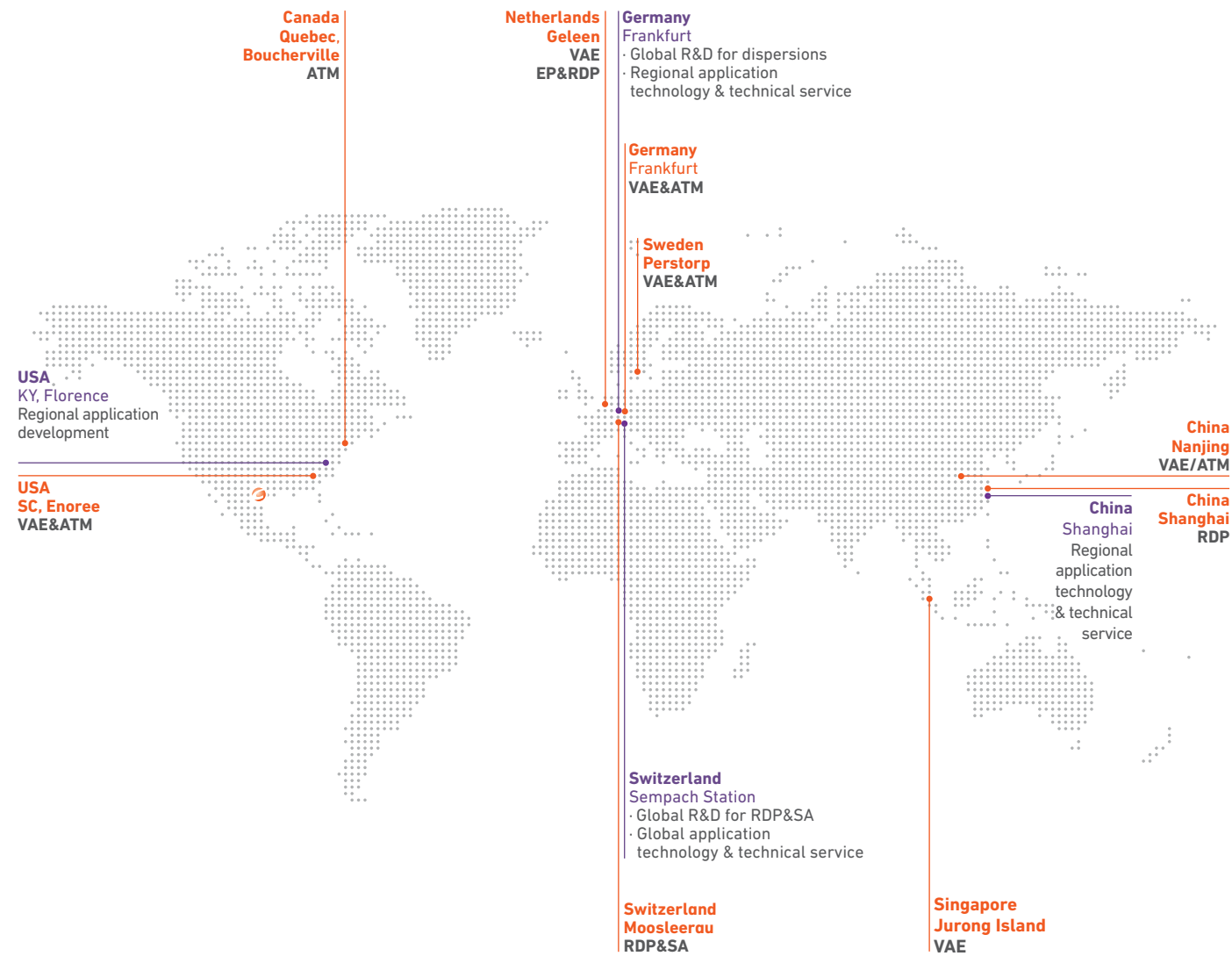







Emulsion Polymer Solutions

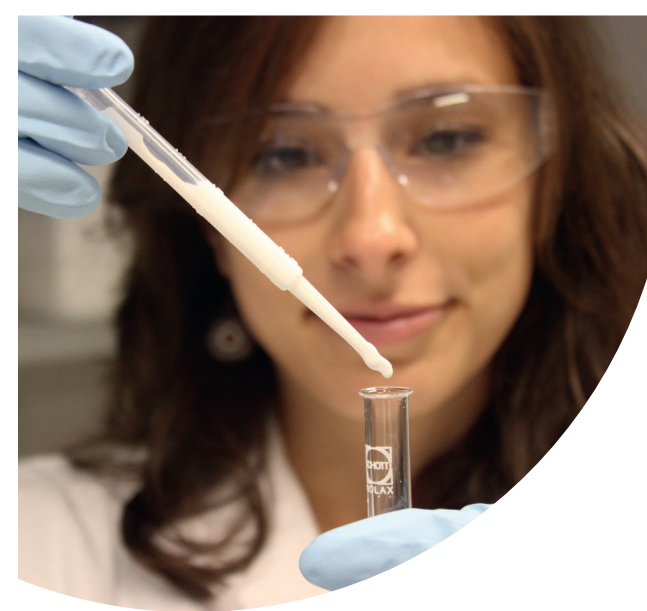
EMULSIONS GUIDE FOR NONWOVENS AND PAPER SPECIALTIES NORTH AMERICA

Global reach



-  Celanese Headquarter, Dallas, Texas, USA
-  Technology sites
-  Production sites

- ATM = Conventional (atmospheric)
- VAE = High-pressure, vinyl acetate/ethylene
- EP = Emulsion polymers
- RDP = Redispersible polymer powders
- SA = Specialty powder additives



Emulsions guide for Nonwovens and Paper specialities

The company

We are a global technology and specialty materials company based in Dallas, Texas, operating in key geographic locations worldwide.

We are continuously working on innovation and process improvement and are always looking for exciting new opportunities. In all the industries we serve, our products hold leading positions worldwide. We offer an advanced product portfolio complemented by large global production capacity, operating efficiencies, proprietary production technology and competitive cost structures.

Our two core business areas are:

- Acetyl Chain: acetic acid, vinyl acetate monomer, other acetyl derivatives such as solvents, plasticizer, maleic acid esters, polymer dispersions for paints & coatings, adhesives and specialty fibers, Redispersible Polymer Powder and EVA polymers for different applications
- Materials Solutions: Specialty thermoplastics, cellulose derivatives and food ingredients

Understanding customer and industry needs

The Celanese technical team consistently strives to meet the needs of our customers, including their formulated construction products. Our application development team has many decades of experience and expertise in this industry. We are constantly updating our laboratory with modern equipment to aid us in designing and adapting our products to meet real-world application profiles and enable product testing according to the latest standards and norms.

