

PIGMENTS
FOR COATINGS

SCHLENK 

World of Metallics

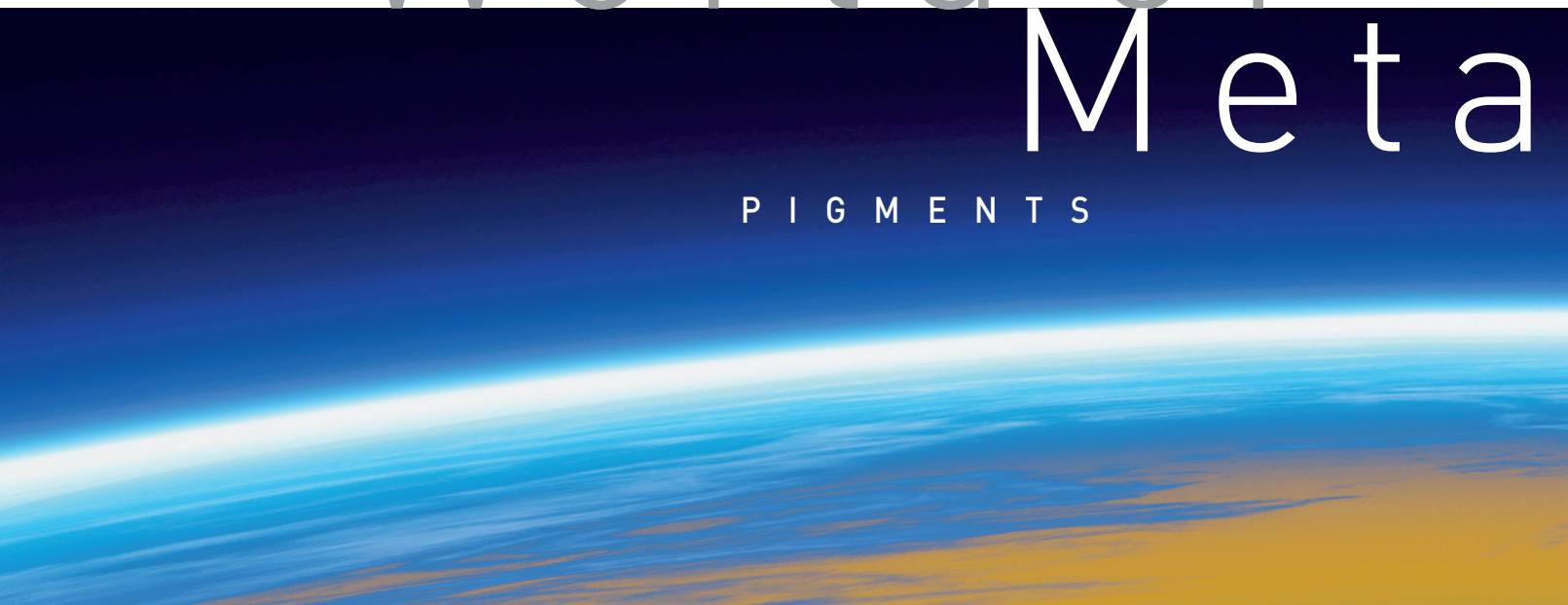
A L U M I N I U M & G O L D B R O N Z E P I G M E N T S



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World of Meta

PIGMENTS



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INTRODUCTION - TECHNICAL INFORMATION

Metallic Pigments for Coatings

Metallic pigments are utilized in the coatings industry for numerous and differing applications. Besides creating the typical "metallic effect", they are also used to impart functional requirements such as corrosion protection, conductivity, and others:

Automotive Coatings

- OEM
- Refinish
- Parts and Accessories

Plastic Coatings (ex. Consumer Electronics)

- TV Cabinets, cell phones, cameras, computer housings, etc.

Coil Coatings

Can Coatings

Powder Coatings

General Industrial Coatings

Anti-Corrosion Coatings

Watercraft Primer Coatings

Roof Coatings

Decorative Coatings (including aerosol)

and many more

The flakes particle size ranges from 5 to >50 μm in diameter and a thickness < 1 μm . These metal pigments are composed of aluminium and brass alloys, commonly referred to as goldbronze pigments.

