Lubrizol

Imagined for Life. Enabled by Science.™

PTFE-Free Wax Additives Performance Data

Outstanding Surface Protection Without PTFE

For the coatings industry Lubrizol has developed a range of PTFE-free* micronized waxes and liquid wax dispersions that significantly improve scratch and abrasion resistance while reducing coefficient of friction (COF) comparable to traditional PTFE-based wax additives.

These halogen-free* surface modifiers are easy to handle wax additives and wax dispersions, designed for the use in water-based and solvent-based can, coil and general industrial coatings as well as wood coatings.

FEATURES AND BENEFITS

- Highly effective surface modification
- Halogen-Free* PTFE-Alternatives
- Suitable for use in water-based and solvent-base coatings
- Suitable for thin-film applications
- Small and narrow particle size distribution
- EU 10/2011 and FDA 21 CFR 175.300 compliant

Micronized Powders	Liquid Dispersions
Lanco™ 1510 SF	Lanco™ Glidd 6635
Lanco™ 1510 EF	Lanco™ Glidd 6692 E
Lanco™ 2510 SF	Lanco™ Glidd 7605
Lanco™ 2520 SF	Lanco™ Glidd 7610
Lanco™ 2520 EF	Lanco™ Glidd 7678
Lanco™ 2530 EF	
Lanco™ 2540 SF	
Lanco™ 2540 EF	
Lanco™ 2541 SF	

* Not intentionally added to the composition of this product.

BENEFITS OF PTFE

For years, polytetrafluoroethylene (PTFE) has brought several desirable properties for traditional ink and coating applications. Low molecular weight PTFE micronized powders have been used for a variety of purposes, including to reduce the coefficient of friction of the film to aid mobility and to lubricate and protect surfaces from scratch and abrasion forces. Anti-blocking properties and release effects can also be generated.

To achieve low molecular weight and friability has typically required irradiation to enable particle size reduction using conventional micronization techniques. The irradiation process has been demonstrated to generate PFAS components, with PFOA and PFOS both classified as reproductive toxins and suspected carcinogens.

REGULATORY ACTIONS IMPACTING THE USE OF PTFE

In May of 2019, a global ban on PFOA and its salts as persistent organic pollutants (POPs) was agreed under the Stockholm Convention restricting the use of raw materials containing >25 ppb PFOA. Most of the 182 countries that have ratified the Stockholm Convention have 12 months to implement the ban. Following the legislation certain PTFE raw materials were withdrawn.

This global impact is driving the ink and coating industries to shift away from raw materials like PTFE.

Additionally, PTFE stability properties that have driven use in many applications and its halogen content also impact cradle-to-cradle policies.

LUBRIZOL'S SOLUTIONS

Lubrizol's technical team has focused on development of PTFE-free surface modifiers to deliver similar properties to PTFEcontaining additives. PTFE-free technologies are available in micronized and dispersed forms of surface modifying additives under the Lanco™ Surface Modifiers brand. More products are currently under development to meet specific customer needs and provide additives for a wider range of applications. Please contact Lubrizol to discuss further solutions.

