

METALLIC PIGMENTS FOR PLASTICS

Product Data & Selection Guide

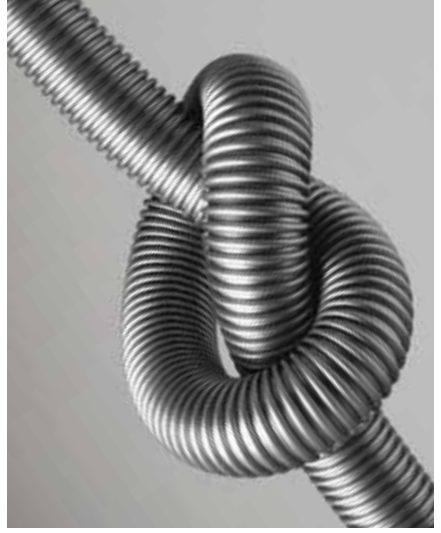


SILBERLINE®
The Architects of Light®



For over 70 years, Silberline has been an industry leader in providing metallic pigment products for the plastics industry. Our products are based on a comprehensive palette of high-performance metallic pigments designed for the demanding needs of this industry. Our products have been developed to provide a unique combination of aesthetics, polymer compatibility, and functionality. We are **The Architects of Light**.





Our Products

Silberline products for plastics have a proven track record of consistent high quality and are backed by a strong technical service and support team. Our ability to provide the right product for the right application has always been at the forefront of our commitment to the plastics industry. The diversity of visual effects that can be created with Silberline metallic pigments is unlimited. Our products can be used within the polymer to create the same high-gloss, high-definition appearance of a painted part without the concerns of VOC or over spray. Polymers containing our metallic pigments can be molded or extruded to produce parts with intricate detail and the appearance of having been made from solid metal. Consumer goods and packaging have been made using our products to add both dazzle and shelf appeal thereby increasing value. These aesthetics can be enhanced when combined with chromatic pigments and dyes to provide pearlescent, copper, gold, bronze, and even stoneware effects. In addition to these aesthetic properties, metallic pigments also have the functional ability to reflect UV, infrared, and visible light. These pigments can be used effectively to increase hiding power in applications where opacity or light sensitivity is critical. Other functional properties of metallic pigments include: absorption, reflection and detection in applications such as laser marking, radar sensing, and thermal conductivity. The characteristics of metallic pigments are also used in polymer applications for properties such as corrosion inhibition, vapor barriers, and much more.

For over half a century, Silberline has been widely regarded as an undisputed leader in providing metallic pigments to the plastics industry.



Silberline products for plastics are based on a comprehensive palette of high-performance metallic pigments designed for the unique needs of the plastics industry. We offer metallic pigments in several different product forms each designed to maximize ease of use, safety in handling, and compatibility with virtually any plastics processing application. As a family of products, our pigments offer a versatile choice of particle sizes and pigment particle geometries.



Aluminum pigments used for plastics come in three (3) geometries: 1) a flat corn flake that resembles a breakfast cereal flake, 2) a lenticular flake, which is a flat ellipse, and 3) a spherical pigment, which resembles a very tiny sphere of aluminum with a bright surface. Each specific grade has been chosen to provide a unique combination of aesthetics, polymer compatibility, and functionality. Together these products provide an effective tool for both the color stylist and color matcher. Whether looking for a brilliant metallic sparkle, the smooth luster of solid metal, or the functional attributes of a high-opacity pigment, Silberline has the product for you.

The following information is provided to act both as an introduction to our plastics product line and to serve as an aid in the proper selection of Silberline pigments for your specific application. Additional information in recommending the best product is also readily available from our technical service and product applications team. Contact information for our technical support team can be found on the back cover of this guide.

Below is a chart designed to aid with the selection of the most appropriate pigment for your particular application.

