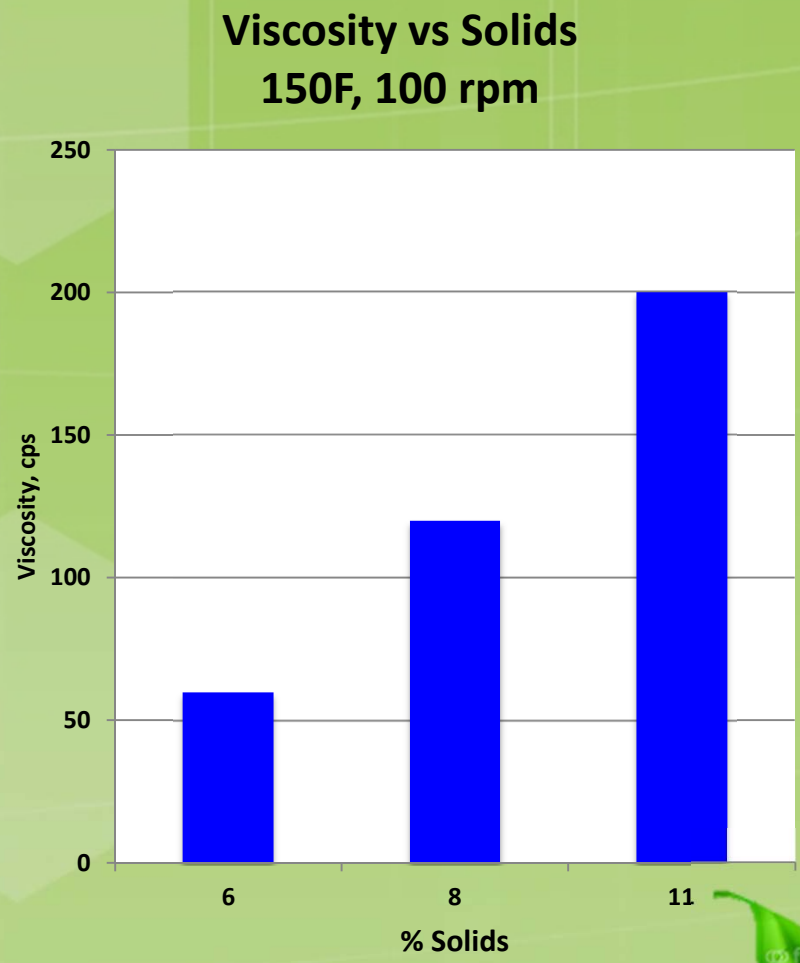
AquaBloc 403SP – Size Presses





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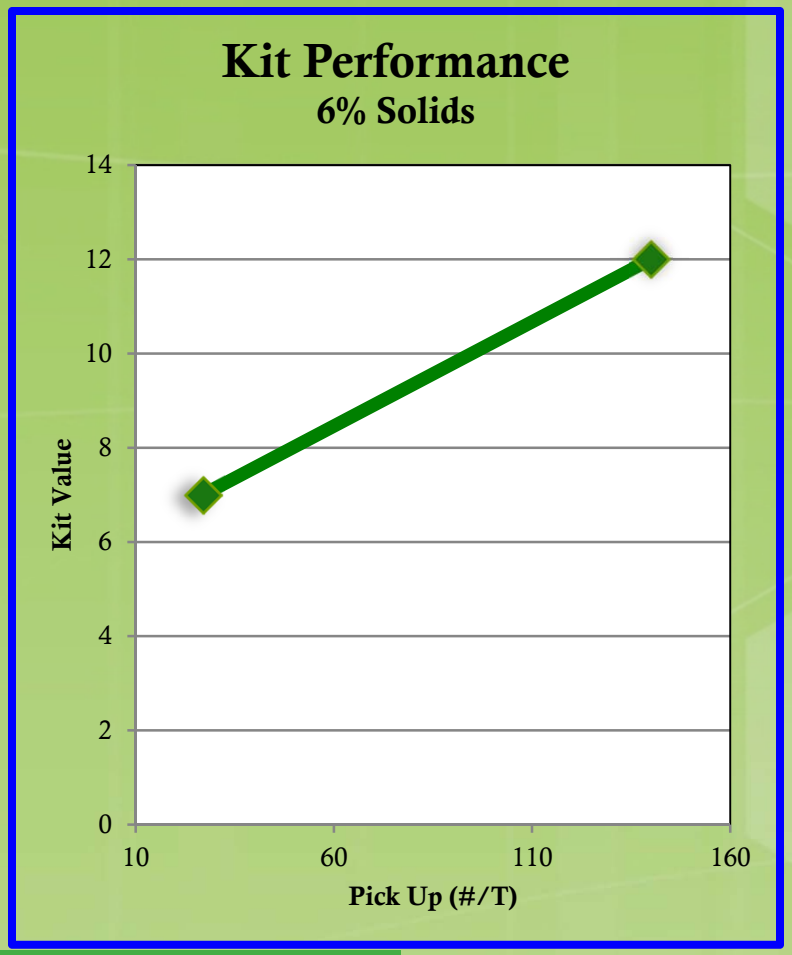
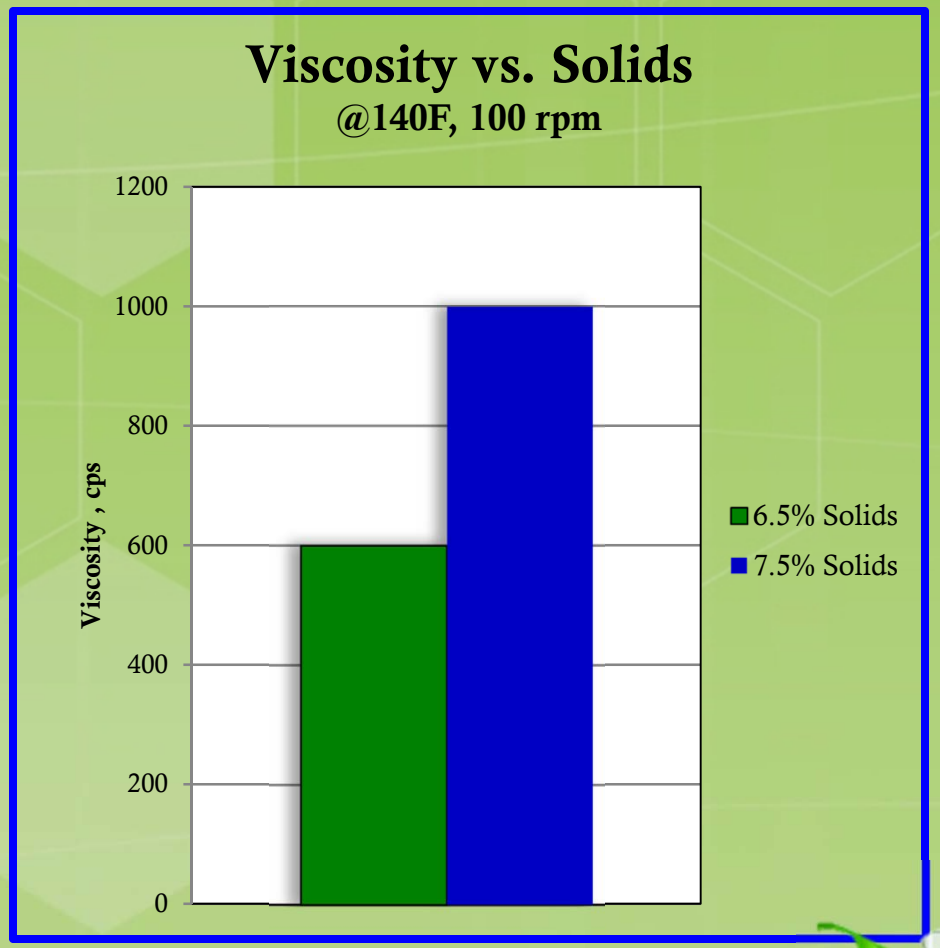
AquaBloc 403C - Coaters





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AquaBloc - Summary

AquaBloc products - a new class of OGR barrier coatings

- Provide fluorocarbon and wax free OGR performance
- Low to medium Kit values with low pickup levels
- Higher Kit values with higher pickups or double coats
- Single product replacing fluorochemical/starch systems
- Prepared and applied with standard equipment