Micronized PTFE-Free Surface Modifiers

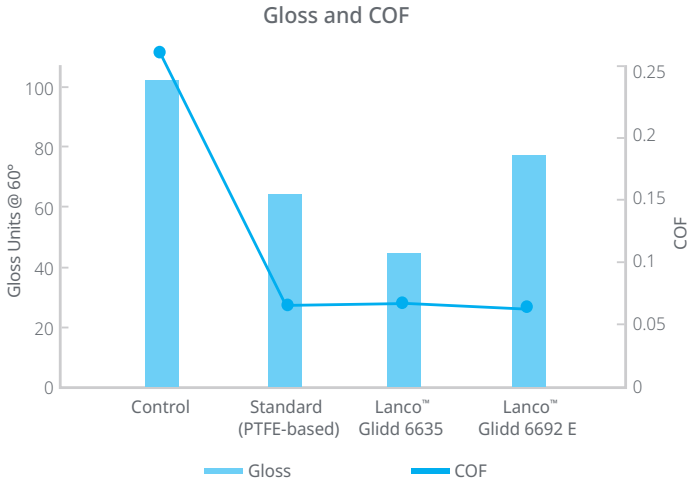
		Particle Size				Applications			
Product Name	Polymer Type	Dv50 (µm)	Dv90 (µm)	Melting Point °C (°F)	Density (g/cm³) @ 20 °C	Can & Coil Coatings	General Industrial Coatings	Wood Coatings	Inks
Lanco™ 1510 SF	Modified Polyolefin Wax	≤ 6	≤14	106 (223)	0.96	•	•	•	•
Lanco™ 1510 EF	Modified Polyolefin Wax	≤ 5	≤10.5	106 (223)	0.96	• (thin film)	•	•	•
Lanco™ 2510 SF	Inorganically Modified Wax	≤ 6	≤14	105 (221)	1.05	•	•	•	•
Lanco™ 2520 SF	Inorganically Modified Wax	≤ 6	≤14	105 (221)	1.07		•	•	
Lanco™ 2520 EF	Inorganically Modified Wax	≤ 5	≤10	105 (221)	1.07		•	•	
Lanco™ 2530 EF	Organically Modified Wax Compound	≤ 6	≤12	116 (241)	0.92	• (thin film)	•	•	•
Lanco™ 2540 SF	Organically Modified Wax Compound	≤ 6	≤14	128 (262)	0.95	•	•	•	•
Lanco™ 2540 EF	Organically Modified Wax Compound	≤ 5.2	≤ 10	128 (262)	0.95	• (thin film)	•	•	•
Lanco™ 2541 SF	Organically Modified Wax Compound	≤ 6	≤ 14	144 (291)	0.95	•	•	•	•

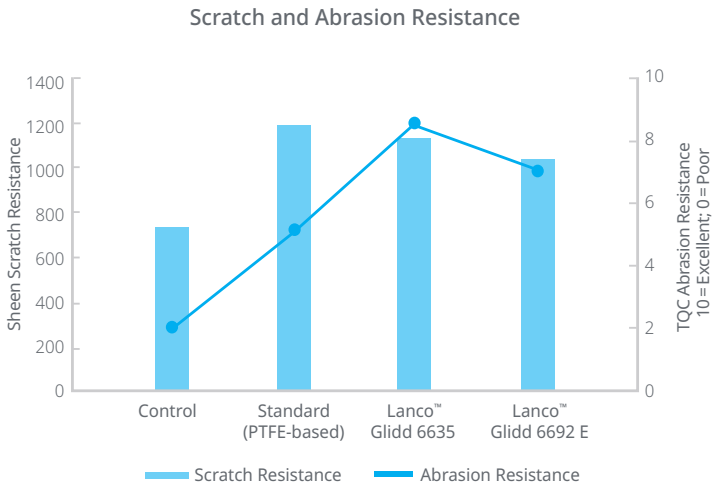
Dispersed PTFE-Free Surface Modifiers

				Particle Size				Applications		
Product Name	Polymer Type	Solids %	Solvent	Dv50 (µm)	Dv90 (µm)	Melting Point °C (°F)	Density (g/cm³) @ 20 °C	Can & Coil Coatings	General Industrial Coatings	Wood Coatings
Lanco™ Glidd 6635	Wax Combination	30	Water, Butyl Glycol	≤ 6	≤12	128 (262)	0.96	•	•	•
Lanco™ Glidd 6692 E	Wax Combination	29	Water, Butyl Glycol	≤ 3	≤7	106 (223)	0.98	• (thin film)	•	•
Lanco™ Glidd 7605	Inorganically Modified Polyolefin Wax	20	Aromatic Solvent, Butyl Glycol	≤ 4	≤8	105 (221)	0.93		•	
Lanco™ Glidd 7610	Inorganically Modified Carnauba Wax	18.5	Butyl Glycol	≤ 4	≤8	82 (180)	0.93		•	•
Lanco™ Glidd 7678	Polyolefin Wax	20	Butyl Glycol	≤ 3.5	≤7	106 (223)	0.91	• (thin film)	•	•