Advanced technology for a sustainable future

At Celanese, we are uniquely positioned to improve the world through the power of chemistry. As we embrace this opportunity, we demonstrate our deep sense of responsibility to keep people safe and help protect our planet. Combining innovation with chemistry, we are proud to make products for a safer, cleaner and less wasteful world. Our sustainability strategy is based on three pillars: advancing safe and sustainable customer solutions, investing in our people and communities and helping to preserve the environment.

Innovating with binders in Nonwovens

The Nonwovens industry is an end-use specific field, where functionality is key

For example, consumers may want both soft hand feel and high wet strength in one application, while in another, absorbency or reusability may be critical. Through our products, technical support and industry expertise, Celanese offers the ability to meet these demands in your dry laid and wet laid nonwovens.

Our goal is to help nonwoven producers meet their own manufacturing needs, those of the converter and the end-user alike. More importantly, we will help you drive value into your product that you can capture throughout the value chain. Ask Celanese how we can help you in both the disposables and durables categories of nonwovens with applications that include, but are not limited to, wet and dry wipes, filtration, medical drapes and gowns, automotive, lamination, high loft, acoustics and others.



Tailor-made functionality for your Nonwovens

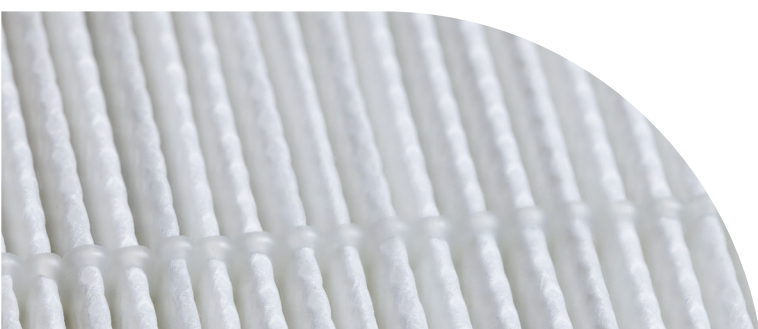
Our broad product portfolio and technical expertise allow Celanese to assist you in creating a wide variety of functional properties in your nonwovens. You can add wet or dry strength, softness or absorbency. You can improve the nonwovens' compatibility to lotions or impart solvent resistance. If you are looking for a particular function not listed below, feel free to call us and ask.

