

data sheet SILA-COAT® 5000

single-component anodic electrocoat

The high-performance functional coating SILA-COAT® 5000 meets the highest standards for chemical resistance and corrosion protection, while also complying with the latest regulatory requirements as an environmentally friendly product. It is a transparent coating produced by anodic dip coating that can be applied primarily to aluminum materials, but also to steel materials and other metallic surfaces. It produces very uniform coatings on highly complex components and internal surfaces. Coating combinations are also possible to further improve resistance properties or electrical insulation characteristics through duplex coatings. Common combinations and proven results exist, for example, with our hard anodic coating HART-COAT® and SILA-COAT® 5000, or with our electroless nickel coating DURNI-COAT® and SILA-COAT® 5000.

In anodic electrodeposition coating, the component to be coated is connected as the anode by applying direct current (DC). The resulting chemical reaction at the anode causes the coating (which uses acrylic resin as the binder) to deposit evenly on the surface of the workpiece. The coating must then be thermally cured at 180–200 °C.

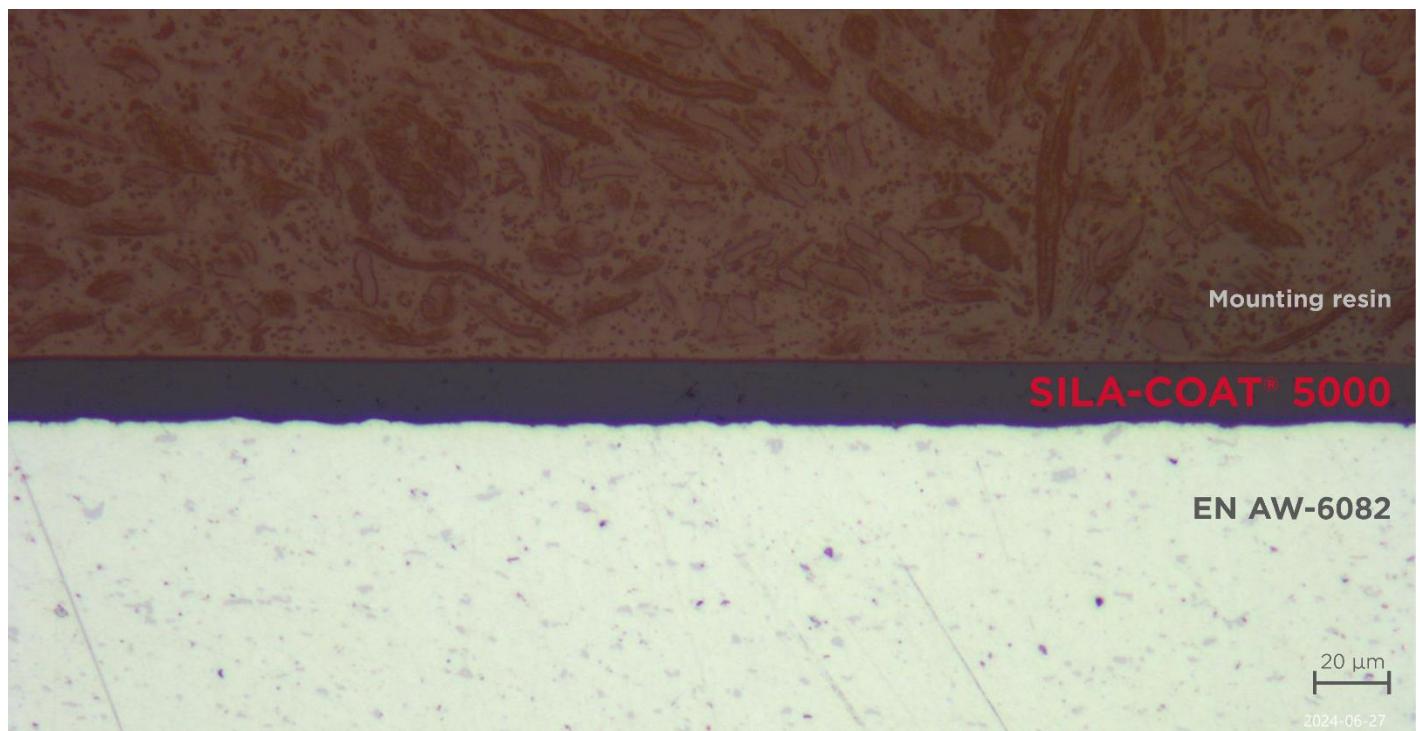


Figure 1: EN AW-6082 wrought aluminum alloy with SILA-COAT® 5000

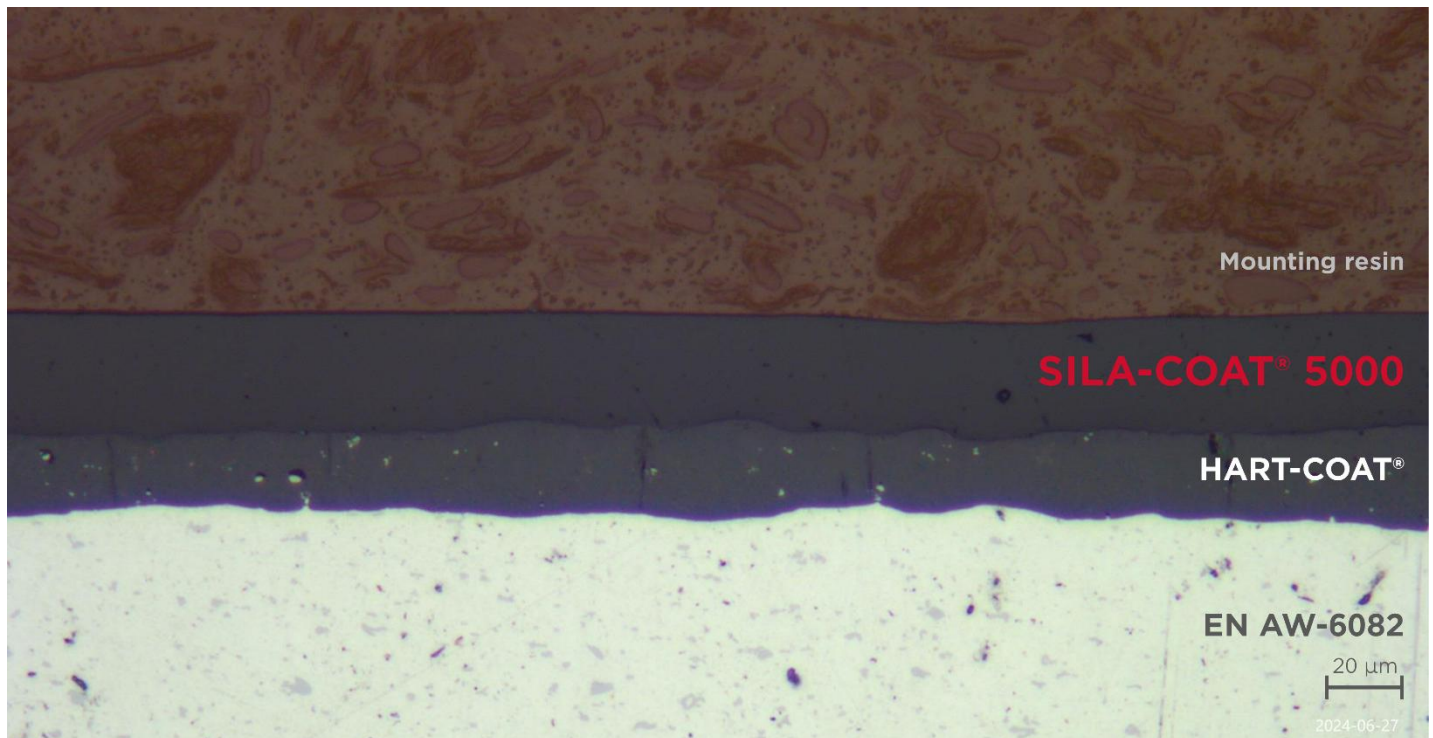


Figure 2: EN AW-6082 wrought aluminum alloy with a combination of HART-COAT® and SILA-COAT® 5000 coatings



Figure 3: Copper material with a coating combination of DNC® 571 + electroplated tin + SILA-COAT® 5000