Performance Data in Water-Based Epoxy Phenolic Melamine Gold Lacquer (Can Coating)

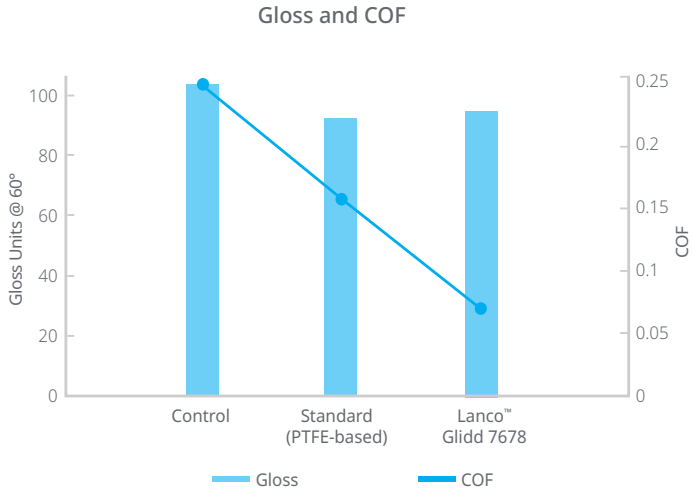
0.5 % active content, 20 µm wet film thickness on tin plate, curing conditions 12 min @ 200°C

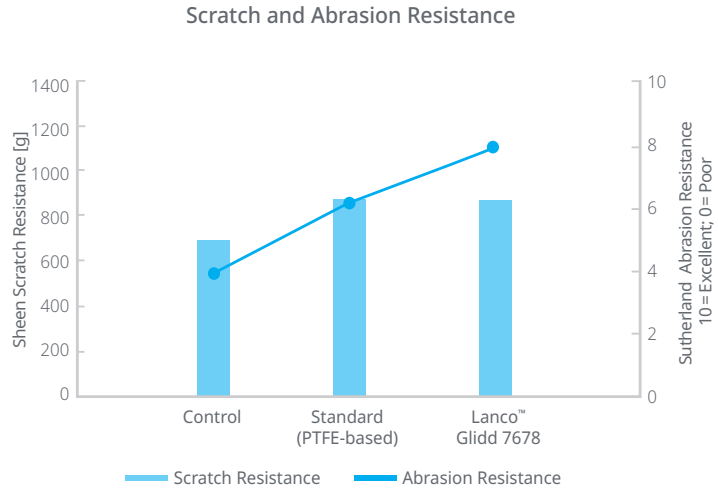




Performance Data in Solvent-Based Polyester Phenolic Gold Lacquer, BPA-NI* (Can Coating)

