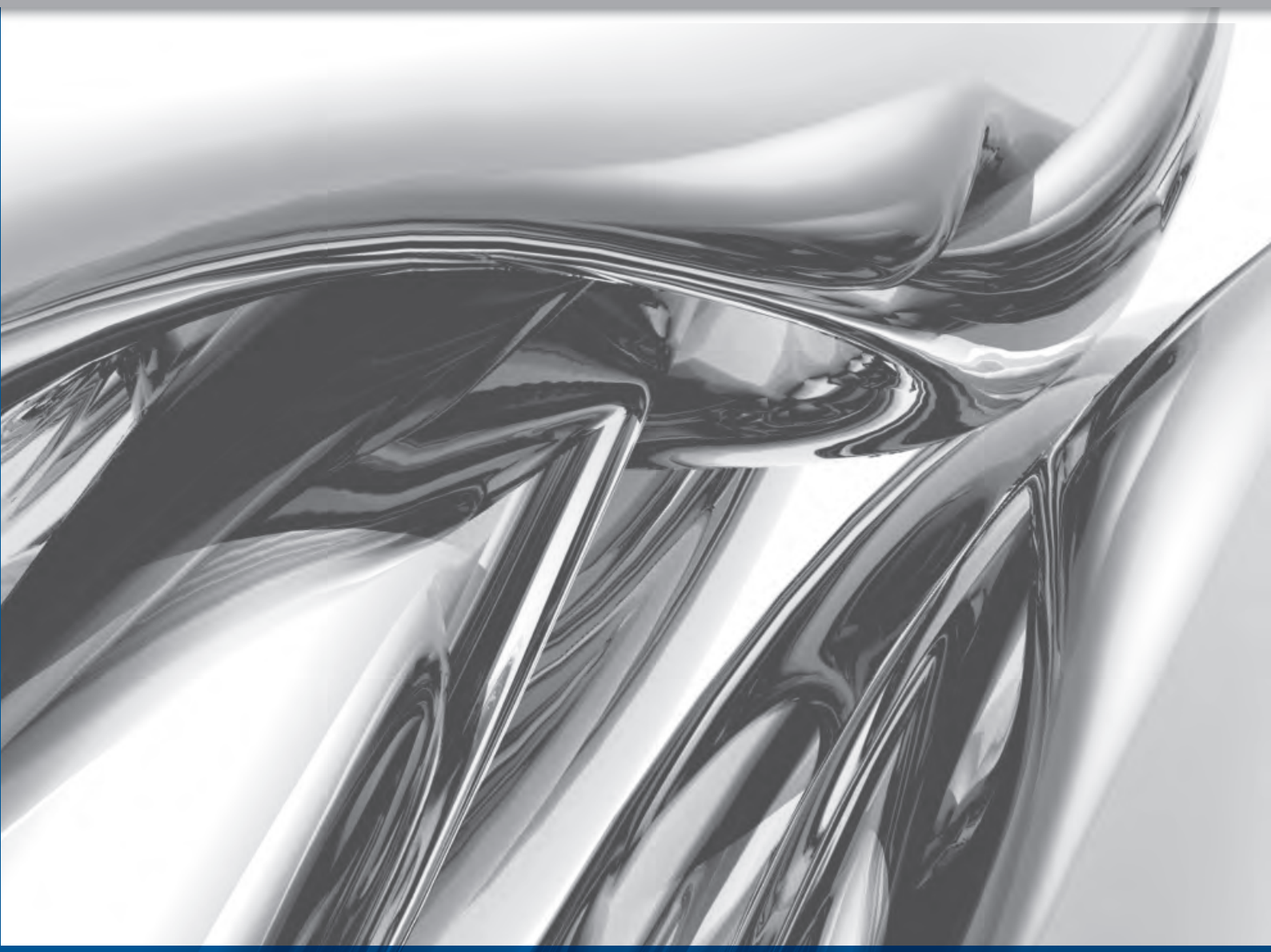
SILBERLINE®

The Global Supplier of Effect Pigments℠



GRAPHIC ARTS & PRINTING INKS

Product Data & Selection Guide 2010

www.silberline.com

Graphic Arts and Printing Inks

Silberline continues to offer a diverse range of consistent, high quality aluminium pigments for a variety of graphic art and printing applications.

