

## High-performance emulsions for high-performance **adhesives**



A global leader supplying world-class emulsions.

Celanese Emulsion Polymers manufactures, markets and sells a broad range of products in all 3 major regions of the world with plants located across Europe, North America and China to supply adhesive manufacturers globally.

Experience and innovation in adhesives

For decades, Celanese Emulsions’ polymers have been vital components of high quality adhesives and construction products throughout the world. Today, the green initiative in the adhesive industry will require new and creative approaches to meet increasingly demanding requirements. Celanese Emulsions is ready to help meet your challenges.

Celanese Emulsions’ research and development center is part of the Frankfurt Technology Center in Germany. These world-class facilities enable rapid development of new products as well as customisation of products for the various regions.

To ensure the quickest response and the best expertise, our adhesive customers are assisted regionally by our technical

service specialists. Our goal is to help our customers drive value into their products by providing performance-based solutions, including world-class emulsion products.

Wood adhesives

Water-based, environmentally-friendly emulsions are fast becoming the preferred component in adhesive products. Celanese Emulsions can help you find the right solution for waterborne adhesive woodworking applications, including those requiring good water and heat resistance properties.

We offer a variety of emulsions for products ranging from common wood glue to high-performance adhesives featuring water, creep and heat resistance and furniture foil lamination. For common wood glue applications, we offer Mowilith® DHS-S1. More specific applications with requirements such as high heat resistance are addressed by our high-performance D3 product, Mowilith LDL 2555 W, which offers an exceptional balance of properties for the woodworking industry.

Wood Working - Typical Emulsion Properties

Product	Polymer Type	Tg (°C)	MFFT (°C)	% Solids	Brookfield Viscosity (mPas)	pH	Stabilisation	BFR	FDA
Mowilith® DLR	PVAC	25	3	50	9000-21000	5.5-7.5	PVOH	-	-
Mowilith® DHS S1	PVAC	38	14	50	30000-60000	3.5-5.5	PVOH	XIV Part A	175.105 176.170 176.180
Mowilith® LDL 2510 W	PVAC	27	4	48	18000-26000	5.5-6.5	PVOH	-	-
Mowilith® LDL 2530 W	PVAC	26	4	49	8000-16000	5.5-6.5	PVOH	-	-
Mowilith® LDL 2555 W	PVAC	27	4	50	9000-15000	2.8-3.5	PVOH	-	-

Product	Features/Benefits	Suggested Applications				
		D1	D2	D3	D4	DIN EN 14257 (Watt 91)
Mowilith® DLR	Fast setting speed combined with high wet tack. High filler acceptance. Water resistance according to EN 204 D2, RFU.		•			
Mowilith® DHS S1	Fast setting speed combined with high wet tack. High filler acceptance. High heat resistance.	•				
Mowilith® LDL 2510 W	2K D4. WATT 91 compliance. Low formaldehyde, long open time.				•	•
Mowilith® LDL 2530 W	Long pot life, low formaldehyde, low wood discoloration. WATT 91. 2K D4 glue.				•	•
Mowilith® LDL 2555 W	Water resistance according to EN 204 D3, Watt 91 [Class D4 achievable using di-isocyanate] Good creep resistance.			•	•	•

NB: All of the Mowilith types show very high remaining tensile strength after plasticiser add on.

## Paper packaging and converting

Celanese Emulsions offers high-performance paper packaging and converting emulsions that will help your adhesives achieve good machining, and that are versatile enough to use with a variety of application methods (from rollers to nozzles) for effective application to difficult substrates. Our versatile emulsions can be formulated to many adhesive applications including: paper, board, film, foil, envelopes, book making and folded boxes. Products include:

- Mowilith LDM 1081 is specially designed for clean running on contact-free nozzle applicators; it provides good adhesion to difficult substrates and offers excellent performance across the entire range of application methods.
- Mowilith DM 132 is characterised by extremely high wet tack and designed for adhesion to difficult substrates such as coated paper, PS, CA, PET or treated OPP.
- Mowilith DHS-S1 is used to manufacture quick-setting paper adhesives for paper packaging and converting when used in combination with plasticisers.