AquaBloc offers significant value compared to current OGR options

Bio based polymer solution

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AquaFix

A Unique Water Retention Agent

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AquaFix

AquaSol Paper Polymers introduces AquaFix, new bio-based water retention aids for paper and packaging

- Bio-polymer delivering superior water retention with controllable viscosity build
- Cold water soluble products
- No pH adjustment required
- Compatible with existing application equipment
- Compatible with or replacement for incumbent rheology modifiers
- FDA compliant for food contact

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Typical Formulation Examples

Typical Base Coat

Component	Parts
Carbonate	100
Dispersant	0.2
Styrene acrylic latex	13
WRV agent • ASE • CMC • Alginate • AquaFix	0.1, 0.3 and 0.5
Solids	67%, 68% and 69%
pH	8.5

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Typical Formulation Examples

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Component	Parts
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Styrene acrylic latex	13
WRV agent • ASE • AquaFix	0.1, 0.3 and 0.5
Solids	67%, 68% and 69%
pH	8.5

Typical Top Coat

Component	Parts
Carbonate	40
No1 Kaolin	50
Calcined Clay	10
Dispersant	0.2
SB-AcN Latex	14
WRV agent • ASE • CMC • Alginate • AquaFix	0.1, 0.3 and 0.5
Solids	67%
pH	8.5

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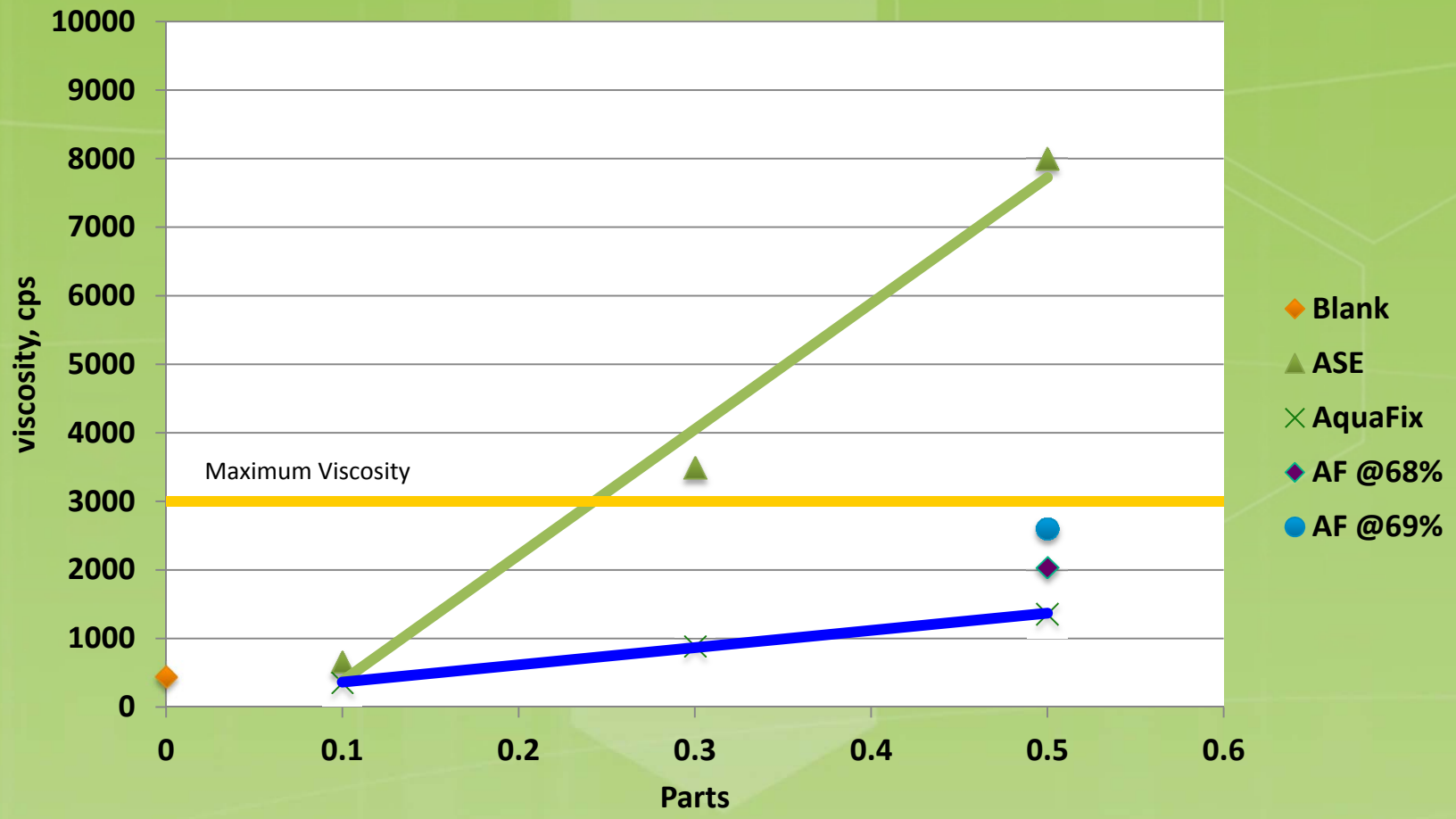
Base Coat – Brookfield Viscosity



