

# Putting innovation on paper

**DOW**

®





Dow Coating Materials offers a broad portfolio of technologies for paper applications, including coated paperboard, SBS paperboard, coated freesheet, coated groundwood and specialty paper. Our brands are well known in the industry and have earned a reputation for excellence and innovation.

## Helping paper packaging stand up to water, solvents, oil, and grease

Dow's barrier coatings for paper and paperboard substrates are an excellent choice to deliver protection against penetration of water, water vapor, solvents, oils, fatty acids, and other substances. Our portfolio of barrier coatings improves the performance and functionality of paper packaging, better protecting the product inside. Dow's barrier coatings can meet specific performance requirements in a variety of food, dry goods, or consumer product packaging applications. Our fluorocarbon-free\* RHOBARR™ Barrier Coatings are food contact compliant and maintain flexibility while resisting hot block.

\*Fluorocarbon substances are not intentionally added and are not knowingly introduced from another raw material.



Specialty barrier coatings						
Product	Solids %	pH	Brookfield viscosity cP	Specific gravity	Tg °C	Features and benefits
<b>RHOBARR™ Barrier Emulsions</b>						
RHOBARR™ 110	50.0	9.0	250	1.05	7	Acrylic copolymer latex with exceptional performance in severe folded OGR barrier testing using binder-rich coating formulations. Specifically designed for use in paper and board coatings offering flexible oil and grease barrier properties as well as heat seal. It can be applied by most common aqueous coating or printing methods. ■ ○ ◆
RHOBARR™ 135	46.0	7.5	<500	1.03	-10	Styrene acrylic latex designed for use in paper and paperboard coatings offering oil and grease barrier properties combined with block resistance and flexibility. It has been developed to be applied by most common aqueous coating or printing methods. Good performance can be achieved by using binder-rich coating formulations in applications where fatty acid resistance is important. ■ ○ ◆
RHOBARR™ 214	45.0	6.8	<200	1.06	26	Acrylic copolymer latex designed for use in paper and board coatings offering fatty acid and/or mineral oil barrier properties as well as plasticizer resistance for thermal paper applications. It has been developed to be applied by most common aqueous coating or printing methods. Bio-based versions are available in select locations. ■ ○ ◆
<b>RHOBARR™ Barrier Dispersions</b>						
RHOBARR™ 320	43.0	9.0-10.5	<1500	0.97		Aqueous dispersion designed for use in paper barrier coating applications. Can be used to provide a hot and cold liquid water barrier typically needed for cup stock. It also combines medium barrier against oil and grease in typical food packaging applications with excellent heat sealability. ■ ○ ◆
RHOBARR™ 325	45.0	9.5-10.5	<1500	0.94		Aqueous acid-modified dispersion designed for use in formulations targeted for paper barrier coating applications. Provides a hot and cold liquid water barrier typically needed for cup stock, excellent heat sealability, and a low odor profile. ■ ○ ◆
<b>HYPOD™ Polyolefin Dispersions</b>						
HYPOD™ 2000	54-58	8.5-10.5	<1000	0.97		Propylene copolymer. Offers excellent resistance to water absorption and water vapor transmission (wvtr); heat seal and blocking properties. Facilitates barrier to oil, grease and solvents. Excellent temperature resistance. Good mechanical stability. Ready to use when formulating coatings. ■ ○ ◆
HYPOD™ 8503	54-58	8.5-10.5	<500	0.96		Ethylene copolymer. Offers excellent heat seal properties. Facilitates barrier to oil, grease and solvents. Excellent adhesion to aluminum and other polar substances. Good stability when blended with inorganic pigments such as clay and talc. Good mechanical stability. ■ ○ ◆

■ Coated paperboard ○ SBS paperboard ● Coated groundwood □ Coated freesheet ◆ Specialty paper

These are typical properties, not to be construed as specifications.