properties

Substrates suitable for Coating	Wrought and cast aluminum alloys, steel (other materials available upon request)
Pre-treatment or Primer	Corundum blasting, glass bead blasting, chemical pretreatment, Cr(VI)-free conversion coating, technical anodizing, HART-COAT®, HART-COAT®-GL, DURNI-COAT® electroless nickel (other pretreatments/undercoats available upon request)
Color	Transparent (or depending on undercoat)
Coating Thicknesses	8 ± 2 µm to 25 ± 5 µm
Thermal Conductivity	7,1 W/m·K (at 25 °C)
Temperature Resistance	200 °C
Buchholz Hardness (DIN EN ISO 2815)	0,8 mm
Adhesion (DIN EN ISO 2409)	Gt 0 (cross-hatch)
Electrical insulation (DIN EN ISO 2376)	> 2000 V (20 µm on EN AW-6082)
Corrosion resistance (DIN EN ISO 9227 – NSS)	> 2000 h, Ri 0 (Evaluation according to DIN EN ISO 4628-3 / 20 µm on EN AW-6082)
Product safety	REACH SVHC, RoHS

Chemical testing in accordance with DIN EN ISO 2812-3 (room temperature)

Test Medium	Examination	Duration of exercise					
		10 min.	1 hr	24 hr	10 min.	1 hr	24 hr
		Assessment immediately after exercise			Assessment 24 hr after exercise		
Diesel Fuel	Softening	0	0	0	0	0	0
	Bubbles	0	0	0	0	0	0
	Swelling	0	0	0	0	0	0
	Color change	0	0	0	0	0	0
	Change in gloss	0	0	0	0	0	0
Premium Gasoline	Softening	0	0		0	0	
	Bubbles	0	0	not tested,	0	0	not tested,
	Swelling	0	0	medium	0	0	medium
	Color change	0	0	evaporated	0	0	evaporated
	Change in gloss	0	0		0	0	
Brake Fluid	Softening	0	0	0	0	0	0
	Bubbles	0	0	0	0	0	0
	Swelling	0	0	0	0	0	0
	Color change	0	0	0	0	0	0
	Change in gloss	0	0	0	0	0	0