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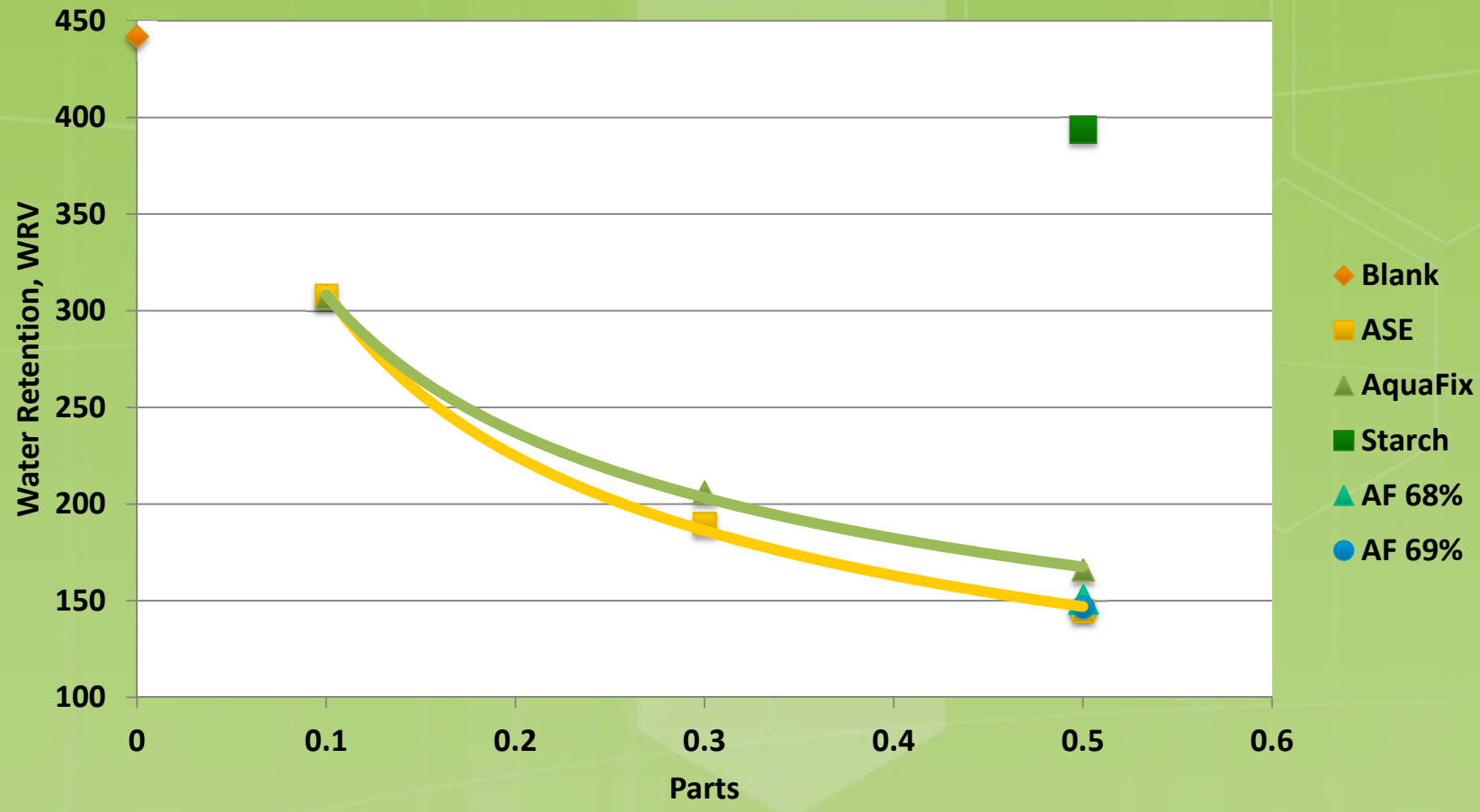
Base Coat – Water Retention



