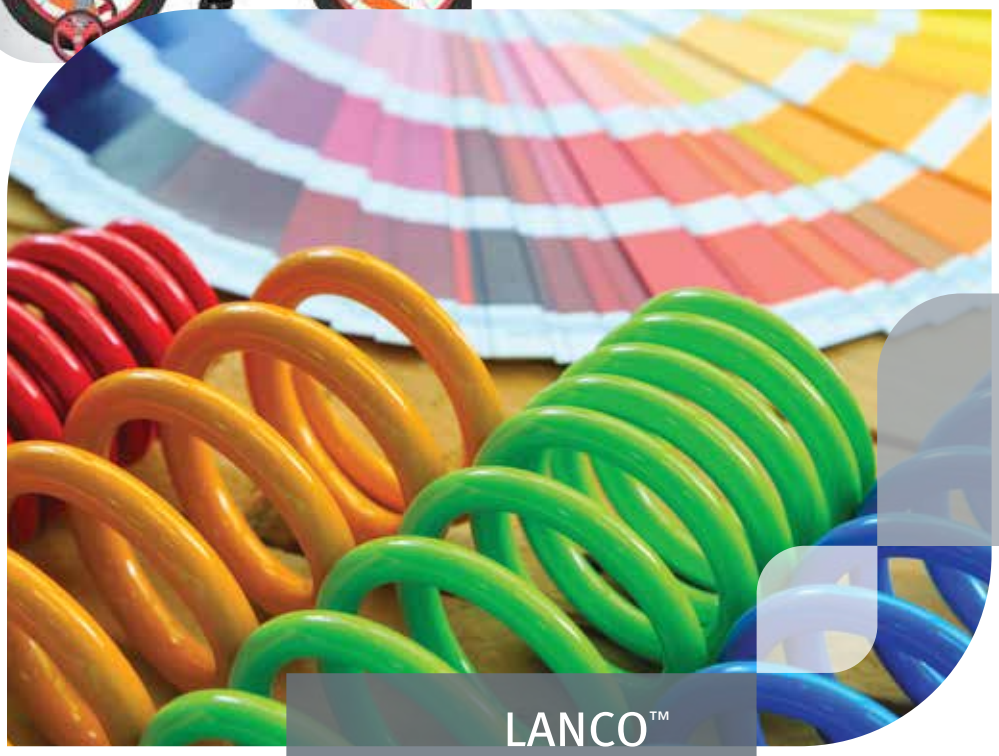
Lubrizol

GENERAL INDUSTRIAL METAL



LANCO™
POWDERADD™
SOLPLUS™

POWDER COATINGS PRODUCT GUIDE

www.lubrizol.com/powder

WHAT WE ADD MAKES THE DIFFERENCE.™

As a global specialty chemical company, Lubrizol offers effective solutions to help powder coatings manufacturers enhance performance with an additives portfolio that empowers formulators to improve a broad range of functional and aesthetic properties. Our advanced technologies strengthen numerous powder coatings performance properties, such as gloss and matting, scratch and mar resistance, texturing, degassing and flow. We dedicate our global expertise to providing the powerful additives that give our customers a competitive edge when entering new markets and growing business in their existing areas of focus.

Innovative Products

Our surface modifiers, flow modifiers and hyperdispersants provide manufacturers with the means to meet a diverse range of performance and production benchmarks. From increased durability to enhanced appearance to regulatory compliance, we can help manufacturers achieve all of their powder coating requirements.

Of equal importance, with decades of experience, our team of technical service experts offers invaluable formulation insight to create solutions tailored to your unique application. Additionally, Lubrizol specializes in comprehensive development and testing to ensure reliable performance and manufacturing efficiency.

Trusted Supplier

Lubrizol powder coating specialists have a long track record of working side-by-side with customers to create individualized formulations for their needs. The result is an expansive product line and a wealth of knowledge that offers effective solutions for your company.