- Pigments with smaller particle sizes provide better opacity
- Pigments with larger particle size offer more sparkle, brightness, and flop character
- Pigments with wider particle size distribution provide better opacity
- Pigments with narrow particle size distributions can be used with chromatic colorants to provide cleaner colors



Particle Size	●	●	●	●
Brightness	●	●	●	●
Sparkle	●	●	●	●
Flop	●	●	●	●
Coverage	●	●	●	●



PRODUCTS & SPECIFICATIONS

Produced in North America



SILVET®

SILVET technology provides aluminum pigment in a low-dusting, low-VOC pellet or granule for a variety of polymers. Suitable for an extensive range of functional and aesthetic applications, the high metal content and carrier types allow the formulator flexibility with selected designs.



Available in:

- E Series - PE Wax pellet form
- E1 Series - PE Wax granule form
- P Series - Acrylic granule form

GRADE	GEOMETRY	D (50%) MICRONS	CARRIER	% CARRIER
SILVET 330-20-E	Corn Flake	8	PE Wax/Resin	20
LT 1094	Corn Flake	9	PE Wax/Resin	20
LT 12278	Corn Flake	9	PE Wax/Antioxidant	25
SILVET 220-20-E	Corn Flake	9	PE Wax/Resin	20
SILVET 960-25-E	Corn Flake	14	PE Wax/Resin	25
SILVET 110-20-E	Corn Flake	19	PE Wax/Resin	20
LT 12883	Corn Flake	21	PE Wax/Resin	20
SILVET 620-20-E	Corn Flake	21	PE Wax/Resin	20
LT 12882	Corn Flake	24	PE Wax/Resin	20
SILVET 880-20-E	Corn Flake	28	PE Wax/Resin	20
SILVET 880-30-E1*	Corn Flake	28	PE Wax/Resin	30
SILVET 790-20-E	Corn Flake	35	PE Wax/Resin	20
LT 12279	Corn Flake	45	PE Wax/Antioxidant	30
SILVET 790-30-E1	Corn Flake	45	PE Wax/Resin	30
SILVET 790-20-P	Corn Flake	45	Acrylic	20
SILVET 760-20-E	Corn Flake	55	PE Wax/Resin	20
SILVET 755-30-E1	Corn Flake	64	PE Wax/Resin	30
SILVET 730-30-E1*	Corn Flake	250	PE Wax/Resin	30
SILVET Ultra 0008-60-E1	Silver Dollar	8	PE Wax/Resin	60
SILVET Ultra 095-60-E1	Silver Dollar	9.5	PE Wax/Resin	60
SILVET Ultra 0011-30-E1	Silver Dollar	11	PE Wax/Resin	30
SILVET Premier 980-30-E1	Silver Dollar	12	PE Wax/Resin	30
SILVET Premier 950-30-E1*	Silver Dollar	16	PE Wax/Resin	30
SILVET Ultra 0017-30-E1	Silver Dollar	17	PE Wax/Resin	30
SILVET Premier 890-30-E1	Silver Dollar	20	PE Wax/Resin	30
SILVET Premier 860-30-E1	Silver Dollar	24	PE Wax/Resin	30
SILVET Premier 860-20-P	Silver Dollar	24	Acrylic	20
SILVET 440-30-E1*	Silver Dollar	83	PE Wax/Resin	30
SILVET 430-30-E1*	Silver Dollar	170	PE Wax/Resin	30

* Produced globally



SILVEX®

Silberline's aluminum pigments are wetted with a high boiling plasticizer carrier with very low residual solvent content. These could be safely used in most polymer processing applications, replacing non-recommended dry and solvent paste aluminum pigments.

Available in:

- DOA—Diocetyl-Adipate Dampened Powder/Paste
- MO—Mineral Oil Dampened Powder/Paste