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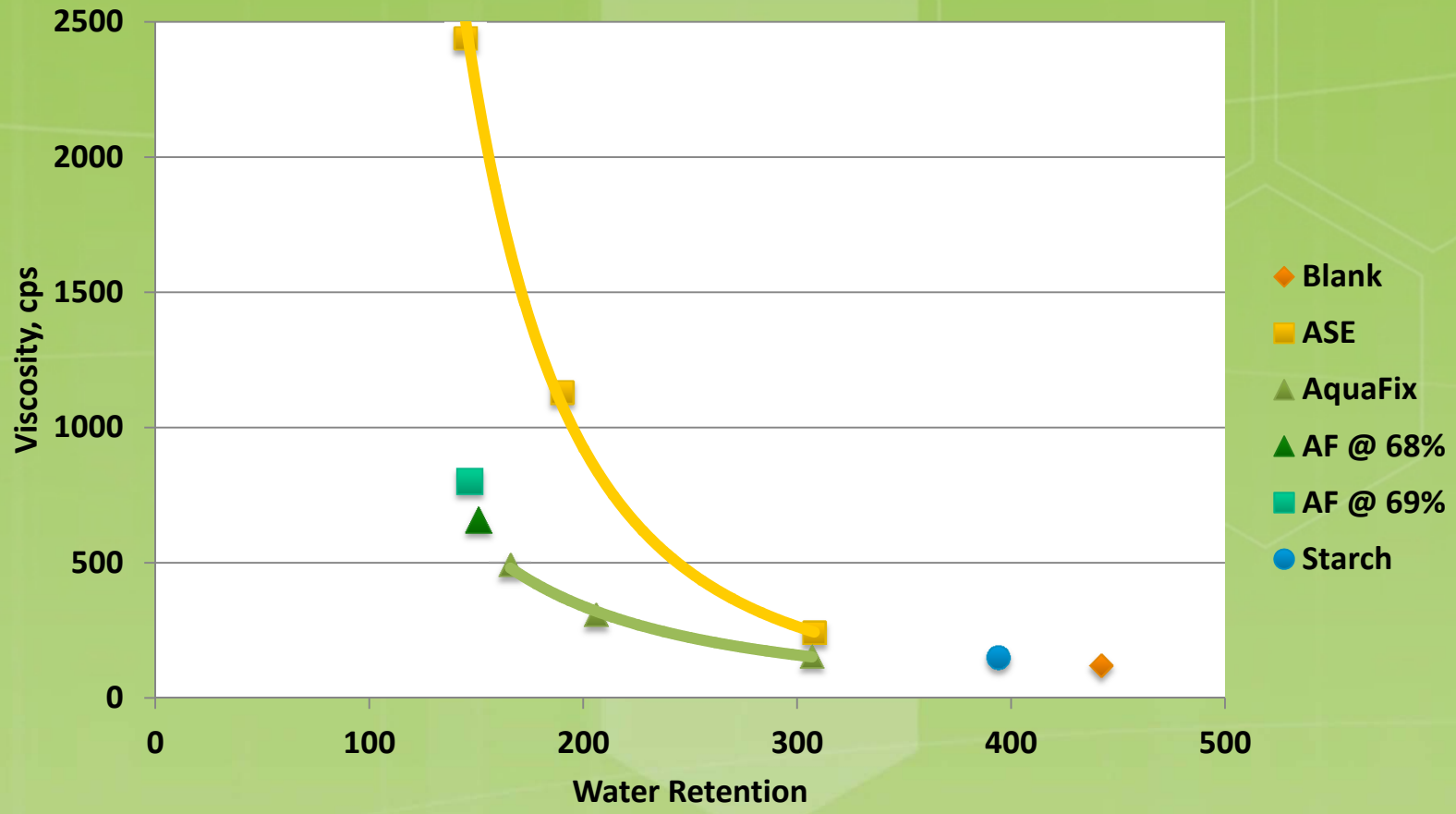
Base Coat – Viscosity vs WRV



