

Fine Chemicals

Fine Chemicals are central to innovation, enabling the development of unique products that meet strict regulatory and market demands.

Curia is now collaborating with the partner company AlwaysBrong, bringing Curia's VPA to the next level. Curia's expertise in the manufacture of the monomer VPA combined with AlwaysBrong's long year expertise in polymerization lead to unique VPA-copolymer solutions for the various application fields.



Functional VPA Copolymer

Overview

Polyface® series products are synthesized using VPA as the core monomer to create specialized adhesion-promoting copolymers enriched with a wide range of functional groups. They are designed to enhance interfacial bonding strength between metallic or inorganic substrates and organic coatings or base materials.

Phosphonate groups derived from VPA provide strong adhesion to metal surfaces, while siloxane segments improve anchoring on inorganic substrates. The carboxyl and hydroxyl groups along the polymer backbone readily participate in covalent crosslinking with other functionalities commonly found in organic coatings. Together with polymer-chain interdiffusion, this mechanism delivers excellent overall interlayer bonding performance.

This series is offered in waterborne, solvent-borne and powder-form grades to satisfy diverse application requirements across multiple industries.

Waterborne copolymer

Application

- Serves as a conversion coating for aluminum and AZ alloy substrates to boost coating adhesion and overall anti-corrosion performance.
- Acts as a passivation accelerator for Ti/Zr chromium-free passivation solution to enhance corrosion and salt spray resistance.
- Adhesion promoter for waterborne coatings and adhesives, enhancing bonding strength between metallic/inorganic substrates and organic films.
- Its high phosphorus content renders it applicable to halogen-free flame retardants and proton exchange membranes for fuel cells.

Specifications

Product	Solid content (%)	Molecular weight	VPA Content BOTM	PH (5% aq. Solution)	Viscosity (cps)
Polyface® PE-9620	19-21%	40000-80000	30-32%	< 3.0	< 1000
Polyface® PE-9620S	18-22%	30000-100000	40-42%	< 3.0	< 1000
Polyface® PE-9621	19-21%	<10000	30-32%	< 3.0	< 500
Polyface® PE-9627	19-21%	200000-300000	30-32%	< 3.0	< 1500
Polyface® PE-9642	38-42%	50000-100000	10-11%	< 3.0	< 1500
Polyface® PE-9644	38-42%	60000-110000	10-11%	< 3.0	< 1500

Solvent-borne copolymer

Application

Adhesion promoter for solvent-borne coatings and adhesives, enhancing bonding strength between metallic/inorganic substrates and organic coating/materials.

Specifications

Product	Appearance (25°C)	Solid Content (%)	Solvent	VPA content BOTM	Viscosity (cps)
Polyface® PE-9690	Pale yellow liquid	30-32%	Butyl Acetate	10-11%	< 1000
Polyface® PE-9695	Pale yellow liquid	30-32%	Butyl Acetate	16-17%	< 1500

Powdery copolymer

Application

Modifier for organics (e.g. polyolefins, rubber) and metals (e.g. stainless steel, aluminum, copper) to elevate their interfacial bonding strength.

Specifications

Product	Appearance (25°C)	VPA content BOTM	Acid Value mg KOH/g	Moisture Content	Tg (°C)
Polyface® HPM-210	white powder	30-32%	1600	2%	125
Polyface® HPM-350	white powder	10-11%	1400	2%	90
Polyface® HPM-410	white powder	10-11%	1300	2%	115
Polyface® HPM-420	white powder	10-11%	1200	2%	107

VPA-modified Acrylic Resin

Overview

Polyadvance® series products are specialized waterborne acrylic polymers containing multiple functional groups, with vinyl-phosphonic acid (VPA) as one of the key components. The phosphonate groups derived from VPA enhance adhesion and corrosion resistance by forming strong bonds with metallic substrates. Crosslinking reactions between carboxylic and hydroxyl groups further improve chemical and water resistance, while tertiary carbonate groups help improve humidity and heat resistance

This series is available in anionic and cationic acrylic grades to satisfy diverse application requirements.

Anionic Acrylic Resin

Application

- Used as the main resin alone, or blended with polyurethane and epoxy resins in chromium-free passivation solution for light metals and alloy plating layers, improves overall performance such as salt spray resistance, humidity resistance, and fingerprint resistance.
- Suitable for water-based industrial anti-corrosion coatings to enhance the coating's corrosion resistance and salt spray resistance.

Specifications

Product	Appearance (25°C)	Solid Content	PH	VPA content BOTM	MFFT (°C)	Viscosity (cps)
Polyadvance® PE-9301	Milky white liquid	41-43%	7.0-8.0	1.0%	12	<50
Polyadvance® PE-9303	Milky white liquid	42-44%	7.5-8.5	3.0%	16	<100
Polyadvance® PE-9305	Milky white liquid	42-44%	7.5-8.5	5.0%	18	<100
Polyadvance® PE-9308*	Milky white liquid	42-44%	7.5-8.5	1.0%	14	<100

*PE9308 is made with an additional silicone monomer.

Cationic Acrylic Resin

Application

- Suitable for use in weakly acidic systems, offering excellent pigment dispersion and adhesion. Applicable in wood sealers, digital inkjet coatings, marker inks, insulating coatings and similar products.

Specifications

Product	Appearance (25°C)	Solid Content	PH	VPA content BOTM	MFFT (°C)	Viscosity (cps)
Polyadvance® PE-9320	Milky white liquid	34-36%	4.0-5.0	1.0%	20	<500
Polyadvance® PE-9322	Milky white liquid	34-36%	5.0-6.0	3.0%	22	<500
Polyadvance® PE-9326	Milky white liquid	34-36%	5.0-6.0	5.0%	24	<500