Image and design are increasingly important in the global packaging and publishing industry. Products have to stand out amongst the competition. Silberline pigments are widely used to produce brilliant eye-catching designs on labels, packaging and many other items of printed material. These clean, vibrant and striking effects increase the perceived value of any product that they adorn. Lenticular, cornflake or vacuum metallised pigments of differing particle sizes can give an extremely wide range of visual effects.

The graphic art and printing industry is alive. This fast moving market is constantly demanding more from it's suppliers and the pigments that they provide. Silberline recognises this and rigorously pursues innovation through our dedicated and experienced Global Ink Development Team. This team is ready to work with you to develop the next must-have pigments.

Together we brighten our world!

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Pigments for Liquid Inks

A wide variety of effects can be achieved using Silberline pigments for liquid inks, from standard silvers to brilliant mirror-like effects.

Silvet is our range of high metal content granular products for use in flexo and gravure applications. These simple to disperse granules are widely compatible with different solvent-based ink systems and are clean and safe to use being virtually dust-free. They are available as the original 'J' series and have been reformulated to give the AD series for use where increased adhesion is a necessity.

EternaBrite and SparkleBrite are leafing and non-leafing pigments provided as iso-propyl alcohol (IPA) pastes. Although designed for solvent based flexo and gravure these IPA pastes can be utilised in water-based systems. However, for increased stability in water-based liquid inks the Sil-O-Wet IPA pastes or the Aquavex easy-disperse granules have been treated to prevent the reaction of the aluminium flake with water with some of the industry leading technologies. Both families of grades are ideally suited for water-based flexo and gravure processes.

Series based Liquid Inks	Solvent based Liquid Inks	Water-based Liquid Inks	UV/EB Curing Inks	Screen Inks	Paste Inks
EternaBrite	●	○		●	○
SparkleBrite	●	○			
Sil-O-Wet		●			
Aquavex		●	●	●	
Silvet	●				
Silvet AD	●				
StarBrite	●			●	
Sparkle Silver				●	
Sparkle Silvex				●	
SilBerCote UV			●	●	
SilBerCote PC-X			●	●	

● = Suitable
○ = Limited Application

If dazzling, mirror-like effects are required then the StarBrite vacuum metallised aluminium dispersions are the product of choice. These extremely thin flakes allow ink formulators to achieve smooth, brilliant effects that give excellent reflectivity.

Pigments for Paste Inks

This series consists of very fine leafing pigments carried in either ink oil or mineral spirits for use in viscous printing inks for letterpress and lithographic applications.

Pigments for Screen Inks

Owing to the method of printing in screen, grades for screen inks can be provided in a greater range of particle sizes. This means that not only can standard through to brilliant silvers be achieved but also dramatic sparkling effects that glitter in the light. A huge variety of grades are available in mineral spirits or solvent-free mineral oil with plasticiser, only a selected few are listed in this selection guide.

Pigments for UV Inks

In some one-component UV ink systems where pigment compatibility and stability are an issue, the Aquavex grades can be used. The SilberCote UV and PC-X grades are coated flakes and offer an exceptional level of stability for UV systems. However, given the wide number of UV ink systems it is advised that all grades are thoroughly evaluated in the system being used.