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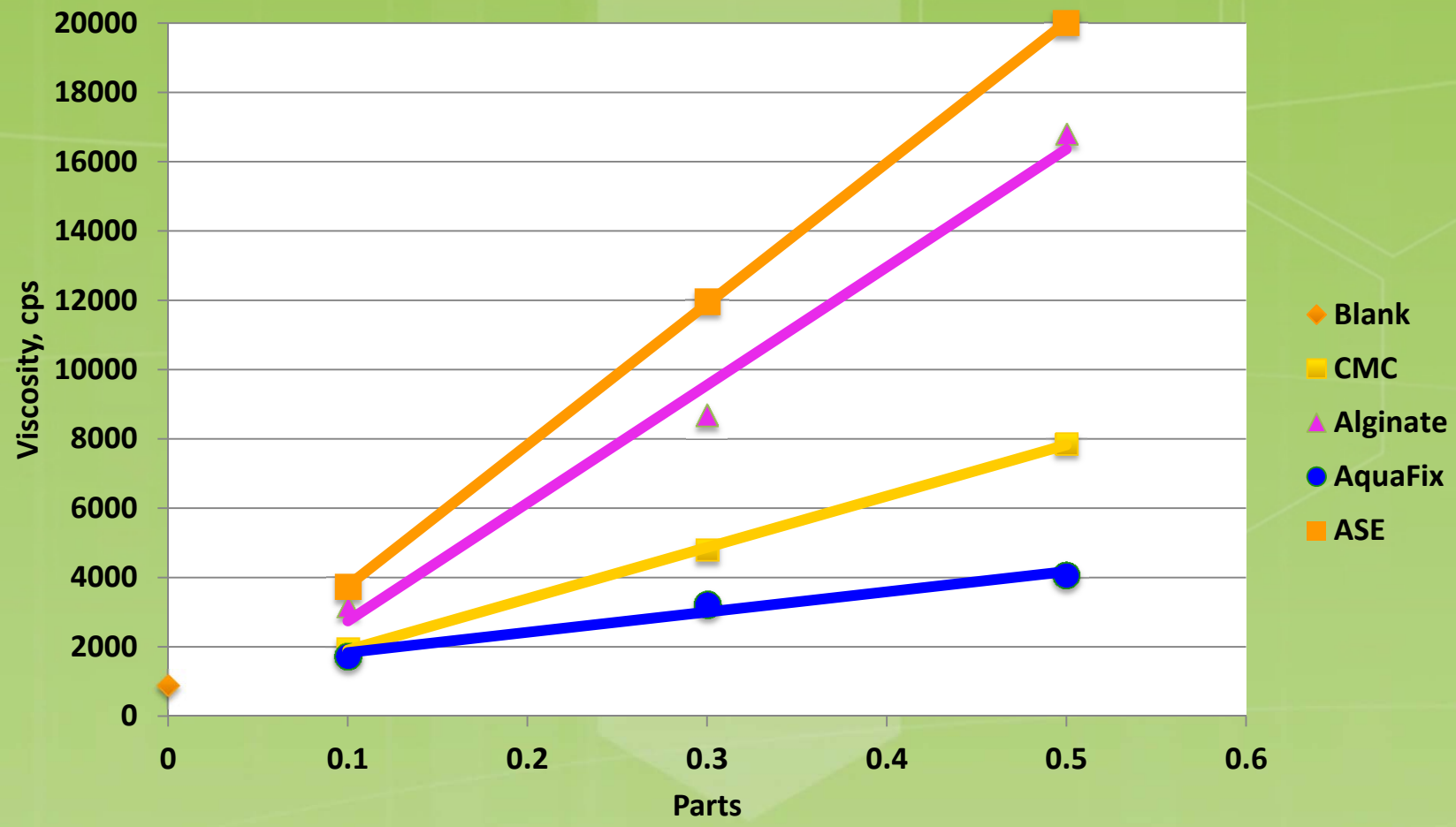
Top Coat – Brookfield Viscosity