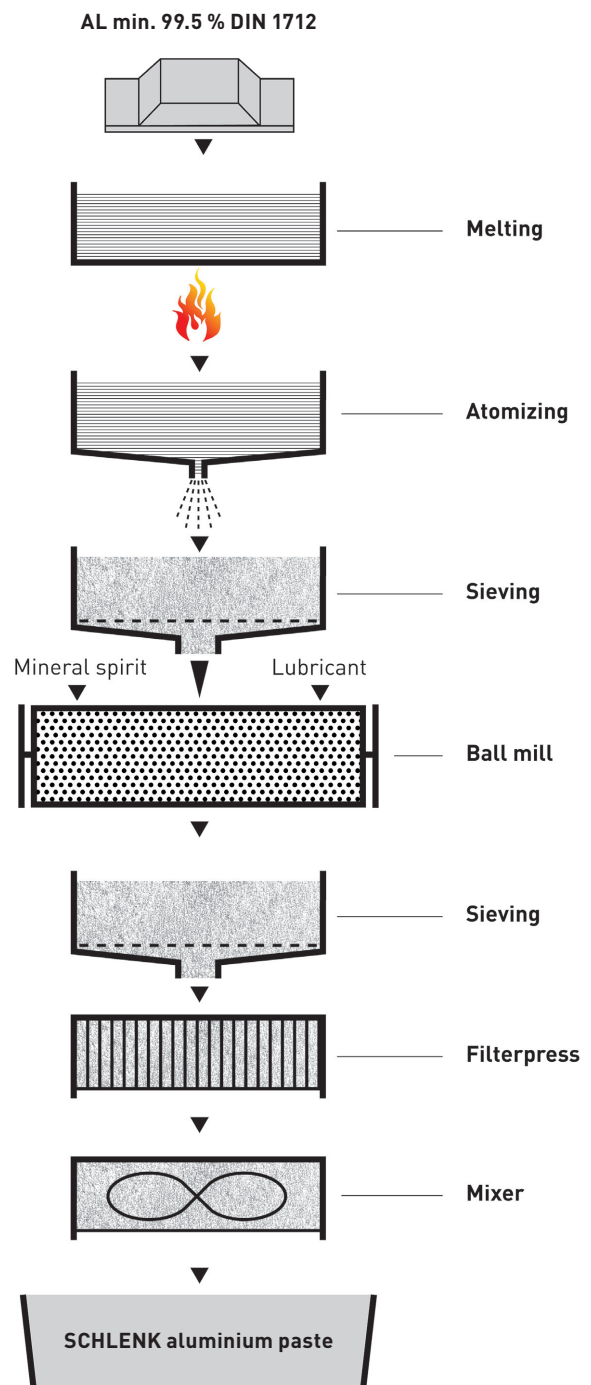


The Manufacturing process of Aluminium Pigments

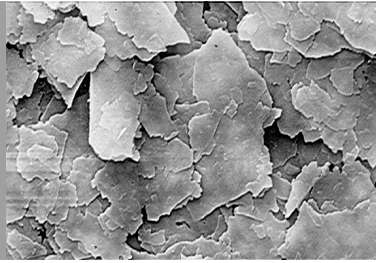
Modern aluminium pigments are produced in a wet milling process in ball mills (Hall Process), whereas goldbronze pigments are produced in a dry milling process (Hametag Process).

The manufacturing process begins with milling atomized aluminium powder to the desired particle size and form in white spirit / mineral spirits with the addition of lubricating additives. After a screening and classification process, the pigment suspension in the mixer is pressed out and the "press cake" is adjusted with solvents to a metal content of typically 65 %.

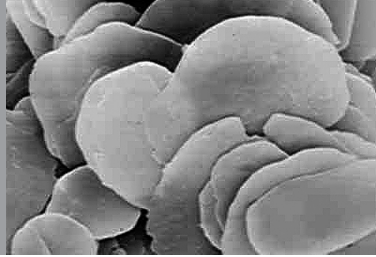
Should the end application require solvents other than hydrocarbons (ex. pastes in water, water miscible solvents, or other types of solvents), the press cake is dried and the powder again is pasted with the required solvents or water.



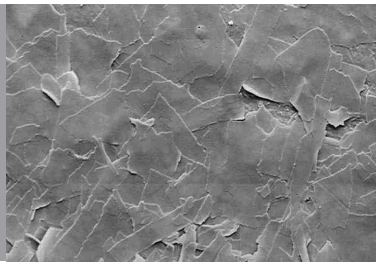
Cornflake



Silverdollar



VMP



Vacuum Metallized Pigments (VMPs), Schlenk's DECOMET® series, are produced by releasing aluminium of metallized films. The aluminium is then further processed and the particle size adjusted. These pigments are considerably thinner and offer a surface which is substantially smoother and therefore much more reflective than conventional aluminium flakes.

Depending on the production process we distinguish between

- Cornflakes – standard flake with rough edges and uneven surface
- Silverdollars – refined flake with smooth edges and flat surface
- Vacuum Metallized Pigments (VMPs) – ultra thin, very smooth flake

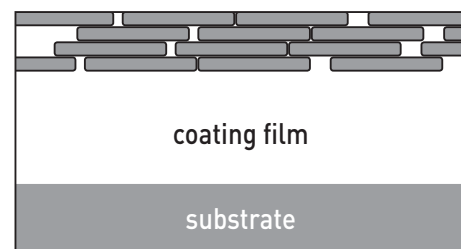
Leafing/Non leafing

As a result of the wetting behavior of the flakes, the metallic pigments either orientate at the wet film surface (leafing), or the flakes become fully wetted out and distribute themselves homogeneously in the paint film (non leafing).

