

AquaEC™

Electrodeposition Coatings by Axalta



Innovative Solutions for E-Coat Needs

Electrodeposition is a widely-used industrial process in which colloidal particles are deposited on an electrode under the influence of an electric field.

Axalta is one of the world's largest electrocoating producers, supplying e-coat products to most major light vehicles, commercial vehicle original equipment manufacturers, and a wide range of general industrial clients. Axalta's high-performance electrocoats are designed to provide reliable mechanical strength and superior corrosion protection. Every product is also water-based, making them environmentally friendly and more sustainable. At the same time, they've been formulated to ensure superior performance across a wide variety of substrates, including hot-rolled steel, cold-rolled steel galvanised steel, aluminium, and magnesium.

Axalta also supplies a wide range of e-coat formulations, including lead-free and tin free products, low VOC and HAPS-free systems, as well as formulations with unique benefits such as improved edge protection, low-temperature bake capability, and improved throwing power.

Highlights

Automatic

Single operation, robust operating window and user friendly.

Controllable

Precise film build over complex metal shapes and rack densities.

Efficient

Optimum interior/exterior coverage, low bake temperatures.

Process Friendly

Formulated for excellent product stability and stable UF performance.



Three good reasons why to choose Axalta AquaEC™

01

Reliable and proven product range

AquaEC™ products use patented technology to provide a superior performing corrosion resistant coating. Our electrocoats meet or exceed rigorous specification requirements and are approved in most markets. AquaEC™ products for Cathodic or Anodic electrodeposition are designed to protect while providing a robust operating window that will enable customers to meet their goals and achieve great performance.

02

Focus on Innovation and Sustainability

Axalta Coating Systems is driving per innovative solutions for our customer and answering to the sustainable challenge of our time. AquaEC™ is based on a tin-free catalyst and offers one of the lowest curing temperatures to ensure more sustainable production to our customers. Driven by our commitment to continuously improve longevity of coated parts, AquaEC 3500 EP is offering a step-change in edge corrosion protection.

03

Service and partnership

By working together with plant manufacturers, we can jointly ensure the perfect conditions for a perfectly coated surface. Expertise in E-Coat chemistry and processes enable us to advise customers on the best product applications and insights into ways to streamline manufacturing systems. The optimal process and technology are developed to offer world class performance. AquaEC™ customers will be assigned a dedicated E-Coat representative from Axalta who can provide expert technical advice and serve as a process consultant.

Anodic & Cathodic electro deposition

Electrodeposition is divided in two main families depending of the electrode which is used in the coating process. These families are Anodic or Cathodic electrodeposition (also known as Cataphoresis).

In general, Anodic Electrocoats are based on Polyester or Acrylic chemistry and are used on parts focused on interior applications having economical finishes with excellent colour durability and gloss control.

Cathodic Electrocoats based on Epoxy chemistry are high-performance coatings with excellent corrosion and chemical resistance, while Acrylic chemistry is used when exterior durability is required.

Features of Anodic & Cathodic Electrodeposition

- electrically applied on pre-treated metal parts
- on the exterior surface of the part but also on the inside
- with a uniform film thickness for all parts
- for simple but also very complex parts
- water based primer



Excellent Throw Power

A highly efficient technology providing improved throw power and thus, enabling to coat difficult-to-reach areas on complex parts or on densely filled racks.



Economical Benefits

Low curing temperature allowing direct energy saving and CO2 emission reduction.