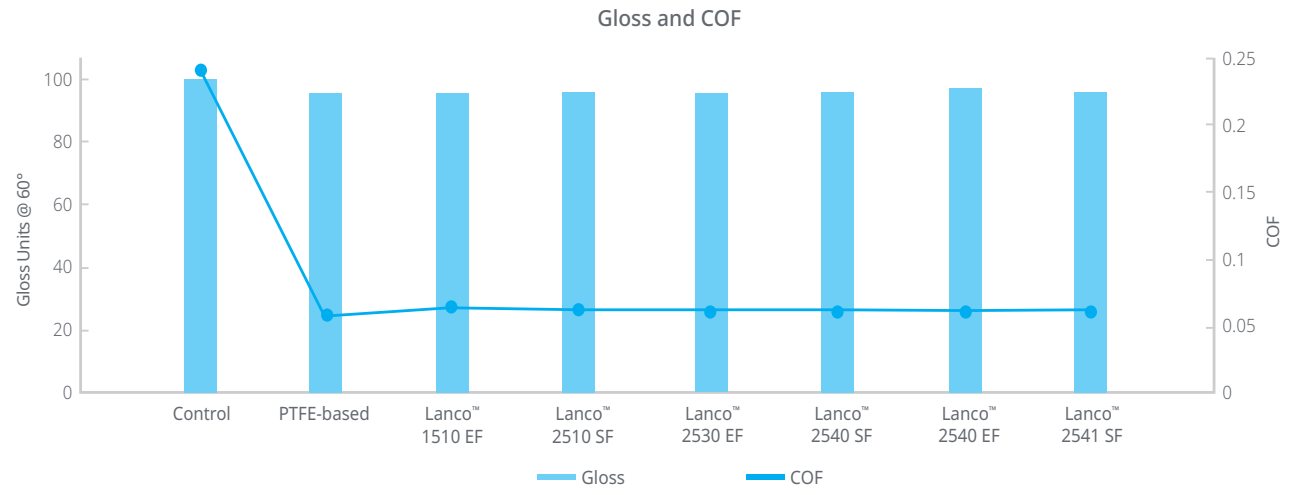
0.5 % active content, 20 µm wet film thickness on tin plate, curing conditions 10 min @ 200°C

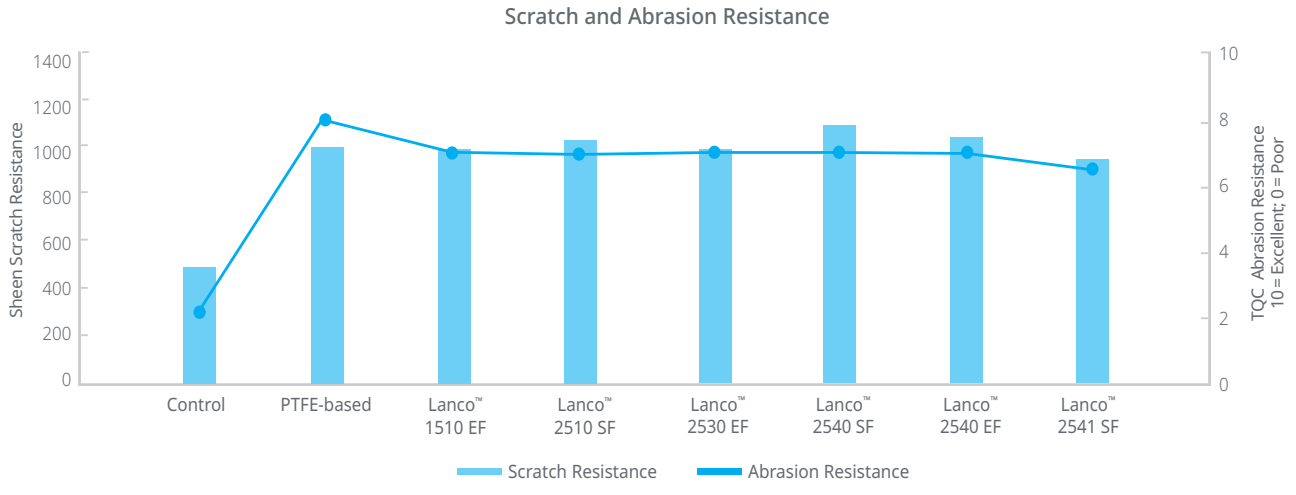




Performance Data in Solvent-Based Polyester Phenolic Gold Lacquer, BPA-NI* (Can Coating)

0.5 % active content, 20 µm wet film thickness on tin plate, curing conditions 10 min @ 200°C