Radiator Antifreeze	Softening	0	0	0	0	0	0
	Bubbles	0	0	0	0	0	0
	Swelling	0	0	0	0	0	0
	Color change	0	0	0	0	0	0
	Change in gloss	0	0	0	0	0	0
Ethanol	Softening	0	0	not tested,	0	0	not tested,
	Bubbles	0	0	medium	0	0	medium
	Swelling	0	0	evaporated	0	0	evaporated
	Color change	0	0		0	0	
	Change in gloss	0	0		0	0	
Ethanol / Water 1 : 1	Softening	0	0	0	0	0	0
	Bubbles	0	0	0	0	0	0
	Swelling	0	0	0	0	0	0
	Color change	0	0	0	0	0	0
	Change in gloss	0	0	0	0	0	0
Isopropanol	Softening	0	0	not tested,	0	0	not tested,
	Bubbles	0	0	medium	0	0	medium
	Swelling	0	0	evaporated	0	0	evaporated
	Color change	0	0		0	0	
	Change in gloss	0	0		0	0	
Sodium Hydroxide Solution 5%	Softening	0	0	0	0	0	0
	Bubbles	0	0	0	0	0	0
	Swelling	0	0	0	0	0	0
	Color change	0	0	0	0	0	0
	Change in gloss	0	0	0	0	0	0
Hydrochloric Acid 10%	Softening	0	0	0	0	0	0
	Bubbles	0	0	0	0	0	0
	Swelling	0	0	0	0	0	0
	Color change	0	0	0	0	0	0
	Change in gloss	0	0	0	0	0	0
Sulfuric Acid 10%	Softening	0	0	0	0	0	0
	Bubbles	0	0	0	0	0	0
	Swelling	0	0	0	0	0	0
	Color change	0	0	0	0	0	0
	Change in gloss	0	0	0	0	0	0
Sulfuric Acid 36%	Softening	0	0	0	0	0	0
	Bubbles	0	0	0	0	0	0
	Swelling	0	0	0	0	0	0
	Color change	0	0	0	0	0	0
	Change in gloss	0	0	0	0	0	0
Deionized Water	Softening	0	0	0	0	0	0
	Bubbles	0	0	0	0	0	0
	Swelling	0	0	0	0	0	0
	Color change	0	0	0	0	0	0
	Change in gloss	0	0	0	0	0	0

Chemical testing in accordance with DIN EN ISO 2812-3 (70 °C)

Test Medium	Examination	Duration of exercise			
		24 hours	7 days	24 hours	7 days
		Assessment immediately after exercise		Assessment 24 hours after exercise	
Engine oil	Softening	0	0	0	0
	Bubbles	0	0	0	0
	Swelling	0	0	0	0
	Color change	0	0	0	0
	Change in gloss	0	0	0	0
Hydraulic oil	Softening	0	0	0	0
	Bubbles	0	0	0	0
	Swelling	0	0	0	0
	Color change	0	0	0	0
	Change in gloss	0	0	0	0
Transmission oil	Softening	0	0	0	0
	Bubbles	0	0	0	0
	Swelling	0	0	0	0
	Color change	0	0	0	0
	Change in gloss	0	0	0	0

Chemical testing in accordance with DIN EN ISO 2812-3 (50 °C)

Test Medium	Examination	Duration of exposure			
		10 min.	30 min.	7 hr	7 days
		Evaluation immediately after exposure			
Premium Gasoline	Softening	0	0	0	0
	Bubbles	0	0	0	0
	Swelling	0	0	0	0
	Color change	0	0	0	0
	Change in gloss	0	1	1	1
AdBlue	Softening	0	0	0	0
	Bubbles	0	0	0	0
	Swelling	0	0	0	0
	Color change	0	0	0	0
	Change in gloss	0	0	0	0

Chemical testing in accordance with DIN EN ISO 2812-3 (80 °C, 168 h)

Test Medium	Examination	Duration of exposure: 168 hours	
		Evaluation immediately after exposure	
AdBlue, 70 °C	Softening	0	
	Bubbles	0	
	Swelling	0	
	Color change	0	
	Change in gloss	0	
AdBlue, 80 °C	Softening	0	
	Bubbles	0	
	Swelling	0	
	Color change	0	
	Change in gloss	0	

Legend

- 0 = no change, i.e., no perceptible change
- 1 = very slight, i.e., barely perceptible change
- 2 = slight, i.e., clearly perceptible change
- 3 = moderate, i.e., very clearly perceptible change
- 4 = strong, i.e., pronounced change
- 5 = very strong change

(All specifications may vary depending on the base material, machining, surface condition, or operating conditions, and do not constitute the basis for warranty claims or similar claims. This must be evaluated for each specific application under production conditions using defined tests. Absolute color consistency between different batches or components cannot be guaranteed and must also be verified.)