CAB-O-SPERSE® DISPERSIONS

IMPACT OF CAB-O-SPERSE PRODUCT ATTRIBUTES ON KEY APPLICATION PROPERTIES

		Particle loading		Surface charge[1]		Surface area (m2/g)[3]		Particle size[3]		Particle type		Dispersion pH	
		High	Low	+	–	High	Low	High	Low	Al203	Si02	Match	Mismatch
Viscosity	Higher	■		■		■			■	N/A[2]		■	
	Lower		■		■		■	■					■
Formulation stability	Better		■		■		■	■		N/A[2]		■	
	Good	■		■		■			■				■
Hardness	Higher	■		N/A[2]		■			■	■		N/A[2]	
	Lower		■				■	■			■		
Abrasion resistance	Higher	■		N/A[2]		■			■	■		N/A[2]	
	Lower		■				■	■			■		
Surface roughness	Higher	■		N/A[2]			■	■		■		N/A[2]	
	Lower		■			■			■		■		
Haze	High	■		■			■	■		■			■
	Low		■		■	■			■		■	■	
Gloss	High		■		■	■			■		■	■	
	Low	■		■			■	■		■			■

1. Assumes customer formulation contains anionic additives or polymers
2. NA = difficult to assign a valuation to the performance impact
3. Assumes fumed metal oxide particle loading is constant and equivalent

WHY CAB-O-SPERSE DISPERSIONS?

CAB-O-SPERSE high purity metal oxide dispersions deliver performance improvement to waterborne formulations in an easy-to-use liquid delivery system.

1. Multifuntional application performance

Typical applications:

- Coatings
- Metal pretreatment
- Adhesives (PSA)
- Polishing abrasives
- Paper
- Elastomers
- Plastics
- Lighting
- Composites
- Energy

Properties improved:

- Abrasion resistance
- Corrosion resistance
- Transparency
- Rheology control
- Adhesion
- Mechanical strength
- Tack-free time
- Tack-free time
- Free-flow
- Anti-block

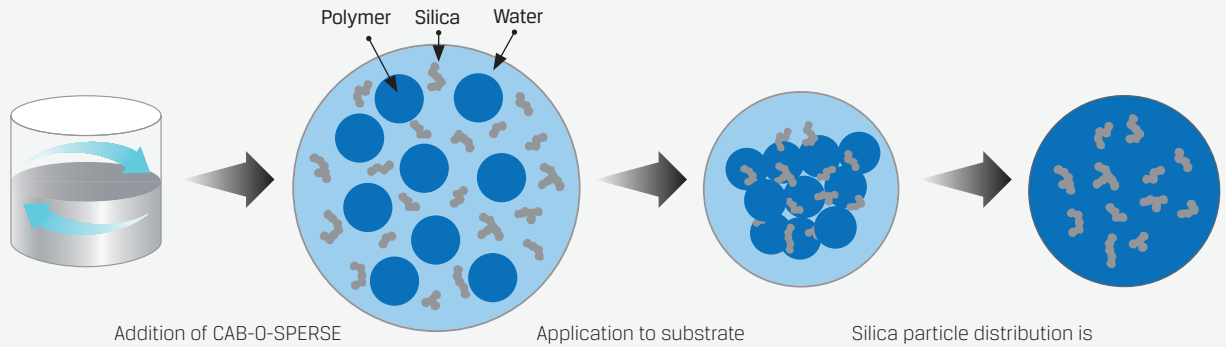
2. Ease of processing

- Increased throughput - shorter cycle time
- Less investment required in dispersion equipment
- Formulation flexibility - no additional dispersant required
- Easier flow control
- No dust during processing

3. Ultra-high purity

- Reduced risk of changes in performance caused by trace contaminants
- Compatibility with other formulation components
- Consistent and stable end properties

HOW DOES CAB-O-SPERSE DISPERSIONS WORK?



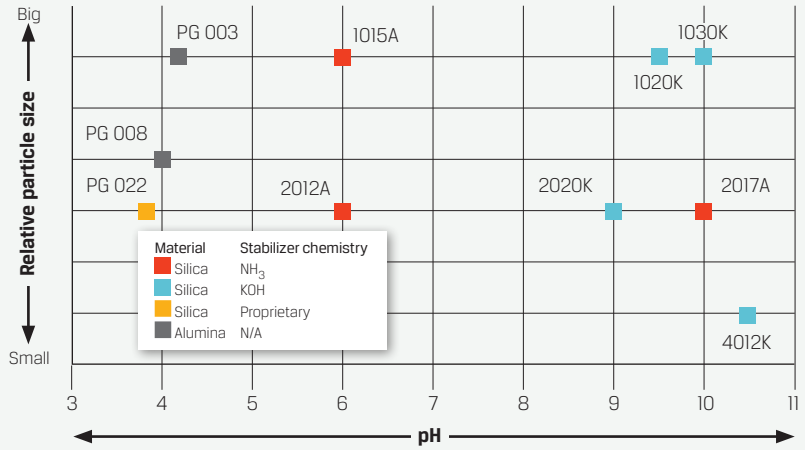
Addition of CAB-O-SPERSE to polymer latex yields stable hetero-particle dispersions with very low energy input

Application to substrate leads to concentration and coagulation

Silica particle distribution is maintained during drying and film coalescence

CAB-O-SPERSE PRODUCTS AND PROPERTIES

Product	Loading	Charge
1015A	15%	Anionic
1020K	20%	Anionic
1030K	30%	Anionic
2012A	12%	Anionic
2017A	17%	Anionic
2020K	20%	Anionic
4012K	12%	Anionic
PG 003	40%	Cationic
PG 008	40%	Cationic
PG 022	20%	Cationic



CAB-O-SPERSE DISPERSIONS

CABOT

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