Not only does Lubrizol deliver outstanding additives, we offer the reliability every operation needs from its suppliers. From product availability to timely delivery, our global network offers the distribution and service that manufacturers require to thrive in today's competitive business environment.

Matting/Gloss Control

PowderAdd™ 9025/9027
Polyolefin waxes that produce good matting while also offering increased scratch resistance and improved slip.

PowderAdd™ 9094
A pure polypropylene wax with very good matting which supports adhesion of coating layers on top of the matted powder surface, for example silicone sealants, adhesives, or liquid paints. It also provides surface hardness and increased coefficient of friction (Anti-slip) compared to conventional wax additives.

Scratch/Mar Resistance

Lanco™ 1900 MF
This polymer compound provides both scratch and mar resistance and reduction of coefficient of friction (COF). Lanco™ 1900 MF offers minimal loss of gloss and minimal haze formation, with negligible impact on distinctness of image (DOI).

Lanco™ PP 1350 F
This PP modified polyethylene delivers high abrasion and scratch resistance, excellent scuff resistance.

Lanco™ TF 1720C
A PTFE modified PE that increases scratch and abrasion resistance as well as slip properties. Lanco™ TF 1720 is an economical grade that offers good hardness.

Lanco™ TF 1778C
This PTFE modified PE increases scratch, scuffing and abrasion resistance. It also provides excellent slip.

PowderAdd™ 9078C
This PTFE modified PE delivers excellent scratch/mar resistance as well as good slip and abrasion resistance, and very good gloss retention.

PowderAdd™ 9420
This proprietary blend is designed to improve the degassing properties of powder coatings, especially of low cure systems. It provides good flow properties and enhances surface slip.

Degassing Agents

Lanco™ SM 2003
A modified PE wax providing excellent degassing properties and enhanced air release to prevent cratering during curing. Lanco™ SM 2003 also increases slip and reduces yellowing versus amides.

PowderAdd™ 9062
This modified polyethylene wax provides excellent degassing properties and reduced coefficient of friction (COF) at an excellent cost/performance ratio.

PowderAdd™ 9060
This amide wax ensures excellent degassing properties and enhanced air release to prevent cratering during curing. PowderAdd™ 9060 also acts as a process aid and significantly enhances slip.

PowderAdd™ 9423
A proprietary blend, PowderAdd™ 9423 promotes effective degassing and adhesion, i.e., of silicone sealants. It also offers good gloss retention and low haze.

SURFACE MODIFIERS FOR POWDER COATINGS

	SCRATCH RESISTANCE	MATTING EFFICIENCY	DEGASSING	POST ADDABILITY
MICRONIZED PRODUCTS				
Lanco™ TF 1778C	■■■■■□	■■■□□□	■□□□□□	YES
Lanco™ TF 1720C	■■■■■□	■■■□□□	■□□□□□	YES
PowderAdd™ 9078C	■■■■■■	■□□□□□	■□□□□□	NO
Lanco™ 1900 MF	■■■■■□	□□□□□□	■■□□□□	YES
Lanco™ PP 1350 F	■■■■□□	■■□□□□	■□□□□□	YES
PowderAdd™ 9094	■■■□□□	■■■■■■	■■■□□□	NO
PowderAdd™ 9025	■■■□□□	■■■■■□	■■□□□□	NO
PowderAdd™ 9027	■■■□□□	■■■■■□	■■□□□□	NO
PowderAdd™ 9062	■■■□□□	■■■□□□	■■■■■□	NO
Lanco™ SM 2003	■■■□□□	■■■□□□	■■■■■□	YES
PowderAdd™ 9060	■■■□□□	■■■□□□	■■■■■□	YES
PowderAdd™ 9423	■■■□□□	■□□□□□	■■■■■■	YES

LOW = □□□□ HIGH = ■■■■

Flow Modifiers

Lanco™ Flow P10
This additive reduces or mitigates craters, pinholes, fisheyes and other surface defects as well as reducing orange peel and improving substrate wetting.

