ASTROSHINE®

Aluminium Pigments for paints, inks and plastics

Nihonboshitsu Co. Ltd.

Characteristics of aluminium paste

■ Coating thickness and optical effects

There are various application of aluminium paste, and each application has different thickness of coating. Generally, automotive coating is relatively thick, plastic coating is thin, and printing is extremely thin. Even using same aluminium paste, optical effects differ from each other by the thickness of coatings.

○Thick coating: poor alignment, low brightness, and low flop.

○Thin coating: good alignment, high brightness and high flop.

■ Alignment of particles and optical characteristics

Alignment of particles in the coating layer is very important in order to maximize the effect of each aluminium paste. Specially for spray, alignment of particles changes with pressure, rate, and number of sprayed layers.

○Low flow rate, multiple layers: Good alignment, high brightness and flop.

○High flow rate, single layer: Poor alignment, low brightness and flop.

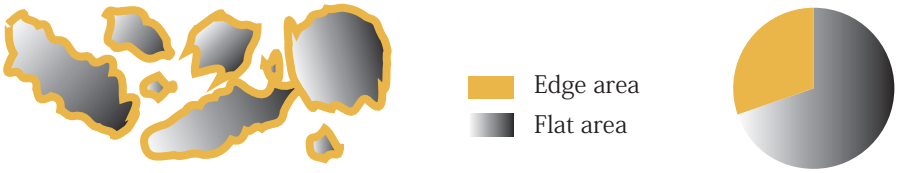
Particle shape

■ Particle shape and optical characteristics

Particle shape of aluminium paste differ by its raw material and production process. Although it is all in thin flake form, it is separated into two groups, round particle made with spherical atomized powder, and irregular particle with Jagged edges made by milling foil.

○Round particle: Clean edge produce high brightness and less diffused reflection.

○Irregular particle: Jagged edges produce more diffused reflection and less brightness.



■ Particle thickness and alignment

Alignment of particles is effected by the thickness of particles.

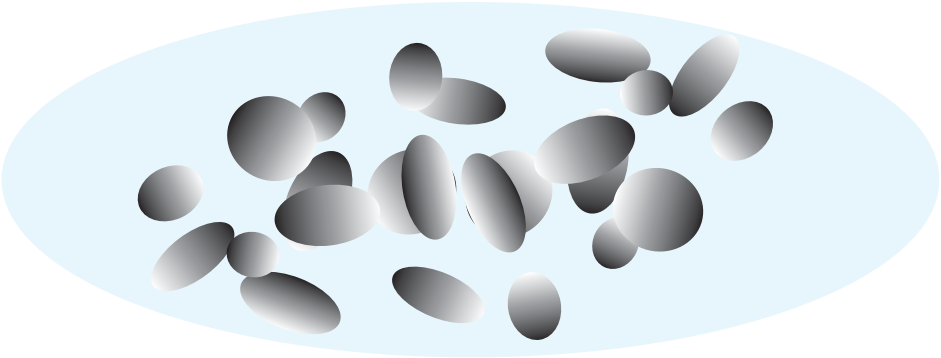
○Thick particle: Poor alignment when overlapped.

○Thin particle: Relatively better alignment can be achieved.

Characteristics

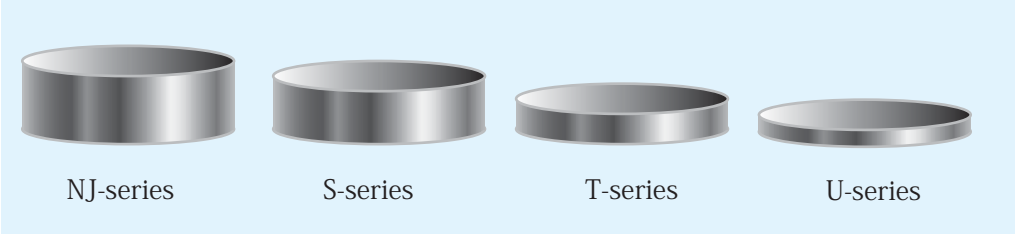
■ Particle shape

ASTROSHINE is made only with our spheric atomized powder, and by precision milling process. Each particle is round and its surface is smooth and flat, producing high level of brightness. Edge of particle is also smooth, minimizing diffused reflection.