Celanese's emulsion binders feature a wide range of glass-transition temperatures (Tg) to impart enhanced softness to a wipe or a stiff structure to an interlining or filter. We offer a wide range of emulsion chemistries including vinyl acetate ethylene (VAE), vinyl acetate homopolymer (PVAc), vinyl acrylic and pure acrylic.

Emulsions for Nonwovens																														
Polymer	Polymer Type	Tg [°C]	Hand Feel	Emulsions properties						Durables					Disposables					Critical quality requirements								Polymer		
				Cross-linking	Solids [%]	pH	Viscosity [cps]	Particle Charge	Stabilization	Filter Media-Air	Filter Media-Liquid	Fiberglass mat	Fabric Laminates	Apparel	Absorbent Hygiene	Agricultural	Fabric Finishing	Wipes - Premoistened	Wipes - Food Service	Tabletop / Dry Towel	Abrasion Resistance	Absorbency	Colorant compatible	Compression Recover	Fiber Tie-Down	Delaminating Resistance	Heat Sealability		Wash Durability	Solvent Resistance
NACRYLIC® 4460	Acrylic	-30	Very soft	o	47	4	< 300	A	Surfactant					••			••													NACRYLIC® 4460
NACRYLIC® 4401	VA-Acrylic	-23	Very soft		49	5	< 500	N	Colloid				•						••							•			•	NACRYLIC® 4401
Dur-O-Set® ELITE 22	VAE	-15	Soft	o	50	4	< 500	A	Surfactant		••						••	••	•								•	•		Dur-O-Set® ELITE 22
Dur-O-Set® E-646	VAE	-12	Soft	o	52	5	< 500	A	Surfactant	••		•								•					•	•				Dur-O-Set® E-646
Dur-O-Set® A-802	VAE	0	Firm		62	4.5	< 2500	A	Colloid				••												•	•				Dur-O-Set® A-802
Dur-O-Set® 3068	VAE	10	Firm	o	55	5	< 1000	A	Surfactant						••						•	•	•	•	•					Dur-O-Set® 3068
Dur-O-Set® 909	VAE	15	Firm	o	50	4	< 500	A	Surfactant								•				•	•	•	•			•	•		Dur-O-Set® 909
HILOFT® AR-7	Acrylic	25	Stiff	o	45	3	< 100	A	Surfactant	•	•			•							•	•	•	•		•	•	•		HILOFT® AR-7
Dur-O-Set® 982	PVAc	30	Stiff	o	45	3	< 150	A	Surfactant	••												•	•	•				•		Dur-O-Set® 982
X LINK® 2038	PVAc	30	Stiff	o	51	5	< 6500	N	Colloid			••																•		X LINK® 2038
RESYN® 1072	PVAc	37	Stiff		63	5	< 2000	A	Starch																			•		RESYN® 1072

A = Anionic N = Nonionic

• Recommended •• Highly recommended



Specialty Paper Applications

We can provide value-added, cost-effective products, which will allow you to be more competitive while bringing performance advantages to a number of different specialty paper applications. For example, our chemistry for paper tape backings will give you a strong internal bond to avoid delamination, effective fiber tie-down to prevent pickouts, and excellent hold-out between your adhesive and your release coating.



Emulsions for Specialty Papers																									
Polymer	Emulsions properties									Paper saturation					Critical quality requirements										Polymer
	Polymer Type	Tg [°C]	Hand Feel	Cross-linking	Solids [%]	pH	Viscosity [cps]	Particle Charge	Stabilization	Filter Media-Air	Tapes & Label	Wallcovering	Overlays	Veneer backing	Abrasion Resistance	Burst Resistance	Compound-ability	Delaminating Resistance	Dimensional Stability	Fiber Tie-Down	Pleatibility	Solvent Resistance	Tear Resistance	Wet Tensile Strength	
X LINK® 2873	VA-Acrylic	-36	Very soft	o	45	4	< 500	A	Surfactant		•					•			•				•		X LINK® 2873
X LINK® 2833	VA-Acrylic	-15	Soft	o	45	4	< 500	A	Surfactant		••	••				•			•				•	•	X LINK® 2833
Dur-O-Cryl® 69A	Acrylic	10	Firm	o	45	3	< 100	A	Surfactant			•	••	•					•				•	•	Dur-O-Cryl® 69A
Dur-O-Set® C-310	PVAc	30	Stiff		55	5	< 2000	N	Colloid										•					•	Dur-O-Set® C-310
RESYN® 2828	PVAc	30	Stiff	o	52	5	< 6000	N	Colloid						•		•		•			•	•	•	RESYN® 2828

A = Anionic N = Nonionic

• Recommended •• Highly recommended





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