Lanco™ Flow P30
An oleo-based modified wax that improves flow and leveling with minimal influence on gloss. With broad compatibility and easy dispersability, it delivers degassing properties as well.

Fluidizing Agents

PowderAdd™ G130
An inorganic surface-treated silica gel, PowderAdd™ G130 improves fluidization and flow during powder coating application. It also provides improved storage stability and anti-caking properties.

Antistatic Agents

Lanco™ Stat 308
A conductivity promoter, Lanco™ Stat 308 minimizes Faraday cage effect while also improving coverage in recessed corners and on edges. It also aids dispersion of pigments and filler concentrates.

Post-Addable Agents

PowderAdd™ 9553
Post-addable matting agent which quickly turns ready-made powder coatings into matte finishes.

General Purpose

PowderAdd™ 9016
A polyethylene wax that functions as a processing aid during powder production. Designed for near universal use, PowderAdd™ 9016 offers good surface properties such as slip, scratch and abrasion resistance.

Hyperdispersants

Solplus™ L300
A polymeric dispersant that improves pigment dispersion, stability and final film quality. Most pigments will also have better gloss, leveling and flow, color development and jetness (carbon black pigments).

Solplus™ L400
This polymeric dispersant improves pigment dispersion, stability and final film quality. When used with titanium dioxide, it improves additional gloss, leveling/flow and opacity characteristics.

Texturing Agents

PowderAdd™ 9082
A PTFE wax with excellent fine texture control and increased matte appearance at low dosages. It also enhances scratch resistance and slip.

Lanco™ TF 1830 N
A PTFE modified PE wax that combines a uniform, fine surface texture with excellent abrasion resistance. In addition, Lanco™ 1830 N increases surface slip by reducing coefficient of friction (COF).

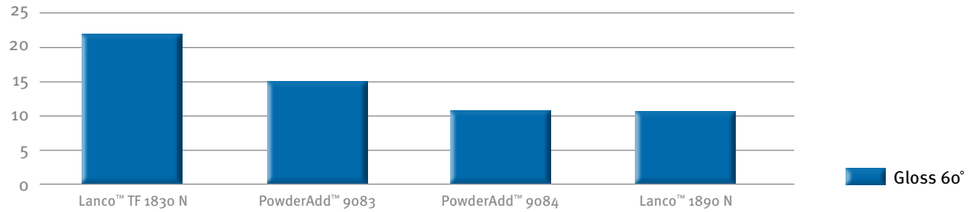
PowderAdd™ 9080 A structuring agent that provides a coarse, “long wave type” structure. PowderAdd™ 9080 also offers excellent control of hammertone type structuring and consistent structure development.

PowderAdd™ 9083
This PTFE modified PE wax gives excellent fine texture control with uniform surface texture and significantly improved matte appearance. It also enhances scratch resistance.

PowderAdd™ 9084
PowderAdd™ 9084 is a PTFE modified PE wax that provides uniform surface texture combined with excellent matting efficiency at low addition rates. It also offers good scratch resistance.

PowderAdd™ 9081
A silicone-free modified synthetic wax that provide a coarse structure in powder coatings. Provides a structure similair to CAB, but with greater control for more consistent texture and less bad batches.

Matting Efficiency of Lanco™ & PowderAdd™ Texturing Agents



Addition level 2% on total formulation weight for Lanco™ TF 1830N, PowderAdd™ 9083 and PowderAdd™ 9084 and 0.4% for Lanco™ 1890 N.