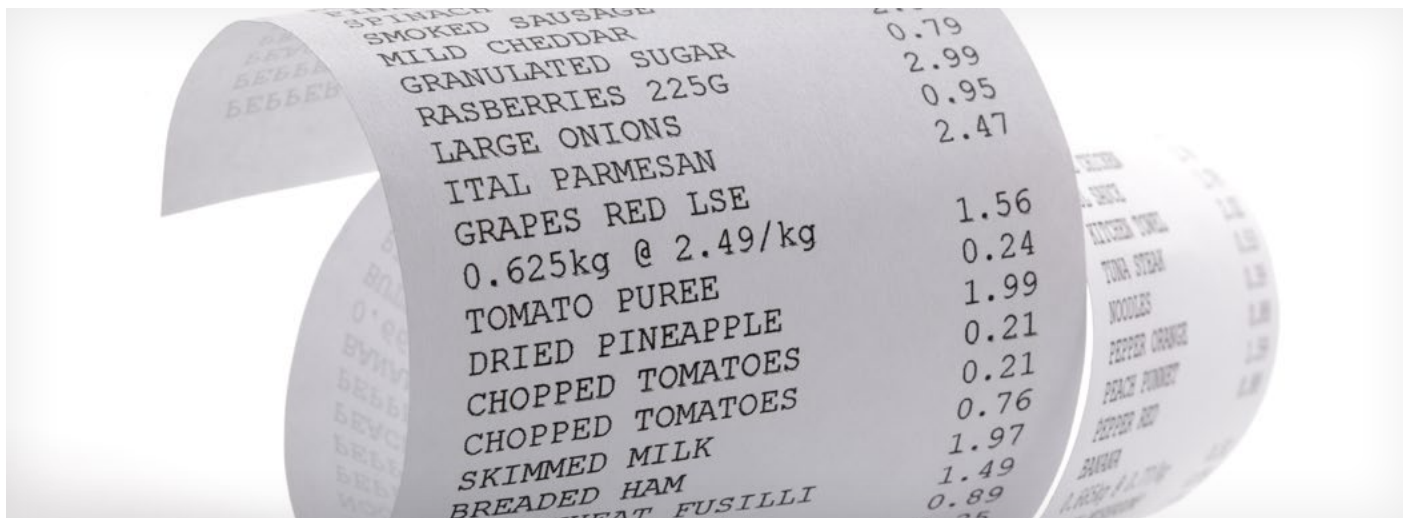
ROPAQUE™ Technology was introduced in the 1980s as the world’s first hollow sphere pigment technology, designed initially for use in architectural paints as a partial replacement for titanium dioxide, a trusted but often expensive light scattering pigment. Opportunities to leverage the technology outside of traditional paint applications and into the paper industry expanded its use as a glossing agent, and now the technology has found a renewed value in thermal paper coatings.

Synthetic pigments							
Product	Ionic nature	Solids %	pH	Brookfield viscosity cP	Specific gravity	Tg °C	Features and benefits
ROPAQUE™ AF-1055	Anionic	26.5	7.0	80	1.02	111	Excellent balance for sheet gloss, smoothness, opacity and brightness development in paper and paperboard coatings. Suitable for application by size press, rod, blade or curtain coating. Compatibility with common binder types used in paper industry. Ammonia free* and no alkyl phenol ethoxylates used in the manufacture of this product. ■ ● □ ◆
ROPAQUE™ AF-1353	Anionic	26.5	8.0	100	1.03	111	Excellent for gloss, opacity, and brightness development in paper and paperboard coatings. Suitable for application by size press, rod, blade or curtain coating. Compatibility with common binder types used in paper industry. Ammonia free* and no alkyl phenol ethoxylates used in the manufacture of this product. ■ ● □ ◆
ROPAQUE™ Ultra EF	Anionic	30.0	8.4	<500	1.03	110	One of the most effective opacifiers in paper coatings. Ammonia free* and no alkyl phenol ethoxylates used in the manufacture of this product. ■ ● □ ◆
ROPAQUE™ TH-2000 AF	Anionic	20.0	7.0	<500	1.03	110	Highly insulating hollow sphere pigment used in pre-coat formulations for thermal paper and is found in most types of direct thermal paper (point-of-sale, top-coated, lab grades, etc.) Its low density, smooth surface and excellent runnability give significant performance benefits over traditional inorganic pigments such as calcined clay. The smoothness and high insulating power allow papers with high sensitivity at low energy. ◆

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Dow offers a wide array of binder chemistries for use in coating formulations designed for SBS, coated recycled board, freesheet papers, and much more. Our extensive portfolio delivers wide-ranging performance benefits like balance of strength, printability, enhanced optical coverage, and glueability to help you formulate the right solution for any paper or paperboard grade.