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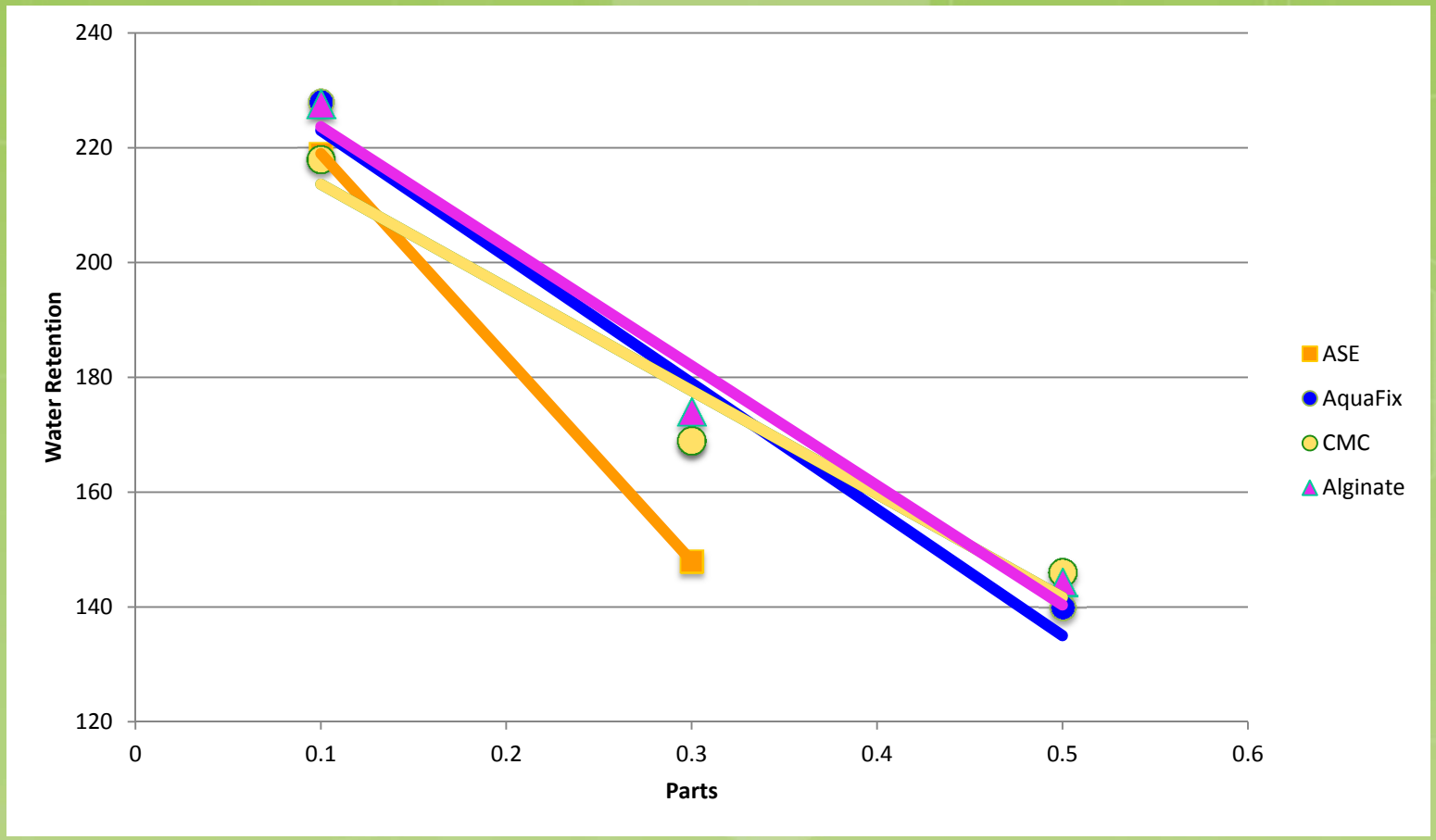
Top Coat – Water Retention



