Celanese

The chemistry inside innovation™

CELANESE DISPERSIONS FOR ADHESIVES

PRODUCT PORTFOLIO EUROPE

Formulating your vision with our expertise

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 are offering an advanced product portfolio complemented by large global production capacity, operating efficiencies, proprietary production technology and competitive cost structures.

- Celanese is a real solution provider. We help our customers address problems and accelerate product development or deliver new solutions for their customers.
- Celanese is a company of world-class chemists, material and polymer scientists, engineers, operators and professionals across the globe.
- Celanese is represented by diverse backgrounds and cultures with diverse capabilities and expertise.
- Celanese is closely watching market and industry trends, as well as regulatory requirements, to be at the forefront of innovation. Celanese is ready to help you meet your requirements for high-quality waterborne coatings and adhesives.

Core business areas

- Acetyl Chain: acetic acid, vinyl acetate monomer, other acetyl derivatives, EVA polymers, emulsions polymers, redispersible polymer powders and specialty additives & Acetate Tow: cellulose derivatives
- Engineered Materials: specialty thermoplastics and food ingredients

Celanese Emulsion Polymers

- Manufacturer of both high-pressure (vinyl acetate ethylene, VAE) and conventional (atmospheric, ATM) dispersions
- Global expertise in its wide array of applications
- Partnering with our customers to fulfil real industry and consumer needs

Celanese Emulsion Polymers is one of the largest and most experienced suppliers of dispersion technology for waterborne coatings in the world. We have been an active leader in paints & coatings, adhesives and several other application areas for decades, and we have gained deep understanding of the markets, products, applications and issues affecting our industry today.

Advanced technology for a sustainable future

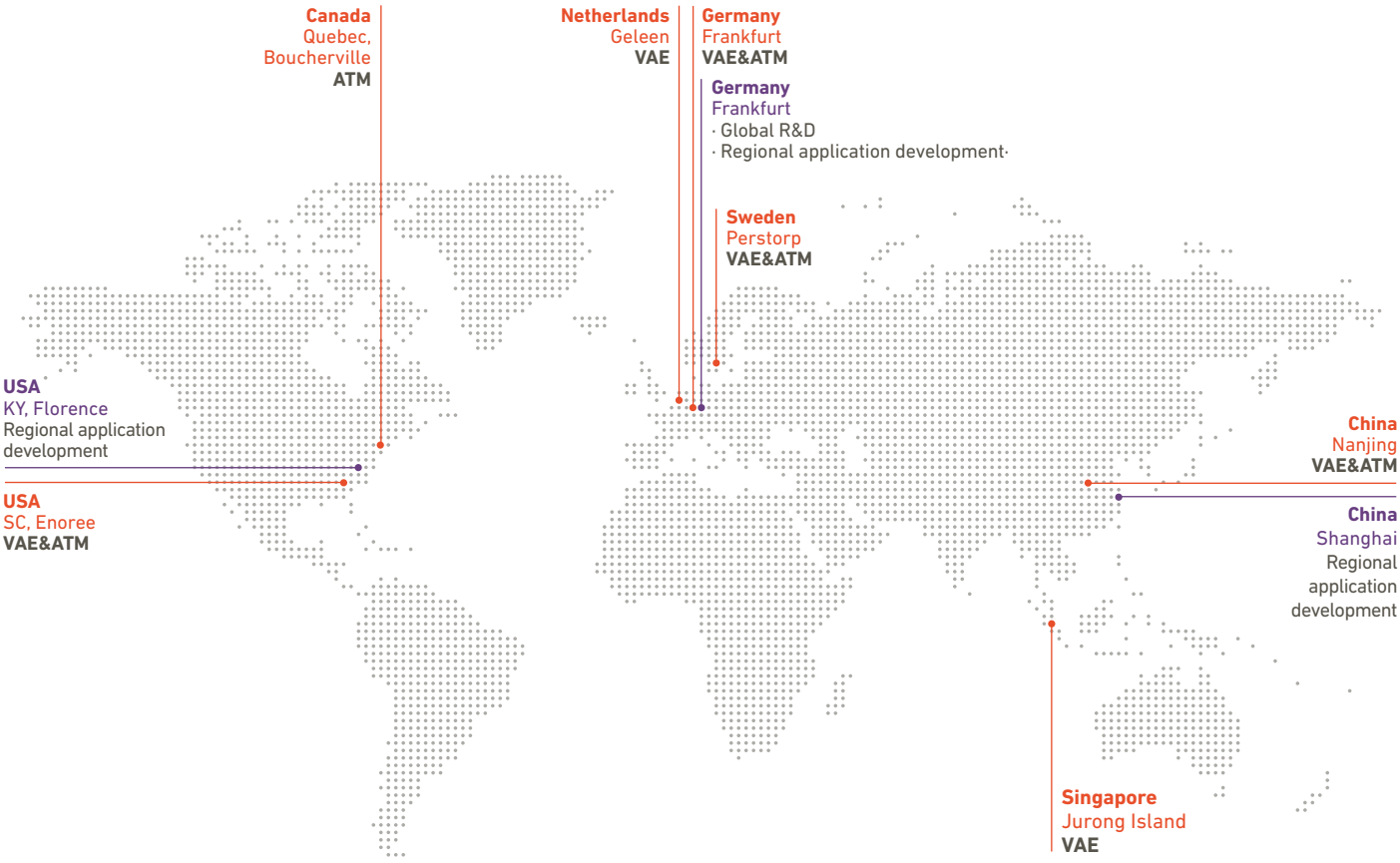
Celanese offers high-performance dispersions for the entire coatings and adhesives market. These water-based dispersions do not contain solvents or plasticizers. This leads to lower emissions, lower odor and a lower environmental impact.

