

Raw Materials for Pressure-Sensitive Adhesives



 **BASF**

We create chemistry

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Best adhesion properties for all applications

BASF is a worldwide leading manufacturer of raw materials for pressure-sensitive adhesives. Our water-based polymer dispersions and UV-curable acrylic hotmelts as well as our additives offer excellent solutions for producing high-quality self-adhesive products such as labels, films and tapes. Additionally, we offer coater-ready (CR) solutions for the most important coater technologies. Together with our customers, we are developing today the solutions for tomorrow.

We are constantly developing and introducing new products in accordance with current market requirements. If you need sophisticated pressure-sensitive adhesives (PSA), we not only support you with state-of-the-art raw materials but also with regulatory expertise and consistently high standards in terms of reliability and safety, gained from many years of experience.

Adhesives need to meet an ever-expanding range of requirements, which constantly leads to new challenges for the adhesive industry. By continuously improving the performance of our adhesive raw materials, we open up new fields of application for our customers.

This is how BASF is helping adhesive manufacturers become even more successful – chemistry creates bonds in more than one sense of the word.



Labels

We offer a wide range of acrylic polymer dispersions and UV-curable acrylic hotmelts, which are used in the production of PSA for both paper and filmic labels. The consistent quality of our Acronal® dispersions as well as their high mechanical stability allow our customers to keep their production constant, minimizing adhesive-related production downtimes. Adequate cohesion at high adhesion levels provides a trouble-free converting process.

We develop our products using the know-how of our dedicated R&D resources as well as our team of coating experts, constantly looking for ways to improve the coating technology. Gravure and curtain coating heads for general purpose permanent (GPP) or Alltemp Labels, a slot die for UV-curable acrylic hotmelts are just some examples of the different options we can offer our customers for trials simulating realistic production conditions.

Whether you produce high-end clear filmic labels or standard white labels, our products are the right choice. Excellent transparency is achieved up to a coating speed of 600m/min. The fine-tuned adhesion / cohesion profile makes for easy processing. Finally, all our products have food contact approval.

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 **acResin®**
The acrylic hotmelt

Our **acResin®** technology makes it possible to produce absolutely water whitening resistant filmic labels combined with high temperature and chemical resistance. It is also possible to achieve different adhesion/cohesion profiles just by varying the UVC dose of the curing process. Besides its excellent clarity, **acResin®** is food contact safe. This makes **acResin®** the number one solution for the manufacturing of paper and filmic labels for food, beverage and cosmetic applications.

Product Overview

Product name	Data								Features and benefits	Applications			
	Solids content (%)	pH value ¹	Viscosity ²		Tg (°C)	Tack	Peel	Shear		Paper Labels	Filmic Labels	Permanent	Removable
UV-curable acrylic hotmelts													
acResin® A 204 UV	100		30 – 50	130°C, 100 1/s	-34	++	+	+++	Modification with tackifiers needed	■		■	□
acResin® A 250 UV	100		40 – 60	130°C, 100 1/s	-39	+++	+++	++	Resistance to water whitening, suitable for clear-on-clear labels	□	■	■	
acResin® UV 3532	100		22 – 29	110°C, 100 1/s	-60	+	+	+++	Resistance to water whitening, suitable for wash-off filmic labels	■	■		■
Acrylic dispersions													
Acronal® V 215	69	3.5 – 6.0	200 – 1000	23°C, 100 1/s	-43	+++	++	++	High formulation latitude with tackifier dispersions	■		■	
Acronal® A 110	55	6.5 – 8.0	20 – 200	23°C, 250 1/s	-45	+	+	++	Different adhesion levels through formulation possible	■	□		■
Acronal® V 115	67	3.5 – 4.5	100 – 500	23°C, 100 1/s	-58	++++	+++	+	Very good low temperature behaviour	■		■	
Acronal® 3715	65	3.5 – 5.0	100 – 500	23°C, 100 1/s	-55	++++	+++	++	Excellent adhesion on cold and moist polar and nonpolar surfaces	■		■	
Acronal® A 225	60	6.5 – 8.0	30 – 150	23°C, 250 1/s	-45	+++	+++	+++	Good adhesion and cohesion balance		■	■	
Acronal® A 245	52	6.0 – 9.0	20 – 150	23°C, 250 1/s	-45	++	+	+++	Very good removability on different surfaces		■		■
Acronal® 3608	53	6.5 – 7.5	30 – 150	23°C, 250 1/s	-40	+++	+++	+++	Improved water whitening resistance		■	■	
Styrene-butadiene dispersions													
Butofan® LS 103	51	7.0 – 8.0	100 – 300	23°C, 100 1/s	-48	+	+	+++	Imparts water repellence to pressure sensitive adhesives	■	□	■	

+ low ++ medium +++ high ++++ very high ■ very suitable □ suitable



Given values are approximate; specified values are found in the specification data sheets.