SURFACE MODIFIERS FOR TEXTURING OF POWDER COATINGS

PRODUCT	DESCRIPTION OF TEXTURE	MATTING GRADE	MINIMUM ADDITION RATE
Lanco™ TF 1830 N	FINE, UNIFORM	GLOSSY TO SEMI-MATTE	0.80
PowderAdd™ 9083	FINE, UNIFORM	SEMI-MATTE TO MATTE	0.50
PowderAdd™ 9084	FINE, UNIFORM	SEMI-MATTE TO DULL MATTE	0.50
PowderAdd™ 9082	FINE, UNIFORM	SEMI-MATTE TO DULL MATTE	0.10
PowderAdd™ 9080	COARSE, LONG WAVE	N/A	0.15
PowderAdd™ 9081	COARSE, HAMMERTONE	N/A	0.80

MATTING/GLOSS CONTROL

PRODUCT NAME	DESCRIPTION	PRIMARY BENEFIT	SECONDARY BENEFIT	POST ADDABILITY	TYPICAL PHYSICAL PROPERTIES: PARTICLE SIZE AS DETERMINED BY LASER DIFFRACTION — MEDIAN (DV50 µM)	DENSITY (MM OR G/CM³) @ 20˚C (68˚F)	MELTING POINT ˚C (˚F)
PowderAdd™ 9025	Polyolefin	Matting	Increased scratch resistance, improved slip	No	15	0.96	105 (221)
PowderAdd™ 9027	Polyolefin	Matting	Increased scratch resistance, improved slip	No	470	0.95	105 (221)
PowderAdd™ 9094	Pure PP	Matting, supports adhesion, i.e., of silicone sealants	Superior scratch resistance and surface hardness	No	13	0.90	140 (284)

SCRATCH AND MAR RESISTANCE

PRODUCT NAME	DESCRIPTION	PRIMARY BENEFIT	SECONDARY BENEFIT	POST ADDABILITY	TYPICAL PHYSICAL PROPERTIES: PARTICLE SIZE AS DETERMINED BY LASER DIFFRACTION — MEDIAN (DV50 µm)	DV90 µm	DENSITY (MM OR G/CM³) @ 20˚C (68˚F)	MELTING POINT ˚C (˚F)
Lanco™ 1900 MF	Polymer Compound	Scratch & mar resistance; reduction of coefficient of friction (COF)	Minimal loss of gloss, minimal haze formation, and negligible impact on distinctness of image (DOI)	Yes	15	-	1.12	60 (140)
Lanco™ PP 1350 F	PP Modified PE	High abrasion and scratch resistance, excellent scuff resistance	Enhances antiblocking properties	Yes	9	22	0.94	150 (302)
Lanco™ TTF 1720C	PTFE Modified PE	Increased scratch and abrasion resistance as well as slip	Economical grade with good hardness	Yes	8	18	1.02	125 (257)
Lanco™ TF 1778C	PTFE Modified PE	Enhances scratch resistance, increases resistance to scuffing, improves abrasion resistance	Excellent slip	Yes	6	14	1.04	102 (216)
PowderAdd™ 9078C	PTFE Modified PE	Excellent scratch and mar resistance, good slip and abrasion resistance	Very good gloss retention	No	90	-	1.01	115 (239)

TEXTURING AGENTS

PRODUCT NAME	DESCRIPTION	PRIMARY BENEFIT	SECONDARY BENEFIT	TYPICAL PHYSICAL PROPERTIES: PARTICLE SIZE AS DETERMINED BY LASER DIFFRACTION — MEDIAN (DV50 µm)	DV90 µm	DENSITY (MM OR G/CM³) @ 20˚C (68˚F)	MELTING POINT ˚C (˚F)
Lanco™ TF 1830 N	PTFE Modified PE	Uniform, fine surface texture, excellent abrasion resistance	Increases surface slip by reduction of the coefficient of friction	9	22	1.04	125 (257)
PowderAdd™ 9083	PTFE Modified PE	Excellent fine texture control with uniform surface texture, significantly improved matte appearance	Enhances scratch resistance	100	-	1.02	110 (230)
PowderAdd™ 9084	PTFE Modified PE	Uniform surface texture and excellent matting efficiency	Increases scratch resistance and improves slip	15	35	1.04	125 (257)
PowderAdd™ 9082	PTFE	Excellent fine texture control, increased matte appearance at low dosages	Enhances scratch resistance, increased slip	-	-	2.20	-
PowderAdd™ 9080	Structuring Agent	Provides coarse, long wave type structure	Excellent control of hammertone type structuring, consistent structure development	-	-	1.10	-
PowderAdd™ 9081	Structuring Agent	Provides coarse structure, can be comperable to CAB	Excellent control of hammertone type structuring	140	-	1.40	-