Our Acetyl Chain is backwards integrated into predominately Single Carbon (C1) chemistry with a global supply network. Our C1-based chemistry, in combination with our integrated supply network allows Celanese to offer a wide variety of advantaged sustainability options across most of the Celanese Acetyl Chain portfolio.

We also offer solutions which have the potential to support positive environmental impacts by helping our customers to design more efficient, longer lasting products. These solutions may not contain sustainable content or be sustainably produced but can contribute to end-state sustainability benefits.

Global reach

The global research and development center for Celanese dispersions (Frankfurt Technology Center) is located in Germany. The center closely cooperates with the other Celanese regional application development centers in Florence, USA and in Shanghai, China. These regional facilities enable us to rapidly develop new products and to assist customers in the region with their development projects. We have manufacturing plants and technical support in all major regions.



Technology sites

Manufacturing sites

VAE = High-pressure, vinyl acetate/ethylene

ATM = Conventional (atmospheric)

Dispersions for the paper packaging & converting industry

Today, high-quality adhesives must meet critical requirements such as a balanced adhesion/cohesion profile, setting speed, runnability and many more to meet both market demands and machine process efficiency.

Celanese has developed a wide range of dispersions to help you formulate high-performance adhesives for many end-use applications such as:

- Paper and card-boards
- Coated boxes
- Envelopes and padded shipping bags
- Foil and glossy foil lamination
- Tobacco products

Mowilith® DC

Especially for heat sealable adhesives with suitable activation at higher temperature for paper packaging with food contact requirements.

Mowilith® DC is a vinyl acetate homopolymer dispersion, stabilized only with hydroxyethyl cellulose ether and has low viscosity, good shear stability and very high blocking resistance.

Mowilith® LDM 1042

Particularly suitable for the formulation of very low-viscosity, plasticizer-free and low-migration paper packaging adhesives, e.g. for folding cartons and graphics.

Mowilith® LDM 1042 is a vinyl acetate ethylene dispersion, stabilized with emulsifier and polyvinyl alcohol and has a very high dilutability without settling, excellent water and heat resistance as well as good machinability and cleanability.

Mowilith® LDM 1081

The universal dispersion for the formulation of paper packaging adhesives, offering good performance properties in all application methods such as rollers, wheels, low and high pressure electromagnetic valves and especially for spray nozzle applications.

Mowilith® LDM 1081 is a vinyl acetate ethylene dispersion, stabilized with emulsifier and polyvinyl alcohol. This grade has excellent adhesion properties on difficult substrates, combined with high heat resistance, and optimal machine operating properties such as low dirt pickup and tailing for low mainentance.

Adhesives for the woodworking industry

Celanese dispersions help you meet your specific requirements for water, heat and creep resistance, setting speed and other formulation goals.

That's why we offer a wide range of VA and VAE dispersions as the basis for your adhesives for woodworking in the DIY and industrial sectors.

Additionally, we provide a number of ready-to-use VA polymers, such as the D2 grade Mowilith® DLR, the D3 grades Mowilith® LDL 2523 W S, Mowilith® LDL 2526 W, Mowilith® LDL 2555 W, Mowilith® LDL 2559 W and the latest development, Mowilith® DHF 5760 S which – of course – fulfills current market needs for reduced formaldehyde content. The portfolio is complemented with an 1-component high water resistant D4 wood glue that is based on our non-formaldehyde-releasing cross-linking technology of Mowilith® LDL 1401 W.