EternaBrite®

Liquid Ink	Category	% Non-volatile by Weight	D (50%) Microns	Specific Gravity	Solvent
EternaBrite® 651-PA	L	70	7	1.56	IPA
EternaBrite® Premier 251-PA	L	74	17	1.66	IPA
EternaBrite® Premier 255-PA	L	74	15	1.66	IPA
EternaBrite® Premier 351-PA	L	77	12	1.74	IPA

EternaBrite® is a range of leafing aluminium pigment pastes carried in isopropyl alcohol typically used for liquid flexographic or gravure solvent inks, where the leafing effect enhances the metallic effect achieved in the ink. Where 'Premier' is indicated in the product name the grade is a 'lenticular' or 'silver-dollar' geometry, otherwise the geometry is the standard 'cornflake' type.

Although EternaBrite® can be used in aqueous inks, these grades have not been treated to protect the aluminium from reaction with water and special care must be taken to evaluate the gassing stability of each grade in the final ink formulation. Gassing in an aqueous system can be initiated by the use of high shear mixing.

SparkleBrite®

Liquid Ink	Category	% Non-volatile by Weight	D (50%) Microns	Specific Gravity	Solvent
SparkleBrite® 270NL-PA	NL	65	12	1.46	IPA
SparkleBrite® 320NL-PA	NL	67	8	1.52	IPA
SparkleBrite® Premier 2052NL-PA	NL	65	17	1.46	IPA
SparkleBrite® Premier 2200NL-PA	NL	72	15	1.61	IPA
SparkleBrite® Ultra 012NL-PAc	NL	69	12	1.63	IPAc
SparkleBrite® Ultra 011	NL	65	11	1.46	IPAc
SparkleBrite® Ultra 014	NL	65	14	1.46	IPAc
SparkleBrite® Ultra 015	NL	65	15	1.46	IPAc

SparkleBrite® is a range of non-leafing aluminium pigment pastes carried in isopropyl alcohol or isopropyl acetate. These grades are typically used for liquid flexographic or gravure solvent inks. Once again the standard grades have cornflake geometry, whilst those identified as 'Premier' are 'lenticular' and 'Ultra' are advanced-lenticular. The new SparkleBrite® Ultra 011, 014 and 015 grades bridge the gap between silver dollar and VMF pigments.

As with the EternaBrite® isopropyl pastes the SparkleBrite® grades can be used in aqueous inks, but again these grades have not been treated to protect the aluminium from reaction with water and special care must be taken to evaluate the gassing stability of each grade in the final ink formulation. Gassing in an aqueous system can be initiated by the use of high shear mixing.

Incorporation Guidelines

Aluminium paste should be pre-soaked for a period of one to eight hours in a solvent using a ratio of paste to solvent between 1:1 and 1:3 in order to fully wet out the pigment. Finer grades typically require longer soaking periods than coarser grades, and it should also be noted that polar solvents can have a detrimental effect on the leafing effect of leafing grades. Once the paste has been soaked - slow, low shear mixing should be used to achieve a smooth consistency free of agglomerates. The use of high shear mixing should be avoided, as this will damage the aluminium flakes and reduce the quality of the finished ink.

Sil-O-Wet®

Sil-O-Wet® Inhibited Aluminium Pigments - Water-based, Stabilised	Category	% Non-volatile by Weight	Aluminum Flake Cont. %	D (50%) Microns	Specific Gravity	Solvent
Sil-O-Wet® 651-PA	L	70	63	7	1.53	IPA
Sil-O-Wet® 2052NL-PA	NL	65	59	17	1.45	IPA

The Sil-O-Wet® grades are treated with a chemical inhibitor to limit the reaction of aluminium in an aqueous system, and as such are one of Silberline's recommendations for water-based ink applications. The grades are presented as an isopropyl alcohol paste, recommended for flexographic and gravure ink formulations. The degree of gassing stability achieved with the Sil-O-Wet® grades is system dependant and must be evaluated for acceptable stability in the finished ink. High shear mixing will reduce the effect of the chemical inhibitor used and damage the aluminium flakes and should therefore be avoided.