GRADE	GEOMETRY	D (50%) MICRONS	CARRIER	% CARRIER
SILVEX 333-20-C	Corn Flake	8	MO	20
SILVEX 335-20-DOA	Corn Flake	8	DOA	20
SILVEX 223-20-C	Corn Flake	14	MO	20
SILVEX 225-20-DOA	Corn Flake	14	DOA	20
SILVEX 963-30-C	Corn Flake	14	MO	30
SILVEX 113-20-C	Corn Flake	19	MO	20
SILVEX 620-25-C	Corn Flake	21	MO	25
SILVEX 620-25-DOA	Corn Flake	21	DOA	25
SILVEX 883-20-C	Corn Flake	28	MO	20
SILVEX 793-20-C*	Corn Flake	35	MO	20
SILVEX 795-20-DOA	Corn Flake	35	DOA	20
SILVEX 760-20-C	Corn Flake	55	MO	20
SILVEX 760-20-DOA	Corn Flake	55	DOA	20
SILVEX 755-20-C	Corn Flake	64	MO	20
SILVEX 750-20-CX	Corn Flake	90	MO	20
SILVEX Ultra 0008-20-C	Silver Dollar	8	MO	20
SILVEX Ultra 0011-20-C	Silver Dollar	11	MO	20
SILVEX Premier 980-20-C	Silver Dollar	12	MO	20
SILVEX Premier 950-20-C	Silver Dollar	16	MO	20
SILVEX Ultra 0017-20-C	Silver Dollar	17	MO	20
SILVEX Premier 890-20-C	Silver Dollar	20	MO	20
SILVEX Premier 840-20-C	Silver Dollar	33	MO	20
SILVEX 440-15-C	Silver Dollar	83	MO	15
SILVEX 430-15-C*	Silver Dollar	170	MO	15

SILVEX C – Carrier Flash Point 220 °C (ASTM D92, COC)

SILVEX DOA - Carrier Flash Point 196 °C (ASTM D92, Closed Cup)

* Produced globally



Spherical Pigment Geometry

These grades were developed to provide aluminum pigments with two novel effects:

- Flow line reduction
- The potential for creating alluring and novel aesthetics in plastics

These characteristics are created by changing the shape of the aluminum pigment from the traditional 2-dimensional “flake” geometry to a 3-dimensional “spherical” geometry. When using these unique spherical highly polished aluminum pigments, light is reflected across multiple viewing angles creating a shimmering 3-D pinpoint sparkle effect.

GRADE	GEOMETRY	D (50%) MICRONS	CARRIER	% CARRIER
SILVET 600-10-E1	Spherical	20	PE Wax/Resin	10
SILVEX 400-10-C	Spherical	30	MO	10
SILVET 400-10-E1	Spherical	30	PE Wax/Resin	10
SILVEX 300-10-C	Spherical	43	MO	10
SILVET 300-10-E1	Spherical	43	PE Wax/Resin	10

SILVEX C – Carrier Flash Point 220 °C (ASTM D92, COC)



TUFFLAKE® Premier Series

Plastics containing aluminum pigments may be subject to tremendous shear forces during processing. These mechanical forces can have the tendency to dull the metallic appearance of the final product by breaking and deforming the individual aluminum flakes. Silberline's TUFFLAKE line of pigments is specifically engineered to resist these mechanical forces and maintain their targeted appearance. TUFFLAKE Premier grades are silver dollar aluminum pigments with a highly polished reflective surface and a narrow particle size distribution.



GRADE	GEOMETRY	D (50%) MICRONS	CARRIER	% CARRIER
TUFFLAKE Premier 013-30-E1	Silver Dollar	13	PE Wax/Resin	30
TUFFLAKE Premier 018-30-E1	Silver Dollar	18	PE Wax/Resin	30
TUFFLAKE Premier 024-30-E1	Silver Dollar	24	PE Wax/Resin	30
TUFFLAKE Premier 032-30-E1	Silver Dollar	32	PE Wax/Resin	30

PRODUCTS & SPECIFICATIONS

Produced in Europe



EUROPE



SILVET

SILVET technology provides aluminum pigment in a low-dusting, low-VOC pellet or granule for a variety of polymers. Suitable for an extensive range of functional and aesthetic applications, the high metal content and carrier types allow the formulator flexibility with selected designs.