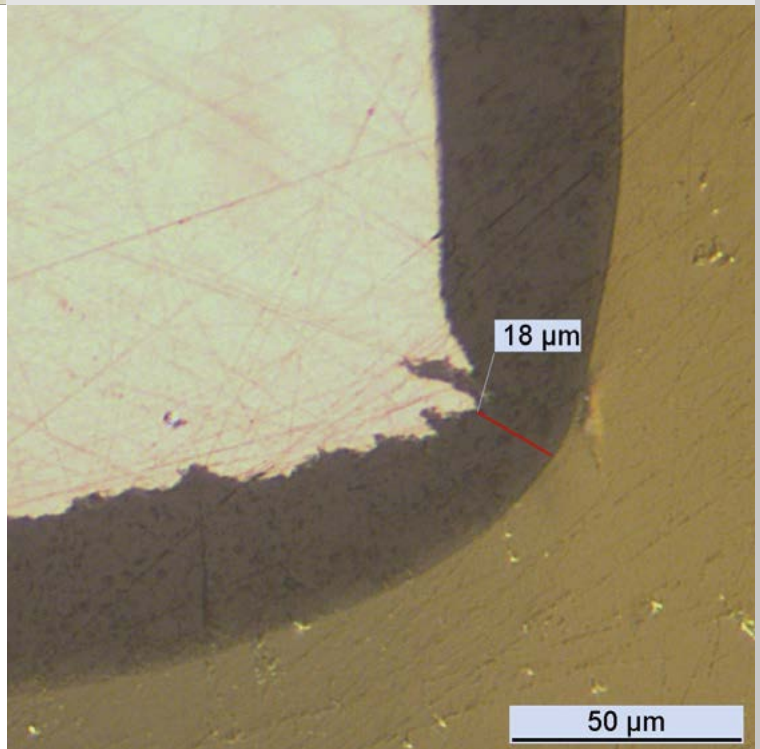
Edge protection

The latest in polymer development to impart improved resistance to edge corrosion on parts in which sharp edges are present due to forming or fabricating.

Excellent edge covering obtained with AquaEC™ 3500EP



AquaEC™



Environmentally Responsible

Lead free, HAPS free, low VOCs and IMDS listed.

Free of DBTO or DOTO tin-based catalyst.

Cathodic Electrocoats



AquaEC™ Epoxy based

AquaEC™ 3000

is a family of two pack epoxy-based primers, preferred by many manufacturers of automotive parts and automotive accessories, electric housings, switch gear and computer components. It offers excellent mechanical properties, good chemical resistance and superior corrosion protection.

AquaEC™ 3000AS

is an AntiSqueak (AS) version. It has anti-squeak properties, developed specifically for the automotive seat sector. Due to the low friction coefficient, noise caused by the metal and plastic in car seats is eliminated. Due to its low stoving temperature (10 min 150 °C metal temperature) it is possible, for example, to coat metal parts that incorporate plastic components, which cannot be cured above 150°C. 15 -19 µm of material applied to iron phosphate substrates or thin layer pre-treatment comply with all subcontractors' specifications of the German automotive seat industry.

AquaEC™ 3500 EP - State-of-art edge corrosion protection

Axalta's new generation of cathodic electrocoat is a major leap forward in edge corrosion protection. Rather than reinvent the wheel, it builds on the benefits of our renowned AquaEC™ 3000 series. Consequently, it's a tin-free product with no toxic heavy metals, having the economical and sustainable benefits to work at a low curing temperature. By formulating it at lower dry film density, AquaEC 3500 offers additional efficiency advantages, meaning lower material consumption.