Incorporation Guidelines

Aluminium paste should be pre-soaked for a period of one to eight hours in water using a ratio of paste to water between 1:1 and 1:3 in order to fully wet out the pigment. Finer grades typically require longer soaking periods than coarser grades, and it should also be noted that polar solvents can have a detrimental effect on the leafing effect of leafing grades. Once the paste has been soaked - slow, low shear mixing should be used to achieve a smooth consistency free of agglomerates. The use of high shear mixing should be avoided, as this will damage the aluminium flakes and reduce the quality of the finished ink.

Aquavex™

Aquavex™ Inhibited Aluminium Pigments - Water-based, Stabilised	Category	% Non-volatile by Weight	Aluminum Flake Cont. %	D (50%) Microns	Carrier	% Carrier
Aquavex™ L 010	L	98.5	80	10	Surfactant	20
Aquavex™ L Premier 021	L	98.5	80	21	Surfactant	20
Aquavex™ NL 010	NL	98.5	80	10	Surfactant	20
Aquavex™ NL 013	NL	98.5	80	13	Surfactant	20
Aquavex™ NL 015	NL	98.5	80	15	Surfactant	20
Aquavex™ NL Premier 011	NL	98.5	80	11	Surfactant	20
Aquavex™ NL Premier 016	NL	98.5	80	16	Surfactant	20
Aquavex™ AD 010	NL	98.5	75	10	Surfactant	20
Aquavex™ AD 013	NL	98.5	75	13	Surfactant	20
Aquavex™ AD 015	NL	98.5	75	15	Surfactant	20
Aquavex™ AD Premier 011	NL	98.5	75	11	Surfactant	20
Aquavex™ AD Premier 016	NL	98.5	75	16	Surfactant	20

Aquavex™ is a granular aluminium product passivated with a chemical inhibitor and carried in a low foaming, non-ionic surfactant for use in water-based systems. As an easy to handle granule the Aquavex™ range have a high metal content (80% Aluminium), are low dusting, have low VOC content and readily disperse in water.

The passivation technology used to prevent the reaction of aluminium with water, also provides stability in one-pack UV systems. As with water-based systems the degree of stability is system dependant and should be assessed for acceptable stability in each system. For exceptional adhesion in water based systems the Aquavex™ AD range of pigments should be used.

Incorporation Guidelines

Aluminium granules should be pre-soaked for a period of one to eight hours in water using a ratio of granules to water between 1:1 and 1:3 in order to fully wet out the pigment. Fine grades typically require longer soaking periods than coarser grades. Once the granules have been soaked and have fallen - then slow, low shear mixing should be used to achieve a smooth consistency free of agglomerates. The use of high shear mixing should be avoided, as this will damage the aluminium flakes and reduce the quality of the finished ink.

Silvet® + Silvet® AD

Silvet® "J" Granules - Solvent-based	Category	% Non-volatile by Weight	D (50%) Microns	Specific Gravity	Carrier	% Carrier
Silvet® 210-20-J	L	99	10	2.07	Aldehyde	20
Silvet® 960-20-J	NL	99	14	2.07	Aldehyde	20
Silvet® 970-20-J	NL	99	10	2.07	Aldehyde	20

Silvet® Improved Adhesion - Solvent-based	Category	% Non-volatile by Weight	D (50%) Microns	Specific Gravity	Carrier	% Carrier
Silvet® AD 007	NL	99	7	2.07	Aldehyde	20
Silvet® AD 010	NL	99	10	2.07	Aldehyde	20
Silvet® AD 013	NL	99	13	2.07	Aldehyde	20
Silvet® AD 015	NL	99	15	2.07	Aldehyde	20
Silvet® AD Premier 011	NL	99	11	2.07	Aldehyde	20
Silvet® AD Premier 016	NL	99	16	2.07	Aldehyde	20
Silvet® AD Ultra 011	NL	99	11	2.07	Aldehyde	20
Silvet® AD Ultra 014	NL	99	14	2.07	Aldehyde	20
Silvet® AD Ultra 015	NL	99	15	2.07	Aldehyde	20

Silvet® are a range of leafing and non-leafing pigments carried in a widely compatible aldehyde resin. The granular product is easy to handle, low dusting, low VOC and readily dispersible in common organic solvents, with the exception of hydrocarbons.

