

# DEGACRYL<sup>®</sup> HS

Designed Polymers for heat sealing applications



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### METHACRYLATE BINDERS FOR HEAT SEALING APPLICATIONS

With its DEGACRYL® HS binders Evonik offers a unique product portfolio of functional methacrylic co-polymers. These binders represent an excellent solution for heat sealing applications in the packaging industry.

**Our functional binders can be divided into three groups based on their appearance:**

- **DEGACRYL® HS - Organic Solutions**
- **DEGACRYL® HS - Organic Dispersions**
- **DEGACRYL® HS - Aqueous Dispersions**

Our DEGACRYL® HS binders are ideally suited for the formulation of high-quality heat seal coatings to provide an excellent and secure sealing in combination with smooth peeling.

DEGACRYL® HS organic dispersions provide direct adhesion to aluminum or PET lidding material for economical and environmentally friendly packaging solutions.

All common cup materials from polar polystyrene to non-polar polypropylene can be sealed, PET and PLA included. All products comply with international regulations for food contact. DEGACRYL® HS organic solutions, dispersions as well as aqueous dispersions can be supplied in drums, IBCs or tank trucks.



### YOUR BENEFITS AT A GLANCE

- Excellent seal and peel properties on aluminum foil or film structures
- Outstanding smooth peel effect
- Wide property range: from easy opening to high sealing strength
- Multi-purpose sealing capabilities to various substrates
- Economical and environmental friendly packaging solutions

### ANALYTICAL METHODS

#### Solid Content

Determination according to DIN EN ISO 3251.

#### Viscosity Number

Determination according to DIN 51562 respectively DIN EN ISO 1628-1.

#### Dynamic Viscosity

Determination according to DIN EN ISO 3219.

#### Glass Transition Temperature (T<sub>g</sub>)

Determination according to DIN 53765 respectively DIN EN ISO 11357-1.

#### Molecular Weight (M<sub>w</sub>)

Determination according to DIN 55672-1.

#### Density

Determination according to DIN EN ISO 1183-1.

#### Flash Point

Determination according to DIN EN ISO 1523.



# DEGACRYL® HS provides benefits for a variety of lidding materials

## PAPER/PET LIDDING



- No PVC-copolymer required
- Direct adhesion to PET or aluminum
- Easy to use
- Optimized for low coating weight
- Enables PET mono packaging
- One-step process = cost savings in PET coating
- Seals on common substrates like PS, PET, PVC, PLA & PBT
- High solid content leads to increased productivity

## ALUMINUM LIDDING



- Copolymers free of ethylidene norbornene
- No PVC-copolymer required
- Low dynamic viscosity level
- Improved rub-off resistance
- No restrictions for any filling good
- PVC-free packaging
- High solid content leads to increased productivity
- Less cleaning and more production cycles means more output!



## TRANSPARENT PET LIDDING

- Direct adhesion to PET
- No primer needed
- Low haze binder for high transparency
- One-step process = cost savings in PET coating
- Seals versus common substrates like PET, PS, PVC, PVdC, PLA and PBT
- Recyclability: Enables single PET packaging, e.g. PET-film vs. PET-tray
- Anti-fog properties achievable by adding corresponding additives



## UNIVERSAL LIDDING

- No PVC-copolymer required
- Copolymers free of ethylidene norbornene
- Low dynamic viscosity level
- Improved rub-off resistance
- No restrictions for any filling good
- PVC-free packaging
- High solid content leads to increased productivity
- Less cleaning and more production cycles means more output!



**Product Information**

	Properties						Adhesion to Aluminum			Adhesion to PET			Sealable versus				
	Solvent	Solid Content [%]	Viscosity Number [cm³/g]	Dynamic Viscosity [mPa·s]	Dilutability <sup>1)</sup>	Glass Transition Temperature (Tg) [°C]	Direct	Primered with PVC <sup>2)</sup>	In formulation with PVC	Direct	Primered with PES <sup>3)</sup>	Formulation with PVC required <sup>4)</sup>	PVC	PS	PP	PET	PLA <sup>5)</sup>
<b>Organic Solution</b>																	
4792 L	Methyl ethyl ketone	53 - 57	40	1.500 - 4.000	E, K	48		●	●		●	●	●	●			
<b>Organic Dispersion</b>																	
555	n-Butyl acetate/ Methyl ethyl ketone 70/30	44 - 46	163	500 - 1.500	E, K	-48, 29		●	●		●		●	●	●	●	●
4220 E*	n-Butyl acetate/ Methyl ethyl ketone 70/30	44 - 46	117	500 - 2.500	E, K	-52, 43		●	●		●		●	●	●	●	●
4150 E	n-Propyl acetate/ Ethyl acetate/Isooctane 54/36.5/9.5	42 - 44	147	800 - 2.500	E, K	-48, 33		●	●		●		●	●	●	●	●
4250 E*	n-Propyl acetate/ Ethyl acetate/Isooctane 52/39/9	44 - 46	144	800 - 3.500	E, K	-55, 45		●	●		●		●	●	●	●	●
666	n-Butyl acetate/ Methyl ethyl ketone 70/30	44 - 46	157	1.000 - 3.500	E, K	-51, 29	●				●		●	●	●	●	●
4221 E*	n-Butyl acetate/ Methyl ethyl ketone 70/30	44 - 46	126	1.000 - 4.000	E, K	-52, 32	●				●		●	●	●	●	●
4151 E	n-Propyl acetate/ Ethyl acetate/Isooctane 47.8/43.8/8.4	39 - 42	142	500 - 2.000	E, K	-51, 30	●				●		●	●	●	●	●
4251 E*	n-Propyl acetate/ Ethyl acetate/Isooctane 53/38/9	44 - 46	142	1.000 - 4.000	E, K	-51, 44	●				●		●	●	●	●	●
4313 E*	n-Propyl acetate	44 - 46	71	500 - 3.000	E, K	-54, 42	●				●		●	●		●	●
4322 E*	n-Propyl acetate/ Methyl ethyl ketone 75/25	39 - 41	48	1.500 - 8.000	E, K	57	●				●		●	●		●	●
4174 E	n-Propyl acetate/ Ethyl acetate/Isooctane 49/42.5/8.5	46 - 48	171	1.000 - 3.500	E, K	-48, 33	●				●		●	●	●	●	●
4294 E*	n-Propyl acetate/ Ethyl acetate/ n-Heptane/ tert-Butyl acetate 64/26/5/5	50 - 53	136	800 - 3.500	E, K	-52, 43	●				●		●	●	●	●	●
<b>Aqueous Dispersion</b>																	
4240 D*	Water	49,5 - 52	not determined	100 - 500	W	15, 49	●						●	●			●

\*) New products subject to minor modification (formerly marked "VP")

<sup>1)</sup> E = Esters, K = Ketones, W = Water

<sup>2)</sup> PVC adhesion promoter like Vinnol® terpolymer grade from e.g. Wacker Chemie AG, Burghausen, Germany

<sup>3)</sup> Polyester like Dynapol® L 206 oder L 208 from Evonik Industries AG, Marl, Germany

<sup>4)</sup> to achieve good adhesion on primered PET film

<sup>5)</sup> PLA (Poly lactic acid)

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