Key features and advantages

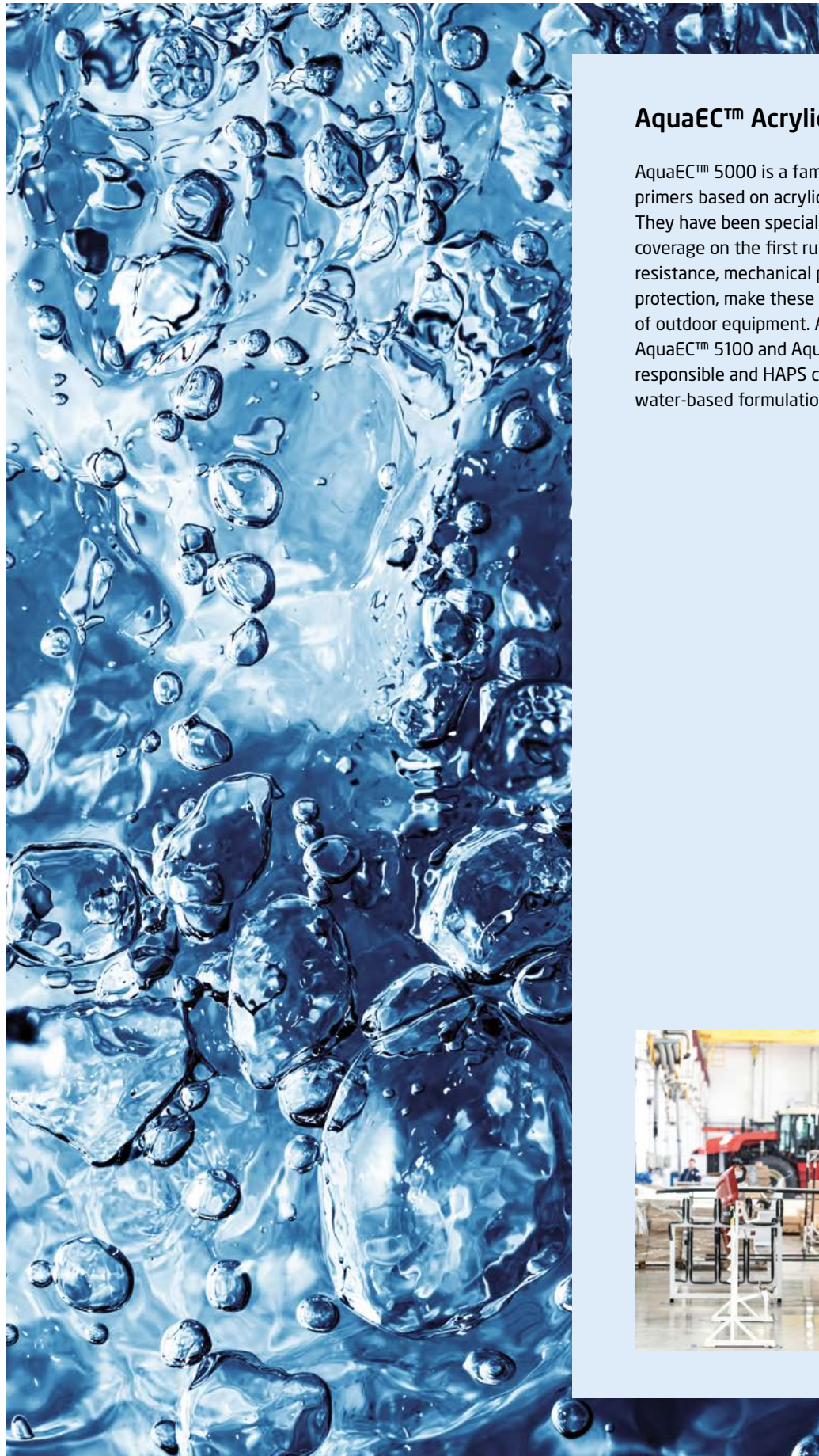
- Uniform 15µm to higher than 45µm coating thickness
- Excellent anti-corrosion performance at sharp edges
- Perfect for large series and/or complex geometries
- Precise film builds over complex metal shapes and rack densities
- Optimum interior/exterior coverage
- Low-bake temperatures (150°C)
- Robust operation window
- Low crater sensitivity
- Stable UF flux rate
- Superior bacteria resistance
- Exceeds the most rigorous specification requirements for salt spray and various accelerated corrosion tests
- Lead and tin-free, HAPS-free, low VOCs and IMDS listed