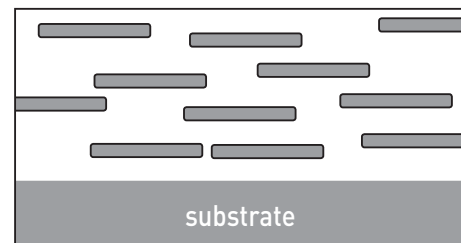
The wetting behavior is determined by the lubricating additives used in the milling process. Leafing pigments are achieved when using stearic acid whereas non leafing pigments can be produced when unsaturated fatty acids (ex. oleic acid) are used.

Leafing pigments create a silver metallic effect and are primarily used in corrosion protection coatings, decorative coatings, as well as roof coatings. The disadvantage of the leafing effect is its poor recoatability (either with itself or a clearcoat) and abrasion resistance. Tinted metal effects are not possible because of the pigment orientation.

As non leafing pigments are distributed homogeneously throughout the paint film, these are better protected from abrasion and corrosive influences. They can easily be over-coated.



LEAFING-PIGMENT



NON LEAFING-PIGMENT

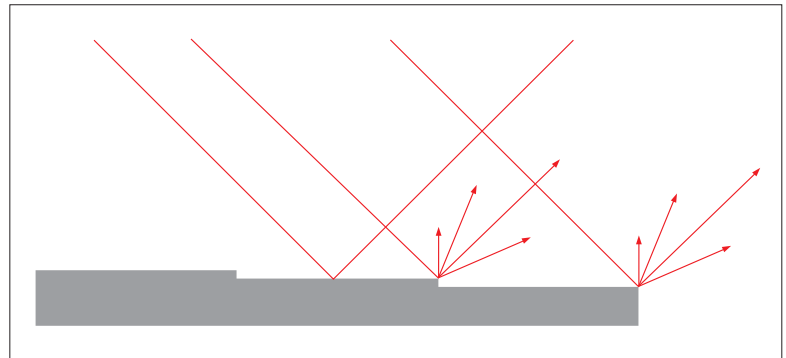
One of the main advantages, however, is the possibility to create tinted metallic effects, when mixing the metallic pigment with transparent pigments.

Typical applications include anti-corrosion and general industrial coatings.

Non leafing aluminium pigments that meet the quality criteria below are primarily used in automotive coatings (typically used with an additional clearcoat) as well as in high quality industrial coatings for coil, can and plastics applications.

The Metallic Effect

Physically, the metallic effect is based on the reflection of light on the smooth surface of the pigment. This reflection however is overlaid by the light scattered at the edges of the flake and by the micro-roughness of the pigment surface. Therefore the metallic effect is the sum of the reflection and the scattering of light. The higher the ratio of reflected light, the more intense is the “metallic effect”.



light reflection at lamellar smooth surfaces
light scattering at edges and rough surfaces

This results in the following quality criteria which, depending on the application, are to be considered when metallic pigments are selected.

Particle Size

The larger the particle (= the reflecting surface), the greater the metallic effect (brilliance, sparkle effect). The finer the particle, the higher the scattering at the edges. Consequently, the effect becomes more homogenous but also darker.

The selection of particle size is primarily determined by the manufacturing technology and is described by the d50-value (average particle size). Typical metal pigments range from approximately 3 μm (offset printing) to over 50 μm (high sparkle effect). The aluminium pigments used for automotive coatings, consumer electronics, coil coatings, powder coatings and other applications offer a d50 range of approximately 8 – 25 μm .

Particle Shape – Pigment Morphology

With the development of the Silverdollar Pigments, new spheres in metallic effects could be created. As a result of the coin-like particle form and the

smooth surface, the reflection is maximized and the amount of scattered light is significantly reduced. The metallic effect becomes more intense and the brilliance and brightness is clearly enhanced when compared to similar size cornflake pigments. Silky luster effects can be achieved with fine Silverdollars. This pigment class (d50: 8 – 20 μm) is presently the most utilized aluminium in metallic automotive coatings and high quality industrial coatings.

Particle Size Distribution

Also here the same rule applies: the higher the portion of fine and very fine pigments particles, the higher the scattering of light, resulting in the loss of the metallic appearance. However, particles that are too coarse, have a detrimental effect in the application process and visual effects (surface gloss, DOI-value, opacity etc.). Therefore, in recent years R&D efforts have focused on pigments that have excellent morphology and are tightly classified within the required particle size category.

Pigment Orientation

In addition to the above described characteristics: i.e. particle size, particle size distribution and pigment morphology, the orientation of pigment particles in the paint layer is of extreme importance.

The more parallel the metallic flakes are oriented in the coating film, the better the level of light reflection and thus the better the metallic effect. Depending on the end use, the formula and application conditions play a decisive role here.

Flop Effect

The Flop Effect (also known as two-tone or travel) must also be addressed. Besides brilliance, gloss, and "sparkle", it is one of the most characteristic criteria of the metallic effect. Flop considers the brightness in relationship to the viewing angle. Close to the gloss angle one can measure maximum brilliance; whereas when viewing from a different angle, the effect appears considerably darker. Three dimensional objects, as for example car bodies, appear much more sculpted and of higher quality. This contributed strongly to the success of such "metallic effects" in automotive coating applications.