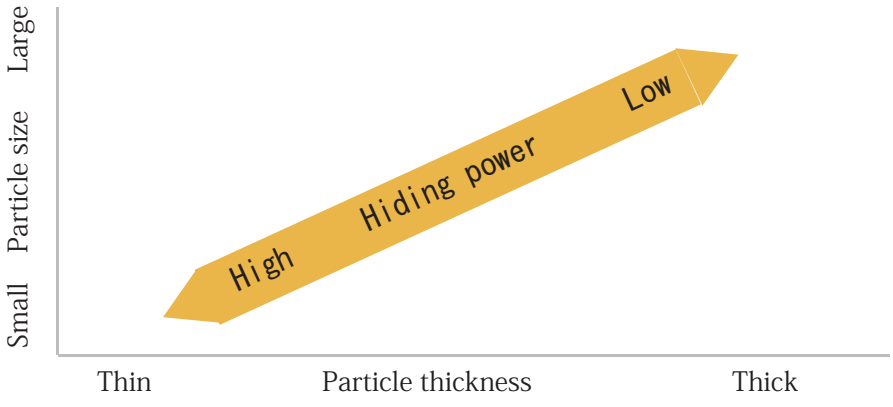
■ Particle thickness of each series

Particle thickness of ASTROSHINE differ for each product series, and should be selected for specific applications and desired effects.



Product series	Thickness	Aspect ratio	Recommended Coat thickness
NJ-series	500nm	25	Thick coating
T-series	350nm	38	Thin coating
S-series	450nm	27	Relatively thick coating
U-series	150nm	60	Relatively thin coating

■ Particle size, thickness and hiding power



ASTROSHINE Product lineup

■ Product Series

Series	Thikness	Applications
NJ-series	500nm	Auto paints, Industrial paints, Plastic coating
T-series	350nm	Plastic coating, Printing inks
S-series	450nm	Auto paints, Industrial paints, Plastic coating
U-series	150nm	Auto paints, Plastic coating, Printing inks

■ Product Types

Product type	Symbol	Description
Standard type	none	Standard non-leafing aluminium paste
Solvent exchanged	□X	Solvent is exchanged for each application
Polymer coated	PC	Surface of particle is coated with polymer

■ Solvents for each product types

Product type	Symbol	Mixed solvent
Standard type	none	Mineral spirit
Solvent exchanged	MX	Mineral spirit and toluene
	TX	Toluene
	PX	Propyl acetate
	GX	Propylene glycol monomethylether
	EX	Ethyl acetate
	AX	Isopropyl alcohol
Polymer coated	PCPX	Propyl acetate