¹ pH value according to DIN ISO 976

² Viscosity for UV-curable acrylic hotmelts in Pa • s according to ISO 6721-10

² Viscosity for acrylic and styrene-butadiene dispersions in mPa • s according to DIN EN ISO 3219



Primers for Plastic Films

The product range of BASF for plastic films optimizes surface properties of filmic labels and films for the graphics industry. Our polymer dispersions provide an optimum in terms of printability, adhesion promotion and can help create barrier properties.

Product Overview

Product name	Data				T _g (°C)	Features and benefits
	Solids content (%)	pH value	Viscosity ¹			
Primers						
Acronal® 6262	50	7.5 – 8.5	30 – 200	23°C, 100 1/s	14	Ink to polyolefines, specially suitable for filmic labels
Joncryl® 8383	40	7.6 – 8.6	~80	23°C, 100 1/s	12	Ink to polyolefines, specially suitable for filmic labels

ⁱ Given values are approximate; specified values are found in the specification data sheets.

¹ Viscosity for primers in mPa • s according to DIN EN ISO 3219



Graphic Films

Our polymer dispersions have been specially developed for use on soft PVC films for the graphics industry. These solvent-free adhesive raw materials are characterized by low water whitening, high plasticizer stability and very little shrinkage.

Product Overview

Product name	Data						Features and benefits
	Solids content (%)	pH value ¹	T _g (°C)	Adhesion ² (N/25 mm)	Cohesion ³ (hours)	Shrinkage Resistance	
Acrylic dispersions							
Acronal® 4 D	49	6.0 – 7.0	-43	9	> 5	++	Raw material specially suitable for semipermanent PVC
Acronal® A 145	50	7.0 – 9.0	-45	3	> 120	+++	Specially suitable for removable PVC/OPP/PE and deliverable as Coater Ready (CR) for vario gravure systems
Acronal® A 240	51	5.0 – 6.5	-30	18	> 100	++++	Specially suitable for semipermanent PVC/OPP/PE and deliverable as Coater Ready (CR) for vario gravure systems
Acronal® A 245	52	6.5 – 9.0	-45	7	> 120	+++	Specially suitable for permanent PVC and deliverable as Coater Ready (CR) for vario gravure systems

+ low ++ medium +++ high ++++ very high

ⁱ Given values are approximate; specified values are found in the specification data sheets.

¹ according to DIN ISO 976

² according to FTM 1

³ according to FTM 8



Specialty Tapes

BASF offers polymer dispersions and UV-curable acrylic hotmelts for the pressure-sensitive adhesive coating of specialty tapes. Specialty tapes are used in various applications such as automotive, construction and medical. Each of these applications has distinct requirements – with our broad product portfolio we can serve a wide range of different customer needs.

Our Acronal® portfolio comprises well-established high-solids dispersions as well as new innovative products characterized by their ability to dry fast, enabling energy savings or increased line speed.

Our ongoing R&D efforts ensure the state-of-the-art performance of our dispersions and resins – with our formulation, application and process know-how, we are your competent partner for specialty tapes.


We create chemistry

 **acResin**®
The acrylic hotmelt

With our **acResin**® product range, BASF offers original UV-curable acrylic hotmelt technology. **acResin**® features significant sustainability benefits while providing excellent adhesive performance. This makes **acResin**® the number one choice for numerous premium applications.

Our **acResin**® offers extensive benefits like high durability as well as high resistance to aging and humidity combined with low volatile organic compounds (VOC) and low fogging. Therefore our products are perfectly suitable for high performance automotive, construction and medical tapes.