Metal Pigments for Environmentally Friendly Coating Systems

One essential requirement of the environmentally conscious coatings industry is the reduction of volatile organic compounds or VOCs.

This can be achieved by reducing the solvent content step by step, even to the extent of making completely solvent free coatings, such as powder coatings.

Low solids	Medium solids	High solids	Powder coatings
10-30 %	30-50 %	50-80 %	100 % solids

Low or no VOC coatings can also be achieved when organic solvents are replaced with water.

In energy cured coatings systems (UV or EB) solvents are replaced with monomers, which are chemically integrated into the dry film through polymerization and are therefore also considered "VOC free".

Also, improved application processes with better efficiency (ex. electrostatic spray) or complete solvent recycling via incineration (ex. coil coating) help to protect our environment.

In any of these modern applications metallic pigments are widely used.

These as well as other special applications make it necessary to customize some metallic pigments with special chemical treatments (ex. organic or inorganic surface coatings).

Waterborne Coating Systems

The primary problem with water borne coating systems is the gassing stability of the metal pigments, which has an impact on storage stability.

The underlying chemical reaction of aluminium and water, which creates hydrogen gas can be prevented either by utilizing suitable inhibitors (e.g. organic phosphorus compounds) or by coating the surface with silica.

Powder Coatings

Metallic powder coatings should not be produced in a co-extrusion process. The high shear forces, especially in the milling process, would destroy the flakes and severely influence the effect. However, if it is still desired to utilize metallic pigments in this process, it is recommended to use pigment-binding agent compositions, such as pellets (GRANDAL® for aluminiums, GRANDOR® for bronzes).

Metal pigments are primarily used in the Dry Blend Process or are bonded to the powder resin in a special bonding process to assure the reusability of overspray.

With modern surface treatments other requirements can also be achieved:

- humidity resistance and intercoat adhesion for automotive OEM
- circulation resistance for automotive OEM
- "shock-proof" TV-cabinet coatings
- chemical resistance for consumer electronics, appliances, and automotive interior
- weathering resistance for external use (powder coating, coil coating)

Additional information is provided under the individual special product categories.

Guideline-formulations, technical information as well as our competent technical service are available globally.

Effect, electric chargeability, as well as chemical resistance of the pigment are all positively influenced through special surface coatings of the pigments. As an example with Powdal® XT, new technology made it possible to fulfill the stringent requirements of the construction industry such as certain AAMA specifications (hydrochloric acid, nitric acid, and mortar testing) and GSB-Standard.

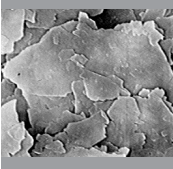
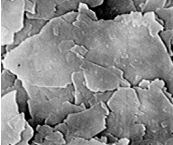
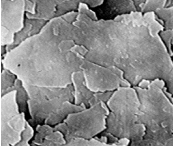
1 Aluminium Pigments leafing

Leafing pigments provide a bright metallic – almost white – appearance and are available in powder and paste form.

EM Solventborne pastes








































PP Powders

Aquasilber® LPW Waterborne pastes

Morphology	Product Denomination	non-volatile content %	Solvent
	EM / 70	65	white spirit
	EM / 90	65	white spirit
	EM / 110	65	white spirit
	EM / 130	65	white spirit
	PP / 770	100	–
	PP / 970	100	–
	PP / 1170	100	–
	PP / 1380	100	–
	Metaface 2150	100	–
	Aquasilber LPW / 780	65	water
	Aquasilber LPW / 980	65	water
	Aquasilber LPW / 1180	65	water
	Aquasilber LPW / 1380	65	water
	Aquasilber LPW / 2150	65	water

All mentioned figures are of an informative nature only and are not part of any specification

Aluminium Pigments leafing

D50-value approx. µm	Applications	Outstanding Features
20	   	standard white spirit pastes
17	   	
13	 	
10	 	
20	 	powders -VOC free
17	 	
13	 	
10	 	
13		
20	  	stabilized leafing pastes for waterborne systems; VOC free
17	   	
13	   	
10	   	
13	  	

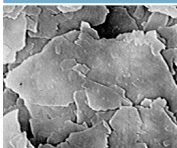
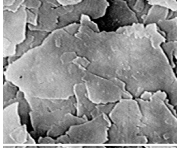
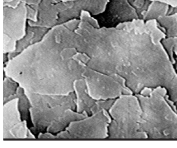
2 Aluminium Pigments non leafing

2.1 Cornflakes for solventborne systems

POLYTOP Economy series – Cornflake

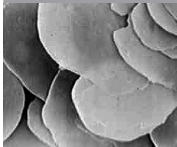
ALUMET® Standard series – Cornflake

ALUCAR® Premium series – Cornflake

Morphology	Product Denomination	non-volatile content %	Solvent
	Polytop 0900	65	white spirit
	Polytop 0130	65	white spirit
	Alumet 1500	65	white spirit /aromatics
	Alumet 1700	65	white spirit /aromatics
	Alumet 1800	65	white spirit /aromatics
	Alucar 2600	65	white spirit /aromatics
	Alucar 2650	65	white spirit /aromatics
	Alucar 2900	65	white spirit /aromatics