Available in:

- E1 Series - PE Wax granule form

GRADE	GEOMETRY	D (50%) MICRONS	CARRIER	% CARRIER
SILVET 210-30-E1	Corn Flake	8	PE Wax/Resin	30
SILVET ET2018	Corn Flake	11	PE Wax/Resin	60
SILVET 960-30-E1	Corn Flake	14	PE Wax/Resin	30
SILVET 880-30-E1*	Corn Flake	28	PE Wax/Resin	30
SILVET 790-30-E1*	Corn Flake	45	PE Wax/Resin	30
SILVET 764-30-E1	Corn Flake	80	PE Wax/Resin	30
SILVET 730-30-E1*	Corn Flake	250	PE Wax/Resin	30
SILVET 420-30-E1	Corn Flake	340	PE Wax/Resin	30
SILVET Premier 950-30-E1*	Silver Dollar	16	PE Wax/Resin	30
SILVET ET2271	Silver Dollar	26	PE Wax/Resin	30
SILVET ET2025	Silver Dollar	33	PE Wax/Resin	30
SILVET ET2426	Silver Dollar	55	PE Wax/Resin	30
SILVET 460-30-E1	Silver Dollar	65	PE Wax/Resin	30
SILVET 440-30-E1*	Silver Dollar	83	PE Wax/Resin	30
SILVET 437-30-E1	Silver Dollar	110	PE Wax/Resin	30
SILVET 430-30-E1*	Silver Dollar	170	PE Wax/Resin	30
SILVET Ultra 0014-30-E1	Silver Dollar	14	PE Wax/Resin	30
SILVET Ultra 0020-30-E1	Silver Dollar	20	PE Wax/Resin	30
SILVET Ultra 0028-30-E1	Silver Dollar	28	PE Wax/Resin	30

* Produced globally

Laser Receptive Series

When incorporated at low addition levels into a wide range of polymers, SILVET LR enhances the visual appearance as well as allowing precise definition, permanent marking, and engraving to be achieved when using CO₂ or Nd:YAG type lasers. In uncoloured polymers, SILVET LR gives very bright silver metallic effects, and in coloured polymer, cost-effective superior performance alternatives to pearlescent effects are achieved. The high-quality definition of laser marking in products containing SILVET LR arises due to a combination of tailored geometry, improved surface reflectivity, and high-purity aluminium pigments.

GRADE	GEOMETRY	D (50%) MICRONS	CARRIER	% CARRIER
SILVET LR10	Corn Flake	10	PE Wax/Resin	60
SILVET LR20	Silver Dollar	20	PE Wax/Resin	30
SILVET LR30	Silver Dollar	30	PE Wax/Resin	30

SILVEX

Silberline's aluminum pigments are wetted with a high-boiling plasticizer carrier with very low residual solvent content. These could be safely used in most polymer processing applications, replacing non-recommended dry and solvent paste aluminium pigments.

Available in:

- DOA—Diocetyl-Adipate Dampened Powder/Paste
- MO—Mineral Oil Dampened Powder/Paste

