

Technical Data and Application Guide

Abcite® 585 EF



Product description

Abcite® 585 EF is a single layer, primer-free, halogen-free, high strength adhesive thermoplastic powder coating which provides shattering protection for glass pieces and preserves the original glass appearance.

Transparent and glossy, Abcite® 585 EF coating is difficult to notice in the daily use of glass objects.

It is tough and has a strong adhesion to glass, greatly improving the mechanical resistance of fragile glass pieces.

In case of glass breakage, this puncture, tear and cut-resistant coating protects users from injuries and prevents any exposure to the content of a glass container.

Abcite® 585 EF is designed for coating glass items by electrostatic spraying or hot flocking, or by dipping in a fluidized bed.

Typical applications

Abcite® 585 EF is widely used as a shatterproof coating for glass bottles containing hazardous or expensive chemicals.

It is well suited for coating light tubes intended for the food industry or medical facilities, where no broken glass splinters can be tolerated.

Abcite® 585 EF extends the lifetime of fragile decorative glass and laboratory glassware, making them more robust and safer to use.

Abcite® 585 EF should not be used for steam sterilizers.

Product range

Abcite® 585 EF is currently available as a clear powder coating.

Standard packaging: 20 kg cardboard box with inner sealed aluminum lined bag.

Product certifications

Food Contact : Compliant with the EU regulation No. 10/2011 and FDA CFR Title 21

Storage

Abcite® 585 EF should be stored in a cool (<50°C) and dry space, out of direct sunlight exposure. The product should be used within 5 years after the production date.

Any open package with powder left for a later use should be properly (airtight) sealed for storage.

Agglomerates may form during transportation and storage. This reversible phenomenon is not a sign of poor quality but may occur in case of specific environmental conditions causing compaction. The powder can easily be brought back to its original state through sieving.

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General properties	Measure	Unit	Standard and test conditions
Maximum particle size	250	µm	ISO 8130-1
Bulk density	0.36	g.cm ⁻³	ASTM D1895 (Method A)
Specific gravity	0.94	g.cm ⁻³	ISO 1183
Melt flow index	25	g/10min	ISO 1133 (190°C, 2.16kg)
Gloss 60°	65-85	%	ISO 2813
Thermal properties			
Melting temperature	96	°C	ISO 3146
Vicat softening temperature	67	°C	ISO 306
Maximum continuous temperature	80	°C	Test Axalta
Thermal conductivity	0.25	W.m ⁻¹ .K ⁻¹	ASTM E1530
Flammability rating	V-0		UL 94
Mechanical Properties			
Abrasion resistance (Taber)	25	mg (weight loss)	ISO 9352 (CS-10, 1000g)
Hardness	60	Shore D	ASTM D2240
Impact resistance	>18.2	J	ASTM D2794 (1.5mm steel; ball diameter : 15.9mm)
Tensile strain at break	230	%	ISO 527
Tensile strength	19	MPa	ISO 527
Electrical properties			
Dielectric strength	44	kV.mm ⁻¹	ASTM D149
Volume resistivity	2.10 ¹⁷	Ω.cm	ASTM D257
Chemical properties			
Chemical resistance*	20°C	60°C	
	Acids	Excellent	Excellent
	Alkalis	Excellent	Excellent
	Fuels	Good	Poor
	Solvents	Good	Not recommended
			ISO 2812 and ISO 4628
* A specific chemical resistance test is recommended before any industrial application.			
These tests were performed using Abcite® 585 EF, with degreased, grit-blasted steel panels coated by dipping in a fluidized bed (thickness 500 ± 100µm), or with injected samples. The results may vary for other substrate types or a different coating thickness.			

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Surface preparation

No special surface preparation is required prior to the application of Abcite® 585 EF. The glass surface should be clean, free of any grease or other contaminant.

No primer is required in order to achieve Abcite® 585 EF highest adhesion level on the glass substrate.

Specific glass areas may need to remain uncoated. This can be done easily by **masking** with disposable, heat-resistant tape or cardboard elements.

Facility requirements

Dust should be avoided in the application area and in the preheating and post-heating ovens. Any surface contamination on Abcite® 585 EF transparent coating will impact its appearance.

The **compressed air supply must be filtered** to remove any trace of moisture, oil, or other contaminants.

Oven :

- The oven used for preheating must be able to heat up to at least **180°C**, with even and precise control.
- Convection ovens (electrical and gas without direct flame), and radiation ovens (IR, induction, etc.) can be used. Gas IR ovens and gas ovens with direct flame may cause steel and coating oxidation.
- Any variation between the temperature set point and the actual oven temperature must be known.