2.2 Silverdollars for solventborne systems





























ALUBRIGHT® 3000 Standard series – Coarse to medium fine silverdollar grades























Morphology	Product Denomination	non-volatile content %	Solvent
	Alubright 3100	70	white spirit /aromatics
	Alubright 3200	70	white spirit /aromatics
	Alubright 3250	70	white spirit /aromatics
	Alubright 3400	70	white spirit /aromatics
	Alubright 3600*	70	white spirit /aromatics
	Alubright 3700*	70	white spirit /aromatics
	Alubright 3800*	65	white spirit /aromatics
	Alubright 3900*	65	white spirit /aromatics

*special pigments morphology

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Aluminium Pigments non leafing

D50-value approx. μm	Applications	Outstanding Features
14	  	wide particle size distribution; excellent hiding power
11	  	
22	   	narrow particle size distribution; good hiding power; good metallic appearance
18	   	
14	   	
24	  	narrow particle size distribution; bright metallic appearance
20	  	
11	   	

D50-value approx. μm	Applications	Outstanding Features
75		narrow particle size distribution; coarse grades show high sparkle effect
56	  	
47	  	
34	  	
31	  	
29	  	
27	  	
24	  	

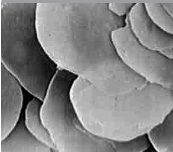
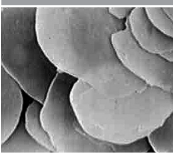
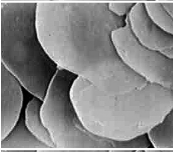
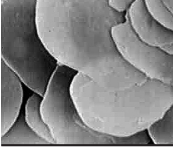
2.2 Silverdollars for solventborne systems

ALUSHINE® 6000 Standard series – Medium to fine silverdollar grades

ALUSHINE® 7000 Premium series – Medium to fine silverdollar grades

ALUSTAR® 8000 Standard series – Thin silverdollar grades

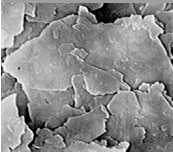
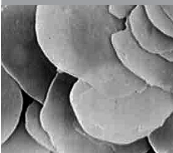
ALUSTAR® 9000 Premium series – Thin silverdollar grades

Morphology	Product Denomination	non-volatile content %	Solvent
	Alushine 6200	70	white spirit / aromatics
	Alushine 6400	70	white spirit / aromatics
	Alushine 6600	70	white spirit / aromatics
	Alushine 6600 XB	70	white spirit / aromatics
	Alushine 6900	70	white spirit / aromatics
	Alushine 7400	70	white spirit / aromatics
	Alushine 7600	70	white spirit / aromatics
	Alustar 8500	60	white spirit / aromatics
	Alustar 9400	70	white spirit / aromatics

2.3 ALU-MOTION®

Effect Pigments for Automotive Coatings

Premium series – Cornflake and silverdollar grades

Morphology	Product Denomination	non-volatile content %	Solvent
	AluMotion C24 02	65	white spirit / aromatics
	AluMotion C22 01	65	white spirit / aromatics
	AluMotion C18 01	65	white spirit / aromatics
	AluMotion C18 02	65	white spirit / aromatics
	AluMotion C11 02	65	white spirit / aromatics
	AluMotion S34 01	70	white spirit / aromatics
	AluMotion S18 03	70	white spirit / aromatics
	AluMotion S16 01	70	white spirit / aromatics
	AluMotion S14 01	70	white spirit / aromatics

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Aluminium Pigments non leafing

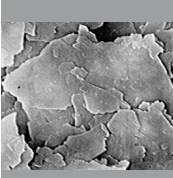
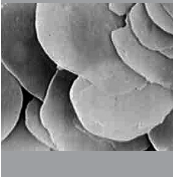
D50-value approx. μm	Applications	Outstanding Features
24		silverdollars standard; narrow particle size distribution
22		
18		
18		
15		
18		thick silverdollars premium; very narrow particle size distribution; strong and dark flop; recommended for circulation resistance
13		
15		thin silverdollar; superb hiding power + liquid metal effect
18		thin premium silverdollar, narrow particle size distribution; good hiding power enabling liquid metal effects

D50-value approx. μm	Applications	Outstanding Features
24		tight tolerance range enables the products to match the benchmark in every possible respect; implemented quality control procedures (e.g. multi- angle measurements in mass tone & blue tint)
22		
18		
18		
11		
34		
18		
16		
14		

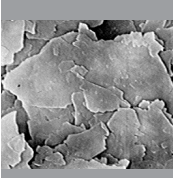
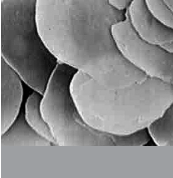
2.4 Cornflakes & Silverdollars for waterborne systems non leafing

AQUAMET® NPW Phosphor organic treated

AQUAMET® WPO Phosphor organic treated (modified)














