DEGASSING AGENTS

PRODUCT NAME	DESCRIPTION	PRIMARY BENEFIT	SECONDARY BENEFIT	POST ADDABILITY	TYPICAL PHYSICAL PROPERTIES: PARTICLE SIZE AS DETERMINED BY LASER DIFFRACTION — MEDIAN (DV50 µm)	DV90 µm	DENSITY (MM OR G/CM³) @ 20˚C (68˚F)	MELTING POINT ˚C (˚F)
Lanco™ SM 2003	Modified PE	Excellent degassing properties, improves air release during cure to avoid cratering	Improves slip and reduced yellowing versus amides	Yes	9	19	0.97	140 (284)
PowderAdd™ 9062	Modified PE	Excellent degassing properties, reduces coefficient of friction	Reduced yellowing versus amides	No	80	-	0.97	140 (284)
PowderAdd™ 9060	Amide	Excellent degassing properties, improves air release during cure to avoid cratering	Acts as process aid, improves slip signifi-cantly	Yes	9	22	0.98	143 (289)
PowderAdd™ 9423	Proprietary Blend	Effective degassing, provides adhesion, i.e., of silicone sealants	Good gloss retention and low haze	Yes	7.5	16	-	140 (284)
PowderAdd™ 9420	Proprietary Blend	Excellent degassing properties, expecially effective in low cure systems	Good flow properties and enhances surface slip	No	9	22	0.92	80 (176)

FLOW MODIFICATION

PRODUCT NAME	DESCRIPTION	PRIMARY BENEFIT	SECONDARY BENEFIT	TYPICAL PHYSICAL PROPERTIES: DENSITY (MM OR G/CM³) @ 20˚C (68˚F)	ACTIVITY LEVEL (%)	NON-VOLATILE CONTENT
Lanco™ Flow P 10	Acrylic/Silica	Eliminates surface defects such as craters, pinholes and fisheyes, reduces orange peel	Improves substrate wetting	1.49 @ 15.6 ˚C (66 ˚F)	66	99
Lanco™ Flow P 30	Oleo-Based Modified Wax	Improves flow and leveling, minimal influence on gloss	Wide compatibility, easy dispersability, degassing	0.9 @ 20 ˚C (68 ˚F)	100	-

ANTISTATIC AGENTS

PRODUCT NAME	DESCRIPTION	PRIMARY BENEFIT	SECONDARY BENEFIT	TYPICAL PHYSICAL PROPERTIES: DENSITY (MM OR G/CM³) @ 20˚C (68˚F)	TYPICAL PHYSICAL PROPERTIES: NON-VOLATILE CONTENT
Lanco™ Stat 308	Conductivity Promoter	Minimizes Faraday cage effect improving coverage in recessed corners and on edges	Acts as dispersion aid for pigments or filler concentrates	0.95	69 (156)

GENERAL PURPOSE

PRODUCT NAME	DESCRIPTION	PRIMARY BENEFIT	SECONDARY BENEFIT	POST ADDABILITY	TYPICAL PHYSICAL PROPERTIES: DENSITY (MM OR G/CM³) @ 20˚C (68 ˚F)	TYPICAL PHYSICAL PROPERTIES: MELTING POINT ˚C (˚F)
PowderAdd™ 9016	PE	Acts as a processing aid during powder production	For universal use showing good surface properties such as scratch resistance, slip, and abrasion resistance	No	0.93	109 (228.2)