Spray equipment :

- All usual powder coating guns can be used to spray Abcite® 585 EF.

Fluidized bed :

- All electrically conductive components of the fluidized bed must be **grounded to avoid electrostatic charge** build-up, allowing a regular powder flow in the fluid bed and a homogeneous coating.
- The air compressor system must be capable of supplying an **adequate flow and pressure of air** in accordance with the fluid bed size.
- The fluid bed dimensions should allow a **±20% powder expansion** from a still to fluidized state.

Before using this product, please read carefully the product safety data sheet, available from your Axalta Coating Systems representative.

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Application procedure

The steps described below give basic setting guidance, to be specifically adjusted for each part and facility design, with the help of the troubleshooting indications.

1. **Preheat the glass item** in an oven set at 200 to 250°C for 5 to 10 minutes.
2. Apply Abcite® 585 EF on the glass surface using either the spraying or the dipping method.

Spraying:

- Spray Abcite® 585 EF on the glass with a surface temperature between 160 and 200°C.
- Voltage should be set on a minimum value to avoid back ionization
- Powder output and air flow should be set in the upper half of the gun range

Dipping in a fluidized bed:

- If the bed was filled more than 1 day prior to the application, the powder should be fluidized for at least 1 hour with filtered and dry compressed air, in order to remove any ambient humidity absorbed in the powder.
- When the glass surface is preheated to a temperature between 160 and 200°C, dip it in the fluidized bed for 2 to 10 seconds depending on the desired thickness.
- While dipped in the fluidized bed, the parts should be in **constant motion**.
- After dipping, any excess powder should be removed by shaking or air blowing the coated part.

During spraying or dipping, Abcite® 585 EF particles melt on the preheated glass surface into a continuous coating. No curing or cross-linking occurs.

3. **Post-heat** the piece in an oven at 170 to 200°C until the coating is smooth, which can take 5 to 20 minutes depending on the preheating temperature and glass thickness.
4. Before the Abcite® 585 EF surface temperature reaches 100°C, rapidly cool the coating by **quenching** in a bath or shower of demineralized water. If the coated object is allowed to cool naturally, the resulting coating will have a cloudy, translucent appearance.

Abcite® 585 EF powder is sensitive to ambient humidity. If a box is not emptied and the Abcite® 585 EF powder is kept for a later use, the aluminum-lined bag must be sealed properly with a hot bar sealer.

Coating thickness

Good results are obtained with a coating thickness in the 300 to 600µm range.

During the coating process or after quality control, if the Abcite® 585 EF film is too thin, it can be corrected by placing the part in a post-heating oven (not longer than 5 minutes at maximum 175°C) and spraying Abcite® 585 EF on the melt coating surface. Subsequent post-heating and quenching will be required.

Coating of contact points or hook marks

If needed, locally heat any uncoated area of the part with a hot air gun and apply Abcite® 585 EF by spraying, sprinkling or patching. Subsequent post-heating and quenching will be required.

Coated part controls

A qualitative adhesion test is advised. With a sharp blade, cut 2 parallel lines through the Abcite® 585 EF coating, 1 cm apart and 3 cm long. Join the 2 lines with a 45° cut and attempt to delaminate the corners.

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Troubleshooting		
Symptom	Potential cause	Corrective action
Irregular coating Orange peel	Insufficient heat	Raise the preheating temperature Post-heat at a higher temperature or for a longer time
	Coating too thin	Increase the coating thickness above 300µm
Translucent or milky appearance of the Abcite® 585 EF coating	Partial crystallization of the coating	Perform the quenching when the coating surface temperature is higher Make sure the demineralized water is not warmer than 50°C
Abcite® dripping Poor edge coverage Formation of fisheyes (craters)	Substrate and/or oven too hot	Reduce the post-heating temperature or duration
Stains or fisheyes	Contamination on the substrate or in the compressed air	Check the glass degreasing step and the compressed air filter efficiency. Strictly avoid silicone-based lubricants in the application area
Glass breakage when dipping in the fluidized bed	Thermal shock	Reduce the preheating temperature
Glass breakage when quenching	Thermal shock	Wait that the coated glass cools down to a lower temperature before quenching
Water flow pattern on the coating surface after quenching	Coating too fluid when quenched	Wait that the coating cools down to a lower temperature before quenching

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