Morphology	Product Denomination	non-volatile content %	Solvent
	Aquamet NPW / 2600	60	water
	Aquamet NPW / 1500	60	water
	Aquamet NPW / 1700	60	water
	Aquamet NPW / 2900	60	water
	Aquamet NPW / 3200	60	water
	Aquamet NPW / 3400	60	water
	Aquamet NPW / 6200	60	water
	Aquamet NPW / 6400	60	water
	Aquamet NPW / 6600	60	water
	Aquamet NPW / 6900	60	water
	Aquamet WPO / 2600	60	water
	Aquamet WPO / 3200 / 65	65	water
Aquamet WPO / 3400 / 70	70	water	









































AQUAMET® CP-BG SiO₂ encapsulated

Morphology	Product Denomination	non-volatile content %	Solvent
	Aquamet CP-BG / 2600	60	butyl glycol
	Aquamet CP-BG / 1500	60	butyl glycol
	Aquamet CP-BG / 1700	60	butyl glycol
	Aquamet CP-BG / 2900 / 50	50	butyl glycol
	Aquamet CP-BG / 3200	60	butyl glycol
	Aquamet CP-BG / 3400	60	butyl glycol
	Aquamet CP-BG / 6600	60	butyl glycol
	Aquamet CP-BG / 6900	60	butyl glycol
	Aquamet CP-BG / 8500 / 50	50	butyl glycol
	Aquamet CP-BG / 7600	60	butyl glycol

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Aluminium Pigments non leafing

D50-value µm	Applications	Outstanding Features
24	  	no VOC content; specially recommended for mono-coat systems
22	   	
18	   	
11	   	
56	   	
34	   	
24	  	
22	  	
18	  	
15	   	
24	  	no VOC content; good intercoat adhesion; specially recommended for two-coat systems
56	  	
34	  	

D50-value µm	Applications	Outstanding Features
24	   	good circulation resistance; non-conductive setup offers excellent chemical resistance; recommended for plastic coatings
22	   	
18	   	
11	   	
56	   	
34	   	
18	   	
15	   	
15	   	
13	   	

3 Vacuum Metallized Pigments (VMPs)

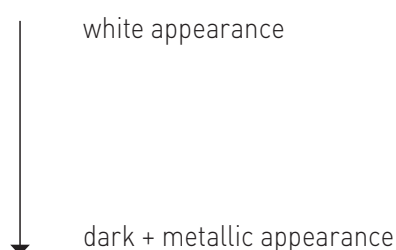
DECOMET® 1000 Economy series

DECOMET® 2000 Standard series

DECOMET® 3000 Premium series

DECOMET® 4000
High end series

DECOMET® 5000



for solventborne systems

Morphology	Product Denomination	non-volatile content %	Solvent
	Decomet 1008 / 10	10	methoxypropyl acetate
	Decomet 2008 / 10	10	methoxypropyl acetate
	Decomet 2108 / 10	10	methoxypropyl acetate
	Decomet 3008 / 10	10	methoxypropyl acetate
	Decomet 3108 / 10	10	methoxypropyl acetate
	Decomet 4008 / 10	10	methoxypropyl acetate
	Decomet 5008 / 10	10	methoxypropyl acetate





























+ Slurries including different solvents (ethyl acetate & isopropyl acetate) are available upon request



Morphology	Product Denomination	non-volatile content %	Solvent
	Decomet 2687 / 30	30	methoxypropyl acetate/white spirit




for waterborne systems

Morphology	Product Denomination	non-volatile content %	Solvent
	Decomet 2057 / 10	10	tripropylglycolmethylether

All mentioned figures are of an informative nature only and are not part of any specification

D50-value approx. μm	Applications	Outstanding Features
12 - 15	   	light metallic; white appearance
12 - 15 10 - 11	       	chrome-like metallic effect
11 - 14 10 - 11	       	dark metallic, good opacity; stainless steel effect
11 - 14 11 - 14	       	very dark metallic, superb opacity; platinum

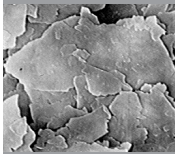
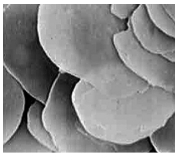
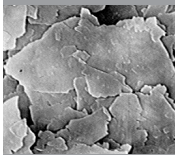
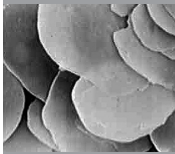
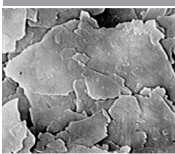
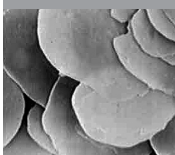
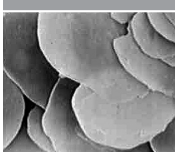
D50-value approx. μm	Applications	Outstanding Features
10 - 11	 	leafing grade; outstanding mirror effect

D50-value approx. μm	Applications	Outstanding Features
12 - 15	  	excellent humidity resistance; perfect intercoat adhesion recommended for rim and glass coatings

4 Aluminium Pigments for special paint applications

























4.1 Powder Coatings

All Powdal grades are recommended for dry blend as well as bonding applications.
For extrusion we recommend Grandal pellets (see 6.2).