Binders							
Product	Ionic nature	Solids %	pH	Brookfield viscosity cP	Specific gravity	Tg °C	Features and benefits
<b>Styrene acrylic binders</b>							
RHOPLEX™ P-308	Anionic	50.0	7.5	800	1.08	8	High-strength, hydrophobic binder which is an excellent choice when formulating paper coatings for high quality printing and packaging that requires reduced print mottle and excellent gluing properties. This product was designed to have compatibility with calcium ions for today's high calcium carbonate pigment systems and excellent stability to meet the demands of high-speed blade coater applications. ■ ○ □ ◆
RHOPLEX™ P-376	Anionic	50.0	9.4	300	1.04	19	Hydrophobic binder with excellent wet and dry pick resistance for offset printing. Effective in promoting sheet gloss development, glueability properties for packaging, ink/aqueous coating holdout in offset printing. Excellent compatibility with natural and synthetic co-binders. Excellent adhesion to paper and non-conventional substrates. ■ ○ □ ◆
RHOPLEX™ C-340	Anionic	50.0	7.5	150	1.04	8	High-strength, hydrophobic binder; excellent choice for high quality printing. Greatly reduced print mottle. Excellent compatibility with calcium ions for today's high calcium carbonate pigmented systems. Excellent runnability in high-speed coating applications. No alkyl phenol ethoxylates used in the manufacture of this product. Designed to meet new food contact compliance requirements. ■ ○ □ ◆
<b>100% acrylic binders</b>							
RHOPLEX™ I-545	Anionic	40.0	8.5	900	1.06	65	All-acrylic aqueous vehicle for overprint varnishes and for flexographic and gravure-inks, offering good gloss, fast drying, and good block, heat and water resistance. ○ □ ◆
RHOPLEX™ HA-16	Nonionic	45.5	2.6	380	1.06	35	Firm binder with excellent wet and dry durability. Self cross-linking. An excellent binder for strength and durability in specialty paper application. ○ □ ◆
RHOPLEX™ HA-12	Nonionic	45.0	2.6	280	1.06	19	Aqueous emulsion enhances wet strength of latex in the coating formulation. ○ □ ◆
RHOPLEX™ GL-618	Anionic	47.0	8.6	95	1.07	36	Excellent hot and wet tensile strength, outstanding mechanical stability, low foaming and excellent chemical stability. ○ □ ◆
RHOPLEX™ I-2183N	Anionic	30.0	8.6	450	1.03	70	Modified aqueous acrylic polymer for use as an overprint varnish and general ink letdown vehicle. Hard film former offers superior heat resistance without the use of zinc or zirconium additives, and has excellent transfer and printability. ○ □ ◆
RHOPLEX™ I-2350	Anionic	30.0	8.5	1000	1.04	65	Versatile, aqueous all-acrylic offers good scuff resistance, higher inherent COF, very good heat resistance, excellent clarity over offset inks and good film gloss. ○ □ ◆
RHOPLEX™ SP-100	Anionic	44.0	5.0	50	1.06	33	100% self-crosslinking acrylic binder. Ultra-low formaldehyde, alkylphenol ethoxylate-free, self-reactive latex. Offers mechanical stability, runnability and when catalysed with potassium hydroxide will crosslink at temperatures above 320° F without generating foam. It is carboxyl functional, therefore, can react external with crosslinkers at lower temperatures. ○ □ ◆

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<b>100% acrylic binders</b>							
RHOPLEX™ P-554	Anionic	47.0	9.0	115	1.06	6	Clay-reactive acrylic binder imparts water resistance to coatings, even when formulated with significant levels of starch. Forms a network with clays through ionic interaction which results in a strong, water-resistant coating. Effective with many different clays and starch systems. Excellent flexographic and rotogravure printability. ○ □ ◆
RHOPLEX™ B-60A	Nonionic	46.5	9.6	1500	1.06	6	Non-reactive specialty binder. Excellent color stability. Recommended for applications where clarity and resistance to discoloration are desired. ○ □ ◆
RHOPLEX™ B-15J	Anionic	46.0	6.2	45	1.06	1	Crosslinkable acrylic binder with excellent mechanical stability and runnability. Recommended for general coatings applications where strength, durability, and flexibility are required. Particularly effective in applications where score-cracking resistance or heat-sealability is desired. Offers excellent flexographic and rotogravure printability with little or no ink mottle. ■ ○ □ ◆
<b>Vinyl acrylic binders</b>							
POLYCO™ 3960	Anionic	50.0	6.5	120	1.08	25	Large particle size latex contributes to improved optical properties. Recommended for many paperboard applications requiring a balance of strength, printability, enhanced optical coverage and glueability. No alkyl phenol ethoxylates used in the manufacture of this product. ■ ○
<b>Vinyl acetate binders</b>							
POLYCO™ 2160	Anionic	50.0	7.0	30	1.08	37	Carboxylated PVAc with excellent mechanical stability and very low grit levels. Medium particle size with good pigment binding ability and excellent water resistance. Minimizes “water interference mottle” in offset printing and provides good ink receptivity, glueability, and brightness with very low odor. No alkyl phenol ethoxylates used in the manufacture of this product. Designed to meet new food contact compliance requirements. ■ ○
POLYCO™ 4160	Anionic	50.0	7.5	100	1.08	38	Carboxylated PVAc with excellent stability and very low grit levels. Fine particle size with excellent pigment binding ability and water resistance. Provides excellent ink receptivity, glueability and brightness with very low odor. Recommended for application where superior runnability is required. No alkyl phenol ethoxylates used in the manufacture of this product. Designed to meet new food contact compliance requirements. ■ ○

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One of the most powerful tools that chemistry provides is the ability to develop specialized additives and modifiers to enhance and improve product performance. These versatile materials are used in many applications to make high-value products even better. Additives like rheology modifiers and dispersants can notably improve paper coating performance – and product capabilities by extension – by regulating viscosity and pigment dispersion, enabling customized coating solutions.