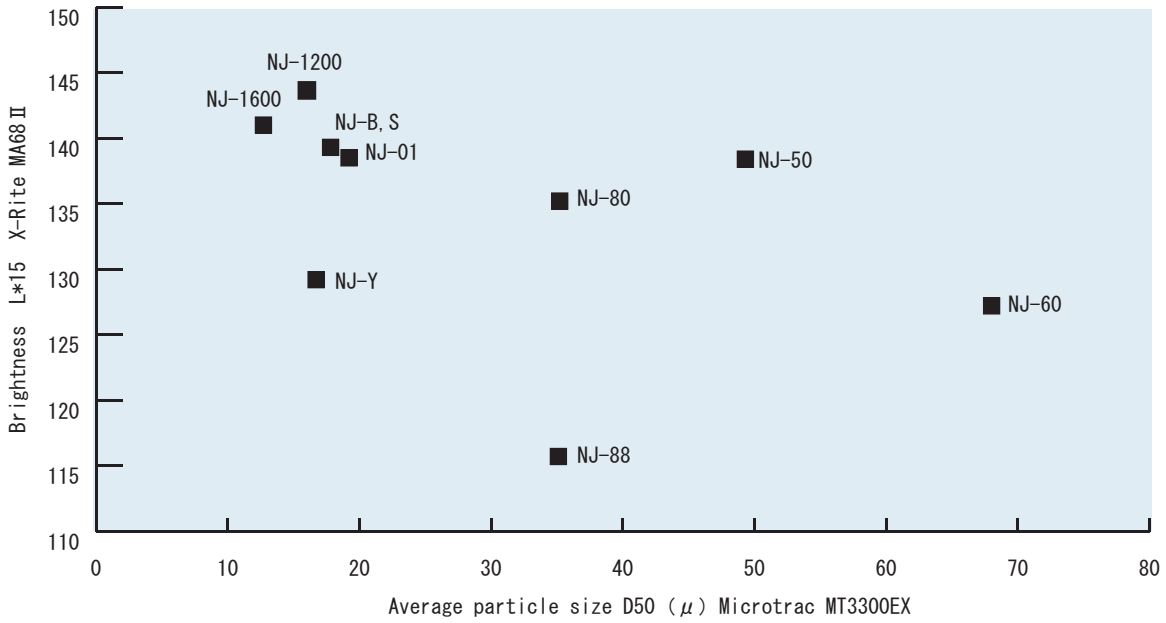
NJ-series

■ Grades

Grades	Non volatile content%	Particle size (μ)			Screen analysis (%)			Mixed solvent	Brightness L*15	Flop index Xrite	Applications
		D10	D50	D90	115μ	75μ	45μ				
NJ-B	70±2	7.1	17.8	30.6	--	--	99.9	MS	139.3	19.0	Auto paints, Industrial paints
NJ-S	70±2	7.1	17.8	30.6	--	--	99.9	MS	139.3	19.0	Auto paints, Industrial paints
NJ-Y	79±2	8.7	16.7	27.5	--	--	99.9	MS	129.2	15.0	Auto paints, Industrial paints
NJ-01	74±2	8.6	19.2	32.6	--	--	99.9	MS	138.5	18.7	Auto paints, Industrial paints
NJ-50	83±2	22.5	49.3	93.2	--	95.0	--	MS	138.4	16.1	Auto paints, Industrial paints
NJ-60	70±2	40.2	68.0	115.0	--	95.0	--	MS	127.2	10.5	Auto paints, Industrial paints
NJ-80	69±2	17.3	35.2	56.3	--	99.9	--	MS	135.2	16.8	Auto paints, Industrial paints
NJ-88	79±2	16.3	35.1	59.5	--	99.5	--	MS	115.7	6.0	Auto paints, Industrial paints
NJ-1200	70±2	7.6	16.0	27.7	--	--	99.9	MS	143.6	22.3	Auto paints, Plastic coatings
NJ-1600	70±2	5.6	12.7	23.8	--	--	99.9	MS	141.0	20.4	Auto paints, Plastic coatings