Morphology	Product Denomination	Stabilization	D50-value µm
	leafing		
	Powdal 70		20
	Powdal 110		13
	Powdal 130		10
	Powdal 170		6
	Powdal 170 XB		6
	non leafing		
	Powdal 310 n.l.		75
	Powdal 320 n.l.		56
	Powdal 340 n.l.		34
	Powdal 1500	SiO ₂	22
	Powdal 1700	SiO ₂	18
	Powdal 2600	SiO ₂	24
	Powdal 2900	SiO ₂	11
	Powdal 3100	SiO ₂	75
	Powdal 3200-01	SiO ₂	56
	Powdal 3400-01	SiO ₂	34
	Powdal 8500	SiO ₂	15
	Powdal 2600 XT	SiO ₂	24
	Powdal 3100 XT	SiO ₂	75
	Powdal 3200 XT	SiO ₂	56
	Powdal 3250 XT	SiO ₂	48
	Powdal 3400 XT	SiO ₂	34
	Powdal 6600 XT	SiO ₂	18
	Powdal 8500 HC	SiO ₂	16
	Powdal 9400 HC	SiO ₂	18

All mentioned figures are of an informative nature only and are not part of any specification

- Powdal® leafing** **Economy series** – untreated
- Powdal® non leafing** **Economy series** – untreated
- Powdal® non leafing** **Standard series** – silica encapsulated
- Powdal® XT** **Premium series** – silica encapsulated
- Powdal® HC** **High Chrome Effect** – silica encapsulated

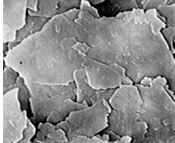
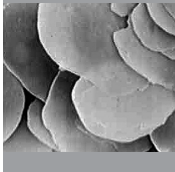
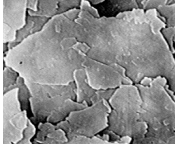
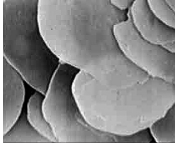
Applications	Outstanding Features
    	<p>bright, chrome-like effect; excellent hiding power</p> <hr/> <p>best available hiding power</p>
  	<p>high sparkling metallic effect for interior applications only</p>
   	<p>very good cost-effectiveness; excellent metallic appearance; recommended for high-end interior applications</p>
   	<p>high-sparkling metallic effect; superior surface performance; recommended for high-end interior applications</p>
     	<p>silica-encapsulated; excellent chemical resistance; suitable for exterior usage ⁽¹⁾; meets GSB requirements ⁽¹⁾;</p>
 	<p>silica-encapsulated; superior bright silver effect; improved fingerprint resistance</p>

(1) under adherence to certain conditions
Please consult our Technical Service for further details.

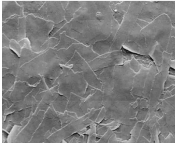
4.2 Coil / Can Coatings

SILVERCOIL® Non encapsulated non leafing pigments



























SILVERCOIL® XT Polymer coated non leafing pigments







Morphology	Product Denomination	non-volatile content %	Solvent
	SilverCoil 2600 CC	65	white spirit / aromatics
	SilverCoil 1700 CC	65	white spirit / aromatics
	SilverCoil 2900 CC	65	white spirit / aromatics
	SilverCoil 3200 CC	70	white spirit / aromatics
	SilverCoil 3400 CC	70	white spirit / aromatics
	SilverCoil 7400 CC	70	white spirit / aromatics
	SilverCoil 8500 CC	60	white spirit / aromatics
	SilverCoil XT 2600 CC	50	white spirit / aromatics
	SilverCoil XT 1700 CC	50	white spirit / aromatics
	SilverCoil XT 3400 CC	55	white spirit / aromatics
	SilverCoil XT 8500 CC	50	white spirit / aromatics
	SilverCoil XT 7600 CC	55	white spirit / aromatics

DECOMET® MIRRORCOIL Based on Vacuum Metallized Pigments

Morphology	Product Denomination	non-volatile content %	Solvent
	Decomet MirrorCoil Silver	10	methoxypropyl acetate
	Decomet MirrorCoil Platinum	10	methoxypropyl acetate
	Decomet MirrorCoil Chrome	10	methoxypropyl acetate

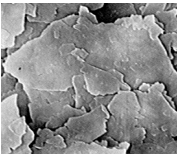
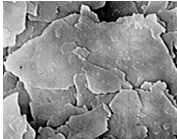
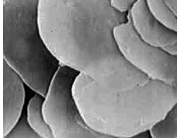
All mentioned figures are of an informative nature only and are not part of any specification

D50-value µm	Applications	Outstanding Features
24	 	quality control is conducted in a coil coating paint system; outstanding batch- to -batch consistency
18	 	
11	 	
56	 	
34	 	
18	 	
15	 	
25	 	superior fastness against chemicals (48 hours 5% NaOH); brilliant silver metallic effects; good optical batch -to -batch consistency
18	 	
	 	