The following table contains additional information on emulsions that represent a selection from our wide offerings for adhesives.

## Paper Packaging and Converting - Typical Emulsion Properties

Product	Polymer Type	T <sub>g</sub> (°C)	MFFT (°C)	% Solids	Brookfield Viscosity (mPas)	pH	Stabilisation	BFR	FDA
Mowilith® DHS S1	PVAC	38	14	50	30000-60000	3.5-5.5	PVOH	XIV Part A	175.105 176.170 176.180
Mowilith® DM 132	VAE	-8	0	60	4000-10000	3.0-5.0	PVOH/E	XIV Part A	176.170 176.180
Mowilith® LDM 1081	VAE	-6	0	54	4500-9000	4.5-6.0	PVOH/E	XIV Part A	175.105 176.170 176.180
Vinamul® 3253	VAE	8	0	55	2500-4000	4.0-5.0	PVOH/E	XIV Part A	175.105 176.170 176.180
Vinamul® 8330	PVAC	25	7	65	1200-2000	4.5-5.0	Dextrin	XIV Part A	-

Product	Features/Benefits	Suggested Applications						
		Paper & board	Sacks & bags	Film & foil	UV board	Envelopes	Book binding	Folded boxes
Mowilith® DHS S1	Fast setting speed combined with high wet tack. High filler acceptance. High heat resistance. Very good machining.	•	•					•
Mowilith® DM 132	High adhesion and extremely high wet tack on rolling ball. Good machining on open nozzle, segment and roller devices.			•	•	•	•	
Mowilith® LDM 1081	Very good machining. High adhesion and general purpose. High heat resistance. Excellent spray and jet performance.	•	•	•	•	•	•	•
Vinamul® 3253	High adhesion when plasticised. Good machining on roller and wheel applicator.			•	•	•		•
Vinamul® 8330	Fast drying. High gloss film. Easy remoistenability. Tropical resistance.	•			•			

NB: All of the Mowilith types show very high remaining tensile strength after plasticiser add on.

# Celanese

## Look into the future of adhesives with Celanese Emulsions.

Celanese Emulsion Polymers is committed to delivering performance-based solutions to our customers every day. From innovation in our R&D facility to industry expertise in our technical service team, we are ready to help you meet tomorrow's challenges and capitalise on those business opportunities. As a leader in emulsions for ecologically-friendly, waterborne adhesives, we are ready to help adhesive manufacturers in Eastern Europe meet environmental challenges and capitalise on the growing consumer trend toward "green" products.

Celanese Emulsions offers state-of-the-art products for the adhesives market with world-class quality and backed by expert technical service. From production in Europe, China and North America to technical centers in all 3 major regions of the world, we are ready to help you meet your adhesive product and marketing goals.

In our efforts on behalf of the adhesives industry, we are supported by the Celanese organisation worldwide. Celanese is a global, hybrid chemical company making products essential to everyday living. Our products, found in consumer and industrial applications, are manufactured in North America, Europe and Asia. Based in Dallas, Texas, net sales totaled \$6.4 billion in 2007. Our stock is listed on the New York Stock Exchange as CE.

### Integrated supply and market leadership

- ▶ Acetic Acid – A leading producer worldwide
- ▶ Vinyl Acetate Monomer (VAM) – A leading producer worldwide
- ▶ Polyvinyl Alcohol – A leading producer worldwide
- ▶ Emulsions – A leading producer in Vinyl Emulsions

We're investing in new facilities.  
We're developing new technology.  
We're committed to your future.

*Your future is our focus...worldwide.*

Natalia Nikolaevskaya, Account Manager  
Moscow, Leninskij pr. 113/1  
Office D 105, Ticona  
Tel: (495) 9565365, Fax: (495) 9565366  
Mob: 8-916-69366177  
nikolaevskaya@ticona.ru

Michael Sauer, Regional Sales Director for Central &  
Eastern Europe  
Celanese Emulsions GmbH  
D-65926 Frankfurt am Main  
Tel: +49 69 305 -5080, Fax: +49 69 305 -81473  
Michael.Sauer@Celanese.de

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