Our broad product range comprises a wide collection of dispersions for many end-use wood adhesive applications:

- Furniture
- Window frames
- Decor paper bonding
- PVC furniture film lamination
- Tobacco products

Mowilith® DHF 5760 S

A new ready-to-use, water resistant D3 wood glue for fast setting applications and particularly suitable for the manufacturing of honeycomb structures as used in doors, furniture and other constructions where low formaldehyde emissions are required.

Mowilith® DHF 5760 S is a vinyl acetate homopolymer dispersion with cross-linking functionality, stabilized with polyvinyl alcohol and shows low pseudo-plasticity and thixotropy.

Mowilith® DHLR 1

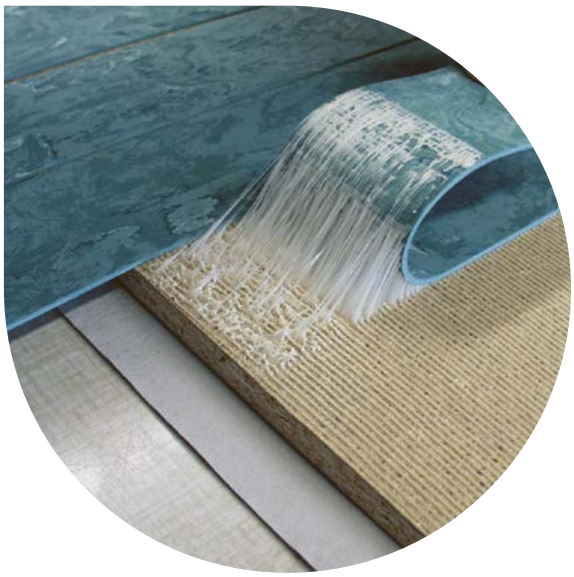
Our new ready-to-use wood glue for fast setting applications of complex wood furnitures such as joinery corpus laminations and chairs (handcrafted and machine applications) and where high creep resistance, bond strength and low formaldehyde emissions are required.

Mowilith® DHLR 1 is a vinyl acetate homopolymer dispersion stabilized with polyvinyl alcohol. It contains triacetin as plasticizer which allows also the usage in various food contact applications.

Other applications -
Solutions for further end-uses

Celanese dispersions can be used in a variety of industrial end-uses. The portfolio for adhesives applications also includes the right product for

- Flooring installations
- Automotive interieur glues



Mowilith® LDM 1365
is made for flooring adhesive formulations and benefits due to its high solid content, very low Tg, medium viscosity and excellent adhesion properties.

Mowilith® LDM 1365 is a terpolymer dispersion based on vinyl acetate, ethylene and acrylic, stabilized with emulsifier and polyvinyl alcohol and is compatible with other standard VAEs.

Review our product guide to locate the most suitable dispersion for your specific application. Please also consider other brochures of Celanese emulsions.

For more information, feel free to contact your Celanese representative today.

Product testing & technical service

Our passion – supporting customer's needs

Understanding customer and industry needs

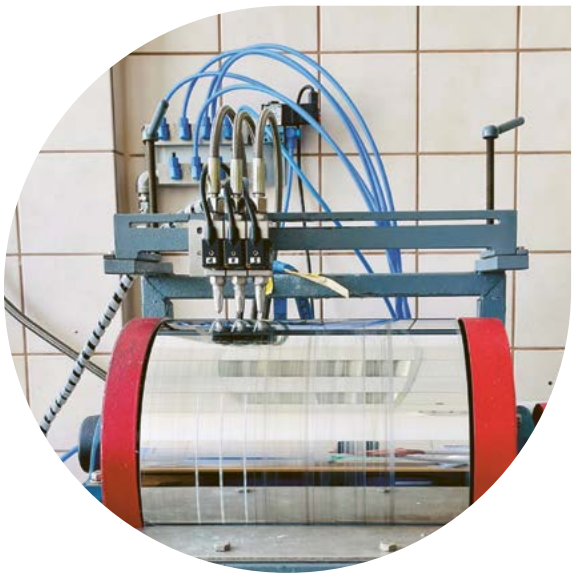
The Celanese technical team worldwide consistently strives to meet the needs of our customers, including their formulated final products. Our application development team has many decades of experience and expertise in formulation development, testing and assessment of adhesive products. We are constantly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

Always a step ahead when it comes to innovation

Celanese is backwards integrated, always has its finger on the pulse and is a trustful partner in the industry. As a market leader, Celanese continuously invests in the development and improvement of new products and processes, supported by large and well equipped analytical laboratories and application departments.