34	 	
17	 	
14	 	

























D50-value approx. µm	Applications	Outstanding Features
12-15	 	high reflecting VMP coating; mirror - like effects; smooth surface; high brilliance
11-14	 	
11-14	 	

5 Aluminium Pellets

GRANDAL® Aluminium pellets based on aldehyde resin

Morphology	Product Denomination	metal content %	D50-value μm
	leafing		
	Grandal 770	ca. 95	20
	Grandal 2140	ca. 95	13
	Grandal 170	ca. 95	6
	non leafing		
	Grandal 2600	ca. 95	24
	Grandal 1700	ca. 95	18
	Grandal 2900	ca. 95	11
	Grandal 6600	ca. 95	18
	Grandal 6900	ca. 95	15

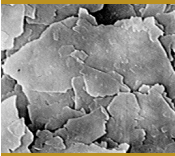
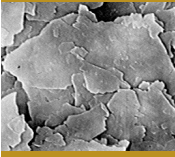
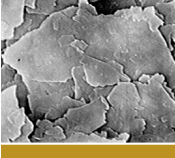
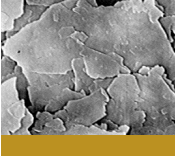
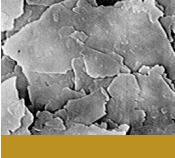
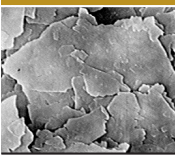
All mentioned figures are of an informative nature only and are not part of any specification

Applications	Outstanding Features
 	
 	
 	
  	solventfree; easy to use
  	
  	
  	
  	
  	

Specialities

6 Goldbronze Pigments













































- LUMINOR** **Powders** – not passivated
- UNICOAT®** **Powders** – not passivated
- CONSTANT®** **Powders** – SiO₂ encapsulated
- AQUADOR®** **Pastes** – stabilized version for waterborne systems
- GRANDOR®** **Pellets**
- GOLDFLITTER** **Powders** – not passivated

Morphology	Product Denomination	solid content %	metal content %	D50-value µm
	Luminor 2210	100		50
	Luminor 2250	100		35
	Luminor 2550	100		35
	Luminor 2280	100		20
	Luminor 2580	100		20
	Luminor 2350	100		16
	Unicoat 3050	100		12
	Unicoat 3220	100		10
	Unicoat 3230/NL	100		9
	Unicoat 3260	100		6
	Grandor 426 n.l.		95	9
	Constant 2210 / N	100		45
	Constant 2250 / N	100		33
	Constant 2280 / N	100		28
	Constant 4117 / N	100		11
	Aquador 2250		70	35
	Aquador 2550		70	35
	Aquador 2580		70	20
	Aquador 2350		70	16
	Aquador 3050		70	11,5
	Aquador 4350		70	6
	Goldflitter 200	100		200
	Goldflitter 1000	100		1000
	Goldflitter Constant 200	100		200

all powders are available in paste and granule form as well

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Goldbronze Pigments

Shades	Applications	Outstanding Features
RG; RPG; PG; CO; DG		brilliant deep shades
RG; RPG; PG; CO; EG; CT; GC; DG; FR		
RG; RPG; PG; CO		
RG; RPG; PG; CO; DG		
RG; RPG; PG; CO; EG; CT; GC; DG; FR; MR; SY	 	
RG; RPG; PG; CO; DG	 	
RG; RPG; PG; CO	 	excellent hiding power
RG; RPG; PG; CO; EG; CT; GC; DG; FR; MR	 	
RG; RPG; PG; DG	 	
RG; RPG; PG; CO	 	
RG; RPG; PG; DG		special non leafing setup
RG; RPG; PG; CO	 	silica encapsulated; high chemical resistance
RG; RPG; PG; CO	 	
RG; RPG; PG; CO; EG; CT; DG; FR	 	
RG; RPG; PG; CO	 	
RG; RPG; PG; CO; EG; CT; GC; DG; FR	 	stabilized leafing pastes for waterborne systems
RG; RPG; PG; CO	 	
RG; RPG; PG; CO; EG; CT; GC; DG; FR; MR; SY	 	
RG; RPG; PG; CO; DG	 	
RG; RPG; PG	 	
RG; RPG; PG	 	
RG; PG; CO	 	coarse goldflitter for high sparkle effects
RG; PG; CO	 	
RG; PG; CO	  	

Standard Colors: Richgold: **RG**; Richpalegold: **RPG**; Palegold: **PG**; Copper: **CO**

Special Colors: Englishgreen: **EG**; Citron: **CT**; Goldcolor: **GC**; Ducatgold: **DG**; Firered: **FR**; Maron: **MR**; Syringa: **SY**

Symbols



Automotive and accessories coatings



Can coatings



Industrial coatings



Chrome effect/decoration and reflective coatings



Anticorrosive coatings, heat resistant coatings, tank coatings



Hammerfinish coatings



Roof coatings



Aerosols, DIY



Marine paints



Powder coatings



Coil coatings



Plastic-Coatings

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World of Metallics