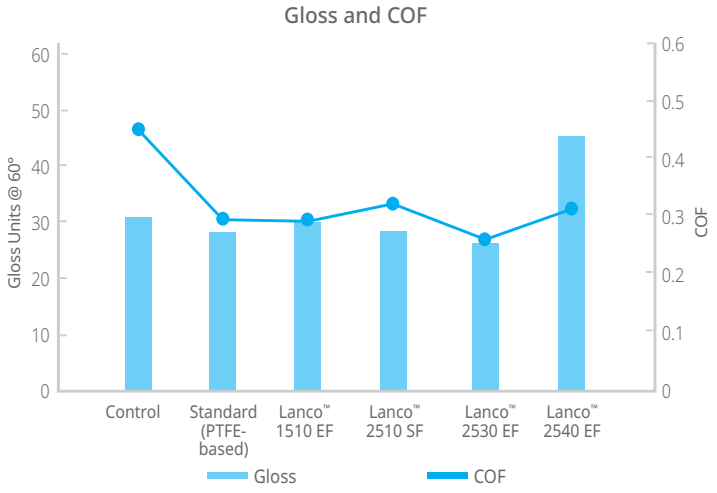


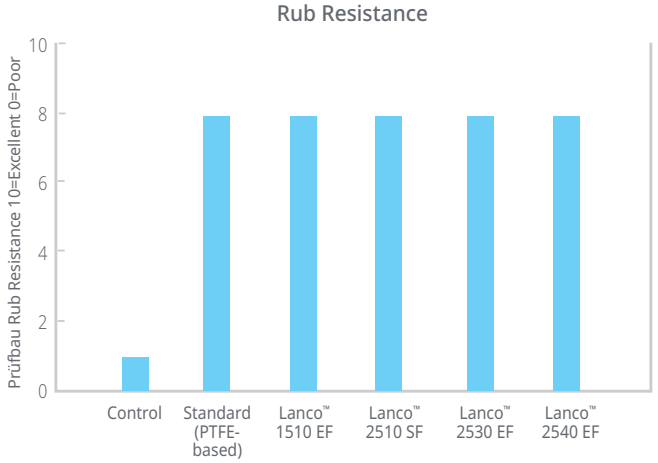


* Bisphenol-A Non-Intent

Performance Data in Water-Based Acrylate Resin Ink

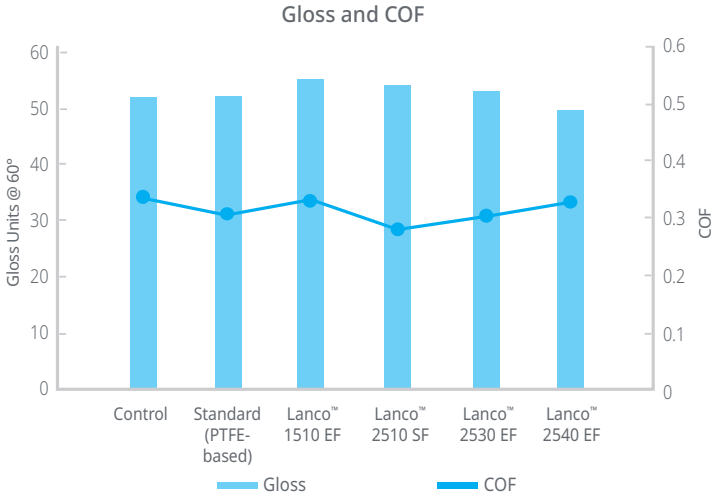
2% active content, application on Leneta paper 3NT-31 backside, drying time 24h.

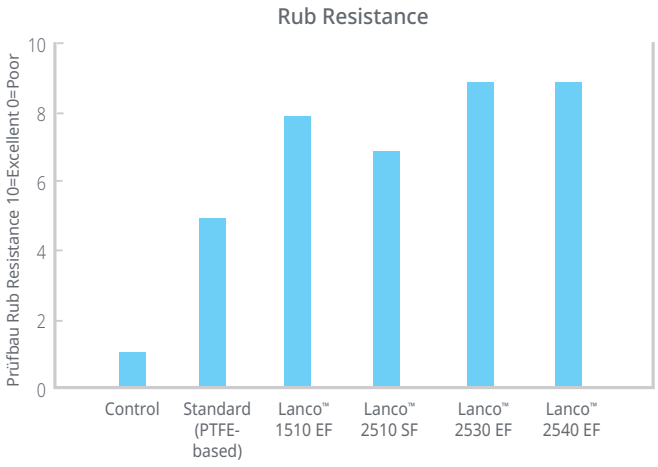




Performance Data in UV Acrylate Resin Ink

2% active content, application on Leneta paper 3NT-31 backside, radiation drying.