The Silvet® AD range is a reformulation of the early J-type granules that provides additional adhesion and rub resistance on a wide range of substrate, whilst the Silvet® AD Ultra bridge the gap between silver dollar and VMF pigments.

Incorporation Guidelines

Aluminium granules should be pre-soaked for a period of one to eight hours in a solvent using a ratio of paste to solvent between 1:1 and 1:3 in order to fully wet out the pigment. Finer grades typically require longer soaking periods than coarser grades, and it should also be noted that polar solvents can have a detrimental effect on the leafing effect of leafing grades. Once the granules have been soaked and have fallen apart then slow, low shear mixing should be used to achieve a smooth consistency free of agglomerates. The use of high shear mixing should be avoided, as this will damage the aluminium flakes and reduce the quality of the finished ink.

StarBrite® VMP

StarBrite® Vacuum Metallised Pigments - Solvent-based	Category	% Non-volatile by Weight	D (50%) Microns	Solvent
StarBrite® 2100	NL	10	10	EAC
StarBrite® 3102	NL	10	12	EAC
StarBrite® 4102	NL	10	12	EAC
StarBrite® 5102	NL	10	12	EAC
StarBrite® 6108	NL	10	8	EAC

Silberline offers a full range of vacuum metallised pigments that can produce highly brilliant effects, even mirror-like qualities to a printed surface. StarBrite® solvent dispersions are well suited for use in a variety of ink types including flexo, gravure and screen. However, to achieve the high gloss effects a suitably smooth substrate should be used to allow the pigments to align perfectly. Although typically these grades are supplied in ethyl acetate as a 10% metal suspension, other solvents are available where ethyl acetate is not suitable.

Offset Paste Grades

Paste Inks	Category	% Non-volatile by Weight	D (50%) Microns	Specific Gravity	Carrier
EternaBrite® 651-7	L	72	7	1.62	Ink Oil
EternaBrite® 651-1	L	72	7	1.62	Mineral Spirits

Derivatives of the EternaBrite® range of pigments are available in ink oil and mineral spirits for use in offset inks. The leafing properties of these grades can result in excellent metallic effects when printed using lithographic presses.

Screen Ink Grades

Screen Inks	Category	% Non-volatile by Weight	D (50%) Microns	Specific Gravity	Carrier
L 20245	NL	64	8	1.46	Mineral Spirit/Aromatic HC
Sparkle Silver® 6246	NL	62	12	1.43	Mineral Spirit/Aromatic HC
Sparkle Silver® E5500	NL	64	14	1.46	Mineral Spirit/Aromatic HC
Sparkle Silver® Premier E504	NL	70	16	1.58	Mineral Spirit/Aromatic HC
Sparkle Silver® 3500	NL	65	28	1.47	Mineral Spirit/Aromatic HC
Sparkle Silver® E3000	NL	65	29	1.47	Mineral Spirit/Aromatic HC
Sparkle Silver® 3130	NL	74	36	1.71	Mineral Spirit/Aromatic HC
Sparkle Silver® 3622	NL	75	40	1.73	Mineral Spirit/Aromatic HC

Silberline offer a wide range of Sparkle Silver® and Sparkle Silver® Premier aluminium pastes carried in mineral spirits and aromatic hydrocarbon. The large range of particle sizes from very fine to coarse offers a great array of effects from smooth, shiny metals to sparkling and glistening effects.