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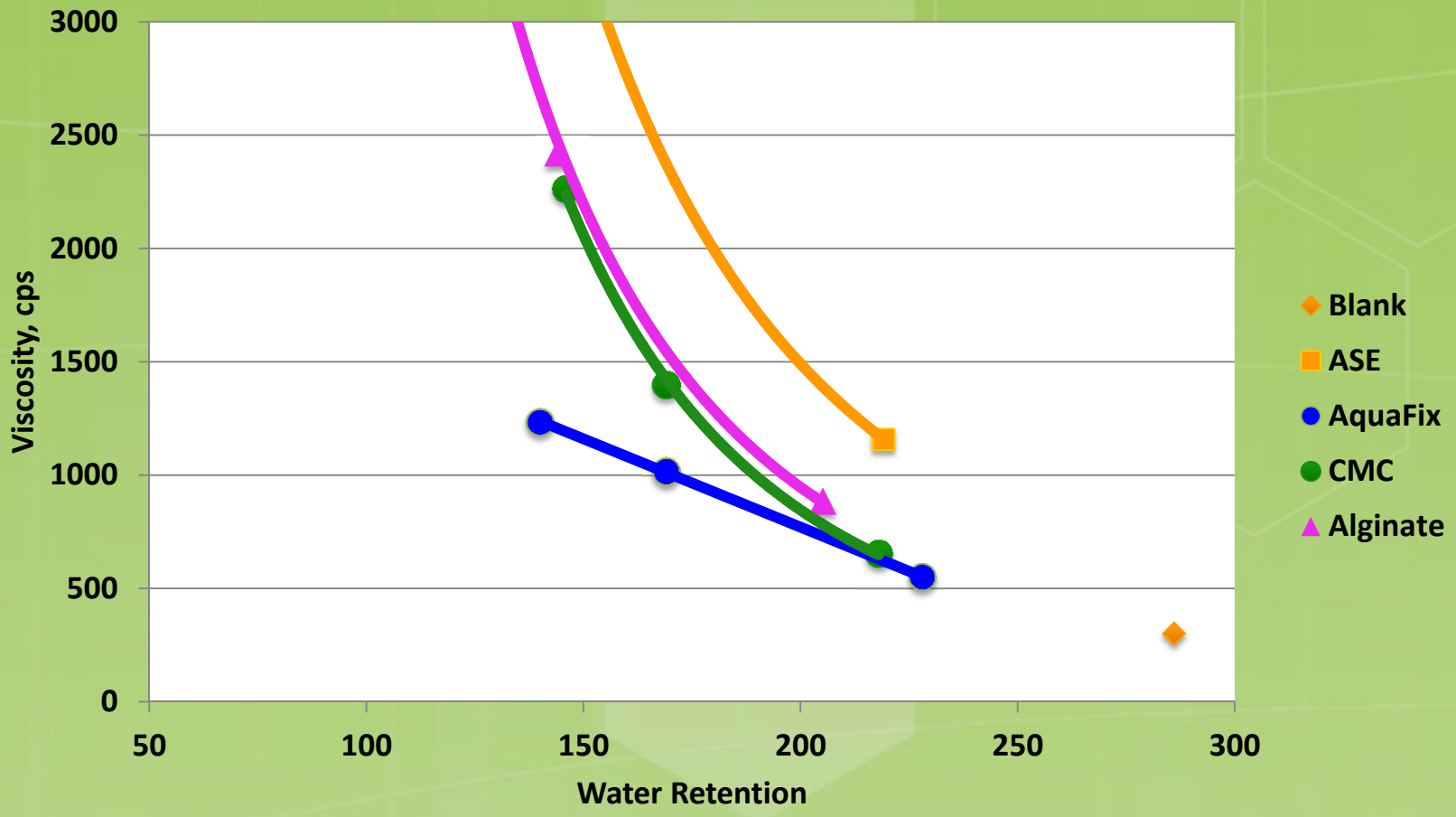
Top Coat - Viscosity vs WRV



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AquaFix Summary

- AquaFix shows excellent water retention properties with low viscosity build
- AquaFix allows improvement in water retention without additional viscosity penalty
- AquaFix allows increases in solids with improved water retention but without unmanageable viscosity
- AquaFix can replace or augment synthetics with bio-based polymers
- All AquaFix products are FDA compliant for food contact
- AquaFix provides positive economic value while improving coating operations

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AquaSol Paper Polymers

Please visit us at our tabletop display for additional information on our complete product line.

Thank You

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