We would be delighted to share our latest advances with you and provide you with the right tools to support your new developments!

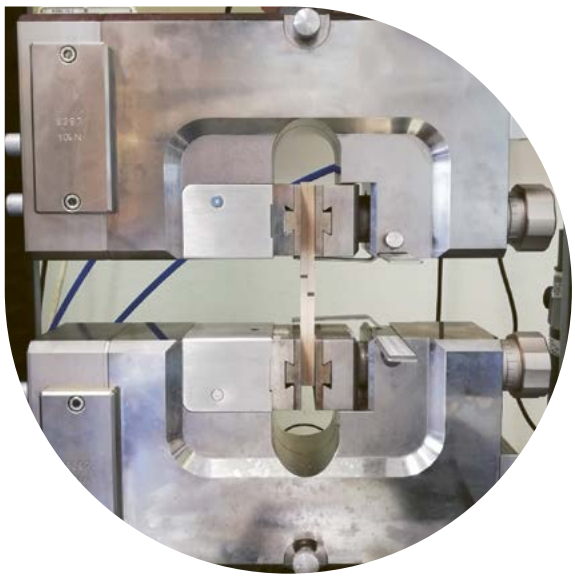
Nozzle application test - Paper & Converting



Creep resistance test - Wood Processing

Tipping application test - Paper & Converting

Bonding resistance test - Wood Processing



Product overview

Vinyl Acetate

Product	Chemical base	Stabilization*	Solids content (%) ISO 3251*	Brookfield viscosity (mPa·s) (25 °C) ISO 2555*	Tg approx. (°C) ISO 16805	MFFT approx. (°C) ISO 2115	pH ISO 976*	Features/Benefits
Vinyl Acetate								
Mowilith® DHS S1	VA	PVOH	49–51	30000–60000	41	13	3.5–5.5	Very high-viscosity, fast setting, non-tacky, high heat resistance
Mowilith® LD 167	VA	PVOH	59–61	20000–40000	41	13	5.0–6.0	Shear stable, very fast setting, high heat resistance
Mowilith® DC	VA	C	55–57	1000–4000	41	15	4.0–5.0	Base for heat-sealable adhesives, high block resistance
Vinamul® 8482	VA	PVOH	54–56	2500–4500	41	14	4.0–5.0	Low-viscosity with high solid content, fast setting
Vinamul® 8330	VA	Dextrin	64–66	800–1800	33	11	4.0–5.0	Dextrin-stabilized, high gloss, base for re-moistenable bondings
Mowilith® DHLR 1	VA	PVOH	49–51	17000–25000	32	6	5.0–7.0	Ready to use adhesive, fast-curing, creep resistance according to DIN EN 14256, suitable for laminating carcasses (seating furniture)
Mowilith® DLR	VA	PVOH	49–51	9000–21000	27	3	5.5–7.5	D2 adhesive, ready to use
Mowilith® LDL 2523 W S	VA	PVOH	44–46	8000–14000	26	5	3.0–3.6	D3 adhesive, ready to use, foamable
Mowilith® LDL 2526 W	VA	PVOH	44–46	12000–20000	27	4	2.8–3.4	D3 adhesive, ready to use, foamable
Mowilith® LDL 2555 W	VA	PVOH	49–51	9000–15000	30	5	2.8–3.6	D3 adhesive, ready to use, high heat resistance, D4 adhesive by adding Isocyanate
Mowilith® LDL 2559 W	VA	PVOH	50–52	11000–18000	30	5	2.8–3.6	D3 adhesive, ready to use, high heat resistance, D4 adhesive by adding Isocyanate
Mowilith® DHF 5760 S	VA	PVOH	55–58	7000–13000	29	6	2.8–3.3	D3 adhesive, ready to use, fast setting
Mowilith® LDL 1401 W	VA	PVOH	48–52	3000–9000	29	10	2.8–3.5	1K D4 adhesive, ready to use, high heat resistance, good storage stability

A = Acrylate, VA = Vinyl acetate, VAE = Vinyl acetate ethylene, C = Cellulose derivative, E = Emulsifier, PVOH = Polyvinyl alcohol
MFFT = Minimum film forming temperature, Tg = Glass transition temperature, * Standard adapted to Celanese method