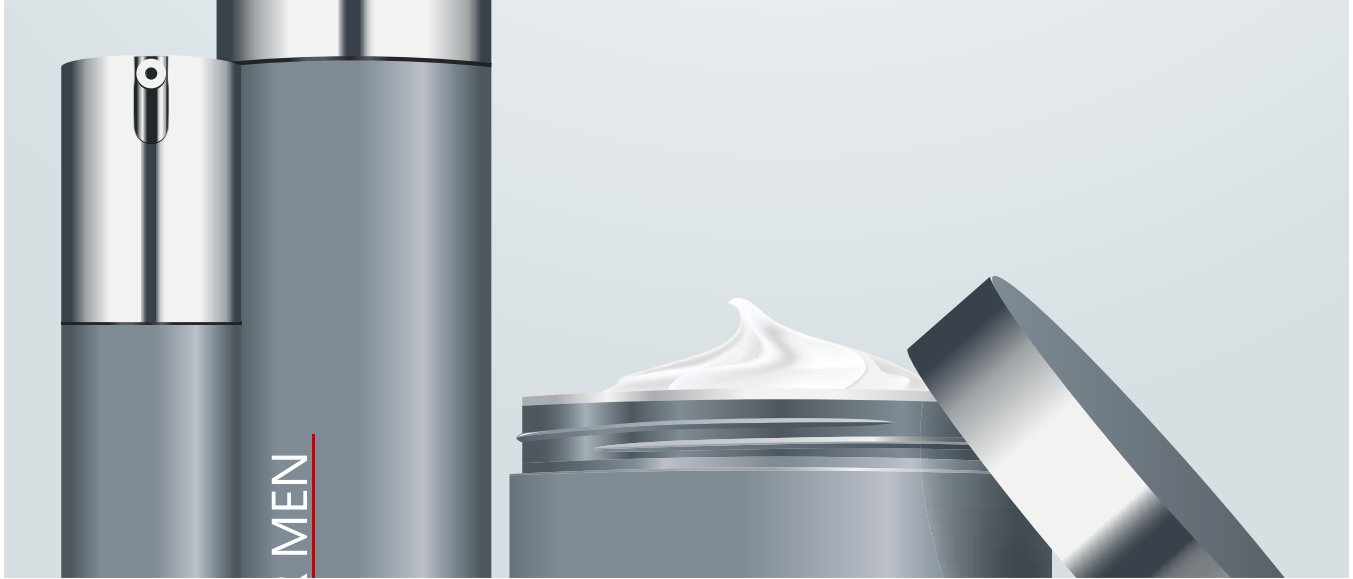
GRADE	GEOMETRY	D (50%) MICRONS	CARRIER	% CARRIER
SILVEX 210-20-C	Corn Flake	8	MO	20
SILVEX 880-20-C	Corn Flake	28	MO	20
SILVEX 793-20-C*	Corn Flake	35	MO	20
SILVEX 790-20-C	Corn Flake	45	MO	20
SILVEX 790-20-DOA	Corn Flake	45	DOA	20
SILVEX LX20779	Corn Flake	48	MO	20
SILVEX 764-20C	Corn Flake	80	MO	20
SILVEX 420-15-C	Corn Flake	330	MO	15
SILVEX 420-15-DOA	Corn Flake	330	DOA	15
SILVEX Premier 950-20-C	Silver Dollar	16	MO	20
SILVEX 460-15-C	Silver Dollar	70	MO	15
SILVEX 440-15-DOA	Silver Dollar	83	DOA	15
SILVEX 430-15-C*	Silver Dollar	170	MO	15

SILVEX C – Carrier Flash Point 220 °C (ASTM D92, COC)

SILVEX DOA - Carrier Flash Point 196 °C (ASTM D92, Closed Cup)

* Produced globally





Ernest Scheller had a vision in 1945 to create a business that would provide the highest quality products and customized solutions, all while topping the industry in customer service. Today Silberline is recognized as a world leader in both the manufacture and supply of aluminum effect pigments to a variety of end use markets including automotive, graphic arts and printing inks, plastics and industrial coatings. It is our focus at Silberline to do more, offer more, and give more than our customers expect. With over 70 years in the business and over 700 employees worldwide, Silberline provides state-of-the-art, real world testing, technical and sales expertise throughout Europe, Asia, and North and South America. Silberline's innovative special effect and performance-enhancing pigments add beauty and value to **your** products. **What can we do to enhance your product?**

Silberline has set the standard for excellence in providing products that meet the needs of global customers who expect brilliant visual effects, excellent performance, expanded functional capabilities, and the highest quality products.

Silberline's (four) Product Data and Selection Guides offer market specific product and technical information. Choose from:

- Product Data and Selection Guide for Automotive
- Product Data and Selection Guide for Inks
- Product Data and Selection Guide for Plastics
- Product Data and Selection Guide for Industrial Coatings

Please contact the Silberline location in your region to request product samples or additional information.

Together we brighten our world!



Global Reach

Silberline has been an industry leader for over 70 years providing metallic pigments and technical expertise to industrial customers around the world. Whether you need special effect or performance-enhancing products for automotive, industrial coatings, ink, or plastics, contact The Architects of Light at your local office below or visit www.silberline.com.



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Please contact the Silberline location in your region to request product samples or additional information including regulatory compliance.

The Architects of Light
silberline.com