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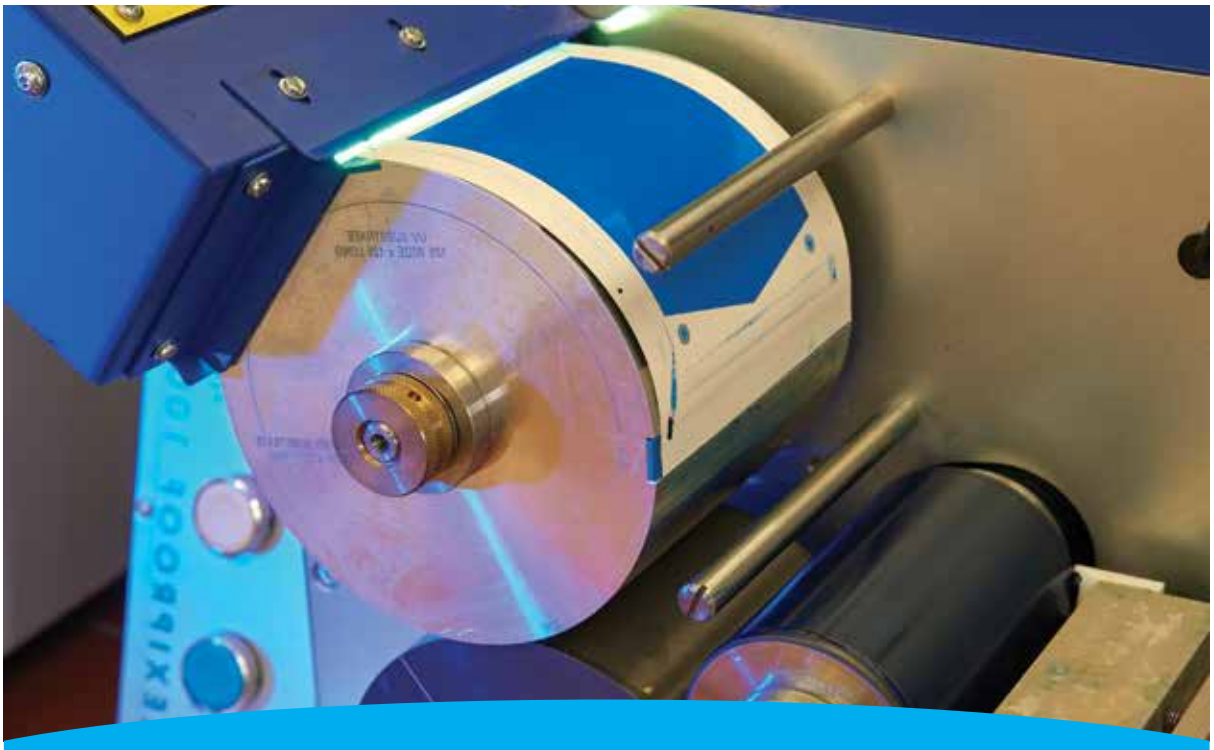

Lubrizol is an innovative, collaborative and trusted partner to the Coatings industry, bringing high-performing dispersant, resin, wax additive, color dispersions, and specialty additive technologies for a wide range of coatings, inks, paper, textiles/ nonwovens, composites and other formulated products. We apply world-class materials science to real-world challenges and collaborate with our customers to enhance the performance, productivity and sustainability capabilities of their products.

www.lubrizol.com/coatings

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