SilBerCote® for UV Inks

UV Inks: Stabilised for One Pack UV - Stabilised	Category	% Non-volatile by Weight	D (50%) Microns	Specific Gravity	Carrier	% Carrier
SilBerCote® UV E2169 K3X	NL	98.5	13	1.71	Aliphatic Alcohol	25
SilBerCote® UV 516 K2X	NL	98.5	15	1.71	Aliphatic Alcohol	25
SilBerCote® PC 8153X	NL	99	14	2.60	None	-
SilBerCote® PC 8602X	NL	99	16	2.60	None	-
SilBerCote® PC 6222X	NL	99	20	2.60	None	-
SilBerCote® PC 6802X	NL	99	25	2.60	None	-
SilBerCote® PC 4852X	NL	99	33	2.60	None	-
SilBerCote® PC 3101X	NL	99	36	2.60	None	-
SilBerCote® PC 1291X	NL	99	47	2.62	None	-

As has already been mentioned the chemical passivation technology used in the Aquavex™ product range demonstrates UV stability in some UV vehicles. Silberline is also able to offer a range of coated aluminium flakes that can provide additional benefits and stability in UV ink systems. These are known as the SilBerCote® family of products and are suitable for one and two pack UV inks.

Printing Ink Grade Summary

Liquid Ink	Category	% Non-volatile by Weight	D (50%) Microns	Specific Gravity	Solvent	
EternaBrite® 651-PA	L	70	7	1.56	IPA	
EternaBrite® Premier 251-PA	L	74	17	1.66	IPA	
EternaBrite® Premier 255-PA	L	74	15	1.66	IPA	
EternaBrite® Premier 351-PA	L	77	12	1.74	IPA	
SparkleBrite® 270NL-PA	NL	65	12	1.46	IPA	
SparkleBrite® 320NL-PA	NL	67	8	1.52	IPA	
SparkleBrite® Premier 2052NL-PA	NL	65	17	1.46	IPA	
SparkleBrite® Premier 2200NL-PA	NL	72	15	1.61	IPA	
SparkleBrite® Ultra 012NL-PAc	NL	69	12	1.63	IPAc	
SparkleBrite® Ultra 011	NL	65	11	1.46	IPAc	
SparkleBrite® Ultra 014	NL	65	14	1.46	IPAc	
SparkleBrite® Ultra 015	NL	65	15	1.46	IPAc	

Sil-O-Wet® Inhibited Aluminium Pigments - Water-based, Stabilised	Category	% Non-volatile by Weight	Aluminum Flake Cont. %	D (50%) Microns	Specific Gravity	Solvent
Sil-O-Wet® 651-PA	L	70	63	7	1.53	IPA
Sil-O-Wet® 2052NL-PA	NL	65	59	17	1.45	IPA

Aquavex™ Inhibited Aluminium Pigments - Water-based, Stabilised	Category	% Non-volatile by Weight	Aluminum Flake Cont. %	D (50%) Microns	Carrier	% Carrier
Aquavex™ L 010	L	98.5	80	10	Surfactant	20
Aquavex™ L Premier 021	L	98.5	80	21	Surfactant	20
Aquavex™ NL 010	NL	98.5	80	10	Surfactant	20
Aquavex™ NL 013	NL	98.5	80	13	Surfactant	20
Aquavex™ NL 015	NL	98.5	80	15	Surfactant	20
Aquavex™ NL Premier 011	NL	98.5	80	11	Surfactant	20
Aquavex™ NL Premier 016	NL	98.5	80	16	Surfactant	20
Aquavex™ AD 010	NL	98.5	75	10	Surfactant	20
Aquavex™ AD 013	NL	98.5	75	13	Surfactant	20
Aquavex™ AD 015	NL	98.5	75	15	Surfactant	20
Aquavex™ AD Premier 011	NL	98.5	75	11	Surfactant	20
Aquavex™ AD Premier 016	NL	98.5	75	16	Surfactant	20