		AquaEC 3000	AquaEC 3000 AS	AquaEC 3500 EP
Technical Aspects	Chemistry	2K Epoxy based		2K Epoxy based
	Pretreatment*	Tricationic Zincphosphate	Iron phosphate	Tricationic Zincphosphate
	Coating Thickness	10-35µm	15-19µm	22 ± 2µm / > 45µm**
	Recommended Bake	150-190°C		150-190°C
	Minimum bake	18min @ 150°C	10min @ 150°C	18min @ 150°C
	Dry film density	1.31 g/cm ³	1.31 g/cm ³	1.27 g/cm ³
	Pencil Hardness	2H Minimum	2H Minimum	2H Minimum
	Erichsen Cupping	≥ 4 mm		≥ 4 mm
	Humidity Test (DIN EN ISO 6270-2)	504h No changes		504h No changes
	Salt Spray Test (DIN EN ISO 9227)	504h d<1.0mm 1008h d<1.5mm	144h d<1.5mm	504h d<1.0mm 1008h d<1.5mm
	VW Cyclic Test (PV1210)	30/60 Cycles d<2.5mm	15 Cycles d<2.5mm	30/60 Cycles d<1.5mm
	Cyclic Corrosion Test (DIN EN ISO 11997-1)	10 Cycles d<2mm	3 Cycles d<2mm	10 Cycles d<2mm
	VW-Cycle test 60 Cycles	d<1.5mm		d<1.5 mm
	Cross Out Adhesion	GT 0 - GT 1		GT 0 - GT 1
	Break Oil resistance	24h		24h
	Chemical Resistance	Rating 0-1	Rating 0-0	Rating 0-1
	Storage Stability (+5°C to +30°C)	9 Months		9 Months
Aesthetic Aspects	Colour offering	light grey/dark grey/black	black	light grey/dark grey/black
	Substrate	Metal		Metal
	Top Coat possibility	Liquid /TS powder		Liquid /TS powder
Sustainability Aspects	No lead	✓		✓
	No tin	✓		✓
	No Chromate	✓		✓
	No HAPS	✓		✓
	REACH compliant	✓		✓
Specifications	Highlight	<ul style="list-style-type: none"> • Superior corrosion protection • Robust operation windows • High film thickness possible • Good chemical resistance • Smoother surface • High throwing power • Excellent stone chip resistance • Low crater sensitivity • Stable UF flux rate • Low curing temperature • Superior bacteria resistance 	<ul style="list-style-type: none"> • High coating efficiency • Anti squeak • Low curing temp • Good chemical resistance • Robust operation windows • High throwing power • Low crater sensitivity • Superior bacteria resistance 	<ul style="list-style-type: none"> • Excellent edge corrosion protection • Superior corrosion protection • Robust operation windows • High film thickness possible >45µm • High yield excellent transfer efficiency • High throwing power • Excellent stone chip resistance • Low crater sensitivity • Good chemical resistance • Low curing temperature • Stable UF flux rate • Superior bacteria resistance
Typical Applications	Automotive seats, seats components	✓	✓	✓
	Automotive parts and accessories	✓	✓	✓
	Appliances	✓		✓
	General Industrial	✓		✓
	Agricultural equipment	✓		✓
	Truck & Bus	✓		✓
	Castings	✓		✓

* Other pretreatment type are also possible (Tricationic ZnPhosphate, Iron Phosphate and Nanoceramic type) - Contact your product expert

**Condition to be discussed with your product expert

Cathodic Electrocoats



AquaEC™ Acrylic based

AquaEC™ 5000 is a family of single layer cathodic e-coat primers based on acrylic resins that are highly UV resistant. They have been specially developed to provide excellent coverage on the first run. Their long-term weathering resistance, mechanical properties, and powerful corrosion protection, make these e-coats ideally suited for bulk coating of outdoor equipment. As with all of Axalta's E-coats, AquaEC™ 5100 and AquaEC™ 5500 are environmentally responsible and HAPS compliant due to their lead-free, water-based formulations.