Product Overview

Product name	Data									Features and benefits
	Solids content (%)	pH value ¹	Viscosity ²	T _g (°C)	Tack	Peel	Shear	Heat resistance		
UV-curable acrylic hotmelts										
acResin® A 204 UV	100		30 – 50	130°C, 100 1/s	-34	++	+	+++	+++	Preferred product for formulations with other solid acrylic resins or resin-based tackifiers
acResin® A 250 UV	100		40 – 60	130°C, 100 1/s	-39	+++	+++	++	++	Excellent adhesion to low-energy surfaces, very low VOC, ISO 10993 approved
acResin® A 260 UV	100		40 – 60	130°C, 100 1/s	-39	++	++	++	++	Well-balanced adhesion and cohesion properties, very low VOC, ISO 10993 approved
acResin® UV 3700	100		55 – 70	130°C, 100 1/s	-36	+	++	++++	+++	Suitable for high performance applications
Acrylic dispersions										
Acronal® 3630	60	6.0 – 7.5	50 – 500	23°C, 100 1/s	-35	++	++	++	++	Well-balanced adhesion and cohesion properties, very low VOC
Acronal® 3633	60	6.0 – 9.0	100 – 800	23°C, 100 1/s	-35	++++	++++	+	+	Excellent adhesion to low-energy surfaces, fast drying, very low VOC
Acronal® 3635	50	7.0 – 8.5	20 – 70	23°C, 100 1/s	-40	+	+	++++	++++	High cohesion, excellent plasticizer resistance
Acronal® 3636	60	7.0 – 8.0	50 – 500	23°C, 100 1/s	-35	+	+	++++	++++	High cohesion, excellent heat resistance
Acronal® 3639	60	4.5 – 6.0	100 – 800	23°C, 100 1/s	-40	++	++	++	+++	Good cohesion and well balanced adhesion and tack
Acronal® V 212	69	3.5 – 6.0	300 – 1.100	23°C, 100 1/s	-40	+++	+++	+	+	High tack, high solids content
Acronal® V 215	69	3.5 – 6.0	200 – 1.000	23°C, 100 1/s	-43	+++	++	++	+	Well-balanced adhesion and cohesion properties, high solids content, ISO 10993 approved
Styrene-butadiene dispersion										
Butofan® LS 103	51	7.0 – 8.0	100 – 300	23°C, 100 1/s	-48	+	+	+++	+++	High cohesion and heat resistance, low water take-up
Acrylic resins										
Acronal® 3500	100		~6.0	60°C, 100 1/s	-40	++++	+++			Tackifier/plasticizer resin for acResin® and Acronal® dispersions
Acronal® 4 F	100		~38.0	60°C, 100 1/s	-46	++++	+			Tackifier/plasticizer resin for acResin® and Acronal® dispersions