Paper & Converting						Wood Processing						Other Applications		
Paper & card-board	Coated boxes	Envelopes, padded shipping bags	Foil lamination	Glossy foil lamination	Tobacco industry	D1 non water-resistant	D2 water-resistant	D3 water-resistant	D4 water-resistant	Decor paper bonding	PVC furniture film lamination	Flooring	Automotive	Product
••						••				••		•		Mowilith® DHS S1
••						••				••		•		Mowilith® LD 167
••														Mowilith® DC
••						••				••				Vinamul® 8482
•		••												Vinamul® 8330
•						••								Mowilith® DHLR 1
							••							Mowilith® DLR
														Mowilith® LDL 2523 W S
								••						Mowilith® LDL 2526 W
								••	•					Mowilith® LDL 2555 W
								••	•					Mowilith® LDL 2559 W
								••						Mowilith® DHF 5760 S
									••					Mowilith® LDL 1401 W

• Recommended •• Highly recommended

Product overview

Vinyl Acetate Copolymer & Acrylate

Product	Chemical base	Stabilization*	Solids content (%) ISO 3251*	Brookfield viscosity (mPa·s) (25 °C) Brookfield, ISO 2555*	Tg approx. (°C) ISO 16805	MFFT approx. (°C) ISO 2115	pH ISO 976*	Features/Benefits
Vinyl Acetate Ethylene Copolymer								
Mowilith® DM 105	VAE	E/PVOH	54–56	5500–9500	6	0	4.0–5.5	Fast setting, excellent wheel application, good water resistance
Mowilith® DM 107	VAE	E/PVOH	59–61	3000–7000	1	0	3.0–5.0	Fast setting, high long-term stability and heat resistance, excellent adhesion to furniture foils
Mowilith® DM 132	VAE	E/PVOH	59–61	4000–10000	-11	0	3.0–5.0	Good shear resistance, excellent adhesion on films and foils as well as on printed and lacquered surfaces
Mowilith® DM 1340	VAE/A	E/C	64–66	1000–3000	-10	0	3.0–5.0	Very good cohesion even at high temperatures, good adhesion to difficult surfaces, compatibility with PU dispersions
Mowilith® LDM 1042	VAE	E/PVOH	54–56	2500–4000	10	0	4.0–5.5	Fast setting, very high dilutability without settling
Mowilith® LDM 1081	VAE	E/PVOH	52–55	5000–9000	-6	0	5.0–6.0	Good adhesion to difficult substrates, high heat resistance, excellent suitability for nozzle application with low dirt pick up
Mowilith® LDM 1365	VAE/A	E/PVOH	59–61	2000–10000	-28	0	4.5–6.5	Excellent adhesion and compatibility with standard VAEs
Vinamul® 3161	VAE	E/PVOH	58.5–61	3500–7000	3	0	5.0–7.0	Fast setting, high long-term stability and heat resistance, excellent adhesion to furniture foils
Vinamul® 3171	VAE	PVOH	54–56	2000–2800	5	0	4.0–5.0	Fast setting, versatile in application
Vinamul® 3175	VAE	PVOH	54.5–56.5	2000–3500	5	0	4.5–5.5	Fast setting, versatile in application, with alternative and Isothiazolinone-free preservation
Vinamul® 3231	VAE	E	49–51	50–400	-2	0	4.5–6.0	Excellent thickening for textile bonding, hydrophobic properties, can be crosslinked with duroplastics, suitable for various application techniques, heat-sealable
Vinamul® 3265	VAE	PVOH	54–56.5	3000–4000	11	0	4.0–5.0	Fast setting, high wet tack, high heat resistance, redispersible, excellent adhesion to polar surfaces, particularly suitable for clean and low-maintenance high-performance processes
Vinamul® 3928	VAE	E/PVOH	59–61	400–1500	10	0	4.0–6.0	Very good compatibility with fillers, foamable
Acrylate								
Mowilith® LDM 7319	A	E	54–56	100–1000	-22	0	5.5–7.0	Excellent adhesion on various foils, particularly suitable for glossy foil lamination

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Paper & Converting						Wood Processing						Other Applications		
Paper & card-board	Coated boxes	Envelopes, padded shipping bags	Foil lamination	Glossy foil lamination	Tobacco industry	D1 non water-resistant	D2 water-resistant	D3 water-resistant	D4 water-resistant	Decor paper bonding	PVC furniture film lamination	Flooring	Automotive	Product
●●	●		●							●	●●	●		Mowilith® DM 105
●●	●		●							●	●●	●	●	Mowilith® DM 107
●●	●●	●●	●●									●		Mowilith® DM 132
												●●	●	Mowilith® DM 1340
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	●		●							●	●●			Vinamul® 3161
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	●			●●										Mowilith® LDM 7319

● Recommended ●● Highly recommended

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EMULSION POLYMERS

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