HYPERDISPERSANTS

PRODUCT NAME	DESCRIPTION	PRIMARY BENEFIT	SECONDARY BENEFIT	TYPICAL PHYSICAL PROPERTIES: DENSITY (MM OR G/CM³) @ 20˚C (68˚F)	TYPICAL PHYSICAL PROPERTIES: MELTING POINT ˚C (˚F)	TYPICAL PHYSICAL PROPERTIES: NON-VOLATILE CONTENT	TYPICAL PHYSICAL PROPERTIES: PIGMENT
Solplus™ L300	Polymeric Dispersant	Improves pigment dispersion, stability and final film quality	Improves gloss, leveling/flow and color strength development for most pigments, as well as jetness with carbon black pigments	1.16	50-55 (122-131)	100%	Organic and organic/inorganic mixtures, especially carbon black
Solplus™ L400	Polymeric Dispersant	Improves pigment dispersion, stability and final film quality	Improves gloss, leveling/flow and opacity with titanium dioxide	1.13	48 (118)	100%	Inorganic, especially TiO_2

FLUIDIZING AGENTS

PRODUCT NAME	DESCRIPTION	PRIMARY BENEFIT	SECONDARY BENEFIT	TYPICAL PHYSICAL PROPERTIES (PARTICLE SIZE AS DETERMINED BY LASER DIFFRACTION): MEDIAN (DV50 µm)	TYPICAL PHYSICAL PROPERTIES (PARTICLE SIZE AS DETERMINED BY LASER DIFFRACTION): DV90 µm	TYPICAL PHYSICAL PROPERTIES: DENSITY (MM OR G/CM³) @ 20˚C (68˚F)	TYPICAL PHYSICAL PROPERTIES: $Si O_2$ (%; IGNITED BASIS)
PowderAdd™ G130	Inorganic surface treated silica gel	Improves fluidization and flow during powder coating application	Improved storage stability and anticaking properties	5.5	-	2.10	97.8

POST-ADDABLE AGENTS

PRODUCT NAME	DESCRIPTION	PRIMARY BENEFIT	SECONDARY BENEFIT	PARTICLE SIZE, <63µm	DENSITY (G/M³ AT 25˚C)
PowderAdd™™ 9553	Proprietary Blend	Quickly turns glossy, ready-made powder coating batches into matte batches by simple dry mixing	Good reproducibility and able to maintain the curing cycle of the original powder coating	85%	1.2

A DEEPER UNDERSTANDING OF POWDER COATING NEEDS

Lubrizol is your single source for unmatched powder coating innovation and application expertise. Whether you need a custom formulation or an off-the-shelf solution, we have the technical understanding, real-world experience and wide-ranging product catalog to enable you to reach all of your manufacturing and efficiency goals.

Powder Coating Performance Enhancements

- Uniform matting/gloss control
- Enhanced scratch and mar resistance
- Fine and coarse texturing
- Excellent degassing properties
- Flow modification
- Antistatic agents to improve coverage
- Improved pigment dispersion and stability
- Increased fluidization and flow during powder coating application
- Post-addable technology

The Lubrizol Advantage

- A recognized leader in advancing coating technologies
- Global research and analytical resources
- Product selection and formulation guidance

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WHAT WE ADD MAKES THE DIFFERENCE.™

Lubrizol is a market-driven innovator of specialty chemicals that solve today's challenges in the paints and coatings, printing and packaging, paper and textiles, plastics and composites and digital print markets. More than just a supplier, we are a collaborator with extensive experience in surface protection, dispersion, adhesion and barrier properties that enables us to enhance the performance, simplicity and sustainability benefits of our customers' products. With a commitment to collaboration, applied science, and demonstrated value, our team of experts is dedicated to exceeding customer expectations for both the simplest and toughest requirements. Count on Lubrizol to make the difference.

The majority of products featured in this brochure are FDA and EU compliant with regulations pertaining to food contact. Additional information is available upon request or via your local Lubrizol representative.

Lubrizol

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