+ low ++ medium +++ high ++++ very high



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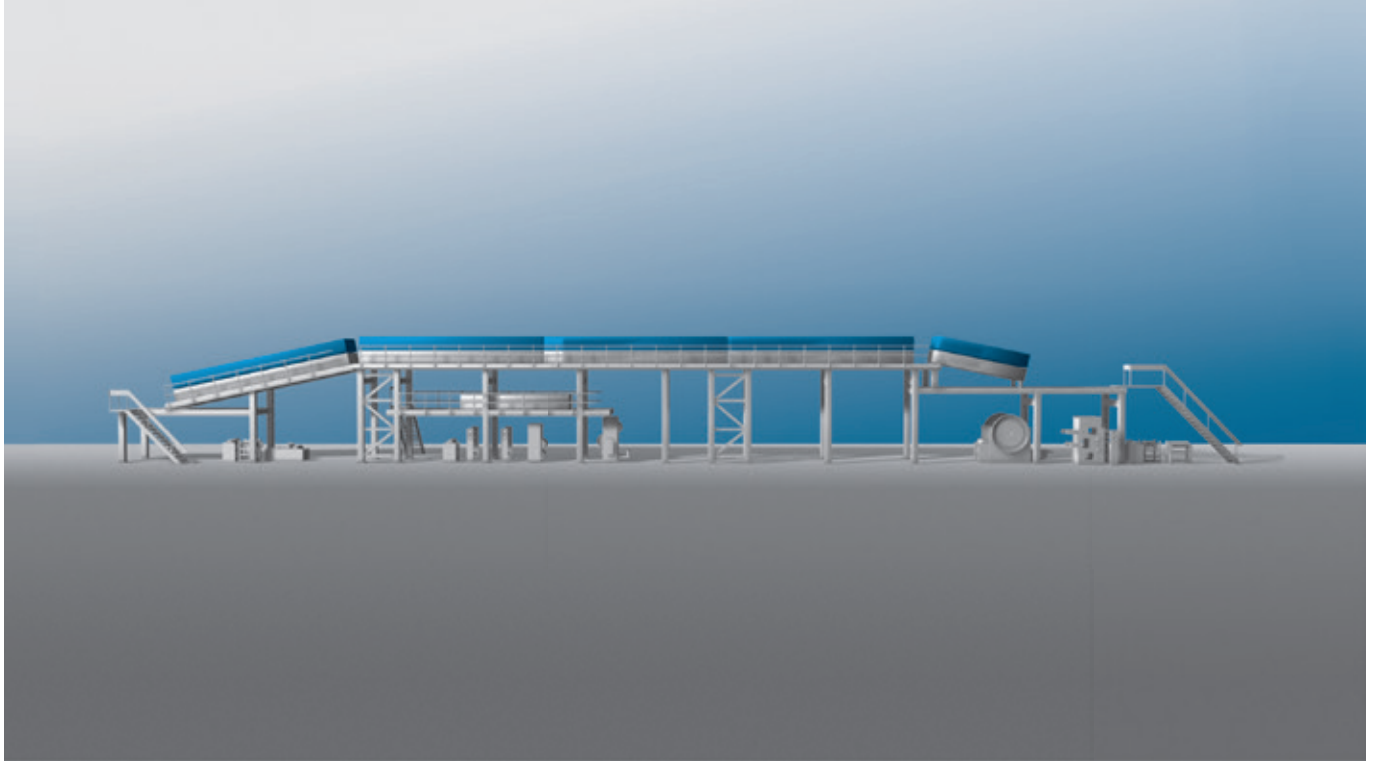
¹ pH value according to DIN ISO 976

² Viscosity for acrylic dispersions in mPa • s according to DIN EN ISO 3219

² Viscosity for acrylic resins in Pa • s according to DIN EN ISO 6721-10

² Viscosity for UV-curable acrylic hotmelts in Pa • s according to ISO 6721-10

² Viscosity for styrene-butadiene dispersion in mPa • s according to DIN EN ISO 3219



Coating Center

BASF's Coating Center is a unique facility providing a wide range of coating solutions, product samples and demonstrations, as well as advice and support on adhesive technologies.

BASF works closely with key machine manufacturers to continually optimize coating technologies and new plant concepts.

By using our installations, customers can maintain their daily production capacity while simultaneously pursuing product development. Our support can facilitate the decision-making for a change of technology or new investment.

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 **acResin**[®]
The acrylic hotmelt

Our dispersion facility is the fastest and most flexible trial facility for adhesives in the world, allowing each set-up to be individually tailored and adapted. Customers can test all common coating systems, as well as the latest and as yet unestablished techniques. The pilot coater for **acResin**[®] demonstrates the advantages of the UV acrylic hotmelt.

Overview

Technical data	Dispersions	UV-curable acrylic hotmelts
Coating speed min. / max.	5 / 1800 mpm	15 / 700 mpm
Oven length / UV lamps	48 m	8 x 170 W/cm
Temperature sections	16 (8 upper air, 8 lower air)	
Temperature min. / max.	60 / 160 °C	
Width coating substrate	550 mm	550 mm
Width laminating substrate	570 mm	570 mm
Diameter core	76 or 152 mm / 3 or 6 inch	76 or 152 mm / 3 or 6 inch
Diameter rolls max.	1250 mm	1000 mm

Available coating systems

	Double chamber gravure system	Slot die with rotating bar
	3 different single chamber gravure systems	Curtain die
	Reverse gravure	Kiss coat
	Mayer bar	
	Comma bar	
	Slot die	
	Curtain coater	
	Triple layer slide curtain	
	Dual layer slide curtain	
	Dual layer slot die	

Rewinding unit

	Flying splice	
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Size of trial

Length of paper or film min.	3000 linear meter (backing and front substrate)	500 linear meter (depending on V:mpm)
Quantity of adhesive	200 kg	

BASF SE

Polymers for Pressure-Sensitive Adhesives
67056 Ludwigshafen / Germany
pressure-sensitive-adhesives@basf.com

www.basf.com/adhesives

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