Additives						
Product	Ionic nature	Solids %	pH	Brookfield viscosity cP	Specific gravity	Features and benefits
<b>Dispersants</b>						
ACUMER™ 9300	Anionic	45.0	7.0	1000	1.31	Sodium salt of polyacrylic acid. Extremely low VOC (< 50 ppm). Excellent for maintaining low viscosities in coating colors and pigment slurries at both ambient and elevated temperatures. Contributes to excellent viscosity stability upon initial formulating and over extended periods. ■ ○ ● □ ◆
TAMOL™ 165A	Anionic	21.5	8.5-9.0	160-400	21.50	Hydrophobic copolymer polyelectrolyte. Extremely versatile. May be used for acrylic, butadiene/styrene, vinyl acetate/ethylene and vinyl-acrylic binders. Offers high-efficiency performance, exceptional gloss development, excellent pigment wetting capability, excellent overall compatibility; good compatibility with HEUR rheology modifiers. ● □ ◆
TAMOL™ 731A	Anionic	25.0	10.0-10.5	20-130	1.10	Hydrophobic copolymer polyelectrolyte. Extremely versatile. May be used for acrylic, butadiene/styrene, vinyl acetate/ethylene and vinyl acrylic binders. Offers high-efficiency performance, exceptional gloss development, excellent pigment wetting capability, excellent overall compatibility; good compatibility with HEUR rheology modifiers. ● □ ◆
<b>Rheology modifiers</b>						
RHOPLEX™ ASE-60	Anionic	28.0	2.6	4500	1.10	Alkali-swellable acrylic emulsion. Excellent balance of water retention and thickening efficiency. Particularly effective at build coating weights and coverage. Best suited for low-shear applications. ■ ○ ● □ ◆
RHOPLEX™ ASE-75	Anionic	40.0	3.0	50	1.06	Alkali-swellable acrylic emulsion. High solids, general purpose rheology modifier with a good balance of thickening efficiency and water holding. Recommended for applications where coat weight build or high solids coating is desired. ■ ○ ● □ ◆
RHOPLEX™ ASE-95NP	Anionic	18.0	2.7	200	1.10	High molecular weight alkali-swellable acrylic emulsion. Recommended for specialty applications to build extensional viscosity properties. Effective at build coating weights and coverage. Best suited for low-shear applications. ■ ○ ● □ ◆
RHOPLEX™ ASE-108NP	Anionic	18.0	3.0	25	1.06	Pre-neutralized alkali-swellable emulsion which requires no pH adjustment. Offers a good combination of thickening efficiency and water holding. Excellent for heavy paper and paperboard applications where heavy coat weights are common. ■ ○ ● □ ◆
RHOPLEX™ E-2961	Anionic	11.0	9.2	500	1.07	Pre-neutralized hydrophobically modified alkali emulsion (HASE) which requires no pH adjustment. Provides a good combination of thickening efficiency and water holding. Excellent for heavy paper and paperboard applications where heavy coat weights are common. ■ ○ ● □ ◆
RHOPLEX™ RM-232D	Anionic	28.0	5.5	50	1.20	Hydrophobically modified alkali-swellable emulsion (HASE) supplied as a shear-stable, low-foam emulsion. Relatively high pH (as supplied) facilitates formulating into a coating with minimal shock, potential to remove alkali. Good combination of high shear efficiency and water retention; provides excellent runnability in high-speed coating applications. Meets new food compliance requirements. No alkyl phenol ethoxylates were used in the manufacture of this product. ■ ○ ● □ ◆

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## About Dow

Dow (NYSE: DOW) combines global breadth, asset integration and scale, focused innovation and leading business positions to achieve profitable growth. The Company's ambition is to become the most innovative, customer centric, inclusive and sustainable materials science company, with a purpose to deliver a sustainable future for the world through our materials science expertise and collaboration with our partners. Dow's portfolio of plastics, industrial intermediates, coatings and silicones businesses delivers a broad range of differentiated science-based products and solutions for its customers in high-growth market segments, such as packaging, infrastructure, mobility and consumer care. Dow operates 106 manufacturing sites in 31 countries and employs approximately 35,700 people. Dow delivered sales of approximately \$39 billion in 2020. References to Dow or the Company mean Dow Inc. and its subsidiaries. For more information, please visit [www.dow.com](http://www.dow.com) or follow [@DowNewsroom](https://twitter.com/DowNewsroom) on Twitter.

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## For more information please consult our web site

[www.dow.com/papercoatings](http://www.dow.com/papercoatings)

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