		AquaEC 5500	AquaEC 5100
Technical Aspects	Chemistry	1K Acrylic Resin	2K Acrylic Resin
	Pretreatment*	Tricationic Zincphosphate	
	Coating Thickness	20-60µm	20-50µm
	Recommended Bake	150-195°C	
	Minimum bake	25min @ 150°C	
	Pendulum Hardness	> 120	
	Erichsen Cupping	≥ 7 mm	
	UV resistance (DIN EN ISO 16474-2)	1000hrs >65% residual at 60°	
	Humidity Test (DIN EN ISO 6270-2)	500h No changes	
	Salt Spray Test (DIN EN ISO 9227)	500h d<2mm	
	Cross Out Adhesion	GT 0 - GT 1	
	Storage Stability (+5°C to +30°C)	12 Months	4 Months
Aesthetic Aspects	Colour offering	Multiple	
	Substrate	Metal	
	Top Coat possibility	Not necessary	
Sustainability Aspects	No lead	✓	
	No tin	✓	
	No Chromate	✓	
	No HAPS	✓	
	REACH compliant	✓	
Specifications	Highlight	<ul style="list-style-type: none"> • Single coat system • High film-build capability • Excellent mechanical properties • Excellent weather resistance • Good chemical resistance • Smooth surface • High throwing power • Good corrosion resistance 	
Typical Applications	Automotive	✓	
	Automotive parts and accessories	✓	
	Appliances	✓	
	General Industrial	✓	
	Agricultural equipment	✓	
	Office and patio furniture	✓	
	Decorative	✓	

* Other pretreatment type are also possible (Tricationic ZnPhosphate, Iron Phosphate and Nanoceramic type) - Contact your product expert

Anodic Electrocoats



AquaEC™

The AquaEC range of anodic electrocoats offers long-lasting protection, efficiently applied.

AquaEC™ A200

AquaEC™ A200 is a 1K polybutadiene primer. Its excellent levelling and good corrosion protection means this primer can be used as a universal system for coating bulk series of one colour. It is suitable for steel, iron and cast-iron parts, as well as aluminium components after pre-treatment. As it is lead- and chrome-free, it leads to savings on waste-water disposal.

AquaEC™ A400 - A600

AquaEC™ A400 is a 1K polyester single coat system while AquaEC™ A600 is the 2K version. Both come with excellent colour stability, mainly used for coating household goods and steel furniture. It is especially suitable for radiators and other interior objects with a complex shape because it offers outstanding throwing power and excellent colour retention on a wide range of substrates.

Applied as a thin, single-layer decorative coating, AquaEC™ A400 provides good corrosion protection and water resistance for interior applications.





		AquaEC A200	AquaEC A400	AquaEC A600
Technical Aspects	Chemistry	1K Polybutadiene Primer	1K Polyester	2K Polyester
	Pretreatment*	Tricationic Zincphosphate	Iron phosphate	
	Coating Thickness	15-30µm	10-30µm	
	Recommended Bake	170-205°C	140-205°C	160-210°C
	Minimum bake	20min @ 170°C	25min @ 140°C	13min @ 160°C
	Erichsen Cupping	≥ 3 mm	≥ 4 mm	
	Humidity Test (DIN EN ISO 6270-2)	1000h No changes	500h No changes	
	Salt Spray Test (DIN EN ISO 9227)	240h d<2mm	168h d<3mm	
	Cross Out Adhesion	GT 0 - GT 1		
	Cylindrical Mandrel	8 mm		
	Water Immersion	240 hrs RT no changes		
Storage Stability (+5°C to +30°C)	12 Months	12 Months	4 Months	
Aesthetic Aspects	Colour offering	Black	Multiple	Multiple
	Substrate	Metal		
	Top Coat possibility	✓		
Sustainability Aspects	No lead	✓		
	No tin	✓		
	No Chromate	✓		
	No HAPS	✓		
	REACH compliant	✓		
Specifications	Highlight	<ul style="list-style-type: none"> • Primer • High performance • Excellent surface • Appearance and flow • Good corrosion protection • Lead and chromate Free 	<ul style="list-style-type: none"> • Primer or single layer • Good UV resistance • Excellent colour control • Smooth surface finish • Reliable corrosion protection • High Yield, excellent transfer efficiency • Low solvent, free of heavy metals 	
Typical Applications	Automotive seats, car parts	✓		
	Automotive parts and accessories	✓		
	Appliances	✓		✓
	General Industrial	✓		✓
	Agricultural equipment	✓		
	Office and patio furniture	✓		✓
	Decorative	✓		✓
	Sports/Recreation/Exercise	✓		
	General Finishing	✓		
	Military	✓		
	Truck & Bus	✓		
Castings	✓			

* Other pretreatment type are also possible - Contact your product expert



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