MS:Mineral spirits

■ Particle size and brightness

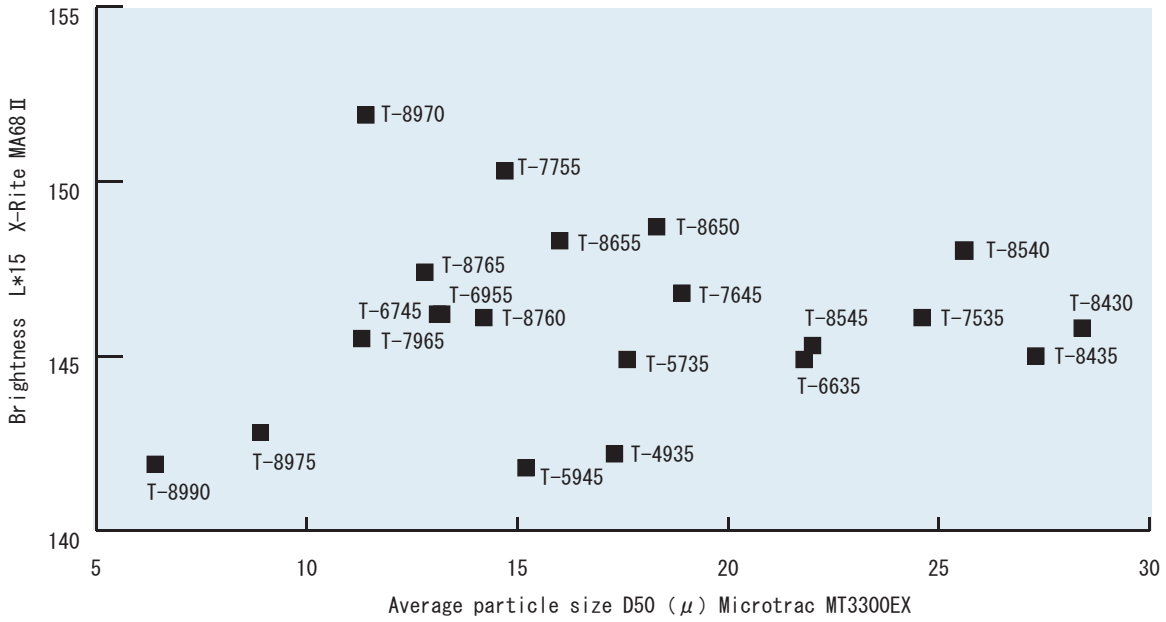


T-series

■ Grades

Grades	Non volatile content%	Particle size (μ)			Screen analysis (%)			Mixed solvent	Brightness L*15	Flop index Xrite	Applications
		D10	D50	D90	115μ	75μ	45μ				
T-8990	70±2	3.0	6.4	12.5	--	--	99.9	MS	141.9	19.4	Plastic coating, Inks, Auto paints
T-8975	70±2	4.1	8.9	17.7	--	--	99.9	MS	142.8	20.4	Plastic coating, Inks, Auto paints
T-8970	70±2	6.0	11.4	20.0	--	--	99.9	MS	151.9	25.0	Plastic coating, Inks, Auto paints
T-8765	70±2	6.9	12.8	22.4	--	--	99.9	MS	147.4	25.2	Plastic coating, Inks, Auto paints
T-8760	70±2	7.8	14.2	23.9	--	--	99.9	MS	146.1	26.6	Plastic coating, Inks, Auto paints
T-8655	70±2	8.5	16.0	27.2	--	--	99.9	MS	148.3	26.6	Plastic coating, Inks, Auto paints
T-8650	70±2	10.2	18.3	29.9	--	--	99.9	MS	148.7	27.6	Plastic coating, Inks, Auto paints
T-8545	70±2	12.1	22.0	37.4	--	--	99.9	MS	145.3	26.6	Plastic coating, Inks, Auto paints
T-8540	70±2	14.9	25.6	41.8	--	--	99.9	MS	148.0	26.6	Plastic coating, Inks, Auto paints
T-8435	70±2	15.5	27.3	45.4	--	--	99.9	MS	145.0	25.4	Plastic coating, Inks, Auto paints
T-8430	70±2	16.0	28.4	46.5	--	--	99.9	MS	145.8	25.1	Plastic coating, Inks, Auto paints
T-7965	70±2	5.5	11.3	20.6	--	--	99.9	MS	145.5	21.9	Plastic coating, Inks, Auto paints
T-7755	70±2	7.9	14.7	25.2	--	--	99.9	MS	150.3	25.3	Plastic coating, Inks, Auto paints
T-7645	70±2	10.0	18.9	32.9	--	--	99.9	MS	146.8	26.2	Plastic coating, Inks, Auto paints
T-7535	70±2	13.3	24.6	42.0	--	--	99.9	MS	146.1	26.1	Plastic coating, Inks, Auto paints
T-6955	70±2	5.9	13.2	24.6	--	--	99.9	MS	146.2	21.9	Plastic coating, Inks, Auto paints
T-6745	70±2	6.8	13.1	25.3	--	--	99.9	MS	146.2	25.5	Plastic coating, Inks, Auto paints
T-6635	70±2	11.0	21.8	39.9	--	--	99.9	MS	144.9	25.7	Plastic coating, Inks, Auto paints
T-5945	70±2	6.3	15.2	31.4	--	--	99.9	MS	141.8	20.9	Plastic coating, Inks, Auto paints
T-5735	70