Silvet® "J" Granules - Solvent-based	Category	% Non-volatile by Weight	D (50%) Microns	Specific Gravity	Carrier	% Carrier
Silvet® 210-20-J	L	99	10	2.07	Aldehyde	20
Silvet® 960-20-J	NL	99	14	2.07	Aldehyde	20
Silvet® 970-20-J	NL	99	10	2.07	Aldehyde	20

Silvet® Improved Adhesion - Solvent-based	Category	% Non-volatile by Weight	D (50%) Microns 7	Specific Gravity	Carrier	% Carrier
Silvet® AD 007	NL	99	10	2.07	Aldehyde	20
Silvet® AD 010	NL	99	13	2.07	Aldehyde	20
Silvet® AD 013	NL	99	15	2.07	Aldehyde	20
Silvet® AD 015	NL	99	11	2.07	Aldehyde	20
Silvet® AD Premier 011	NL	99	16	2.07	Aldehyde	20
Silvet® AD Premier 016	NL	99	11	2.07	Aldehyde	20
Silvet® AD Ultra 011	NL	99	14	2.07	Aldehyde	20
Silvet® AD Ultra 014	NL	99	15	2.07	Aldehyde	20
Silvet® AD Ultra 015	NL	99		2.07	Aldehyde	20

StarBrite® Vacuum Metallised Pigments - Solvent-based	Category	% Non-volatile by Weight	D (50%) Microns	Solvent		
StarBrite® 2100	NL	10	10	EAC		
StarBrite® 3102	NL	10	12	EAC		
StarBrite® 4102	NL	10	12	EAC		
StarBrite® 5102	NL	10	12	EAC		
StarBrite® 6108	NL	10	8	EAC		

Paste Ink Grades	Category	% Non-volatile by Weight	D (50%) Microns	Specific Gravity	Carrier	
EternaBrite® 651-7	L	72	7	1.62	Ink Oil	
EternaBrite® 651-1	L	72	7	1.62	Mineral Spirits	

Screen Ink Grades	Category	% Non-volatile by Weight	D (50%) Microns	Specific Gravity	Carrier	
L20245	NL	64	8	1.46	Mineral Spirit/Aromatic HC	
Sparkle Silver® 6246	NL	62	12	1.43	Mineral Spirit/Aromatic HC	
Sparkle Silver® E5500	NL	64	14	1.46	Mineral Spirit/Aromatic HC	
Sparkle Silver® Premier E504	NL	70	16	1.58	Mineral Spirit/Aromatic HC	
Sparkle Silver® 3500	NL	65	28	1.47	Mineral Spirit/Aromatic HC	
Sparkle Silver® E3000	NL	65	29	1.47	Mineral Spirit/Aromatic HC	
Sparkle Silver® 3130	NL	74	36	1.71	Mineral Spirit/Aromatic HC	
Sparkle Silver® 3622	NL	75	40	1.73	Mineral Spirit/Aromatic HC	

SilBerCote® for UV Inks	Category	% Non-volatile by Weight	D (50%) Microns	Specific Gravity	Carrier	% Carrier
SilBerCote® UV E2169 K3X	NL	98.5	13	1.71	Aliphatic Alcohol	25
SilBerCote® UV 516 K2X	NL	98.5	15	1.71	Aliphatic Alcohol	25
SilBerCote® PC 8153X	NL	99	14	2.60	None	-
SilBerCote® PC 8602X	NL	99	16	2.60	None	-
SilBerCote® PC 6222X	NL	99	20	2.60	None	-
SilBerCote® PC 6802X	NL	99	25	2.60	None	-
SilBerCote® PC 4852X	NL	99	33	2.60	None	-
SilBerCote® PC 3101X	NL	99	36	2.60	None	-
SilBerCote® PC 1291X	NL	99	47	2.62	None	-

SILBERLINE®

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SYSTEM CERTIFICATION ISO 14001 SGS
BSI ISO 9001 FM 39914
ISO 9001 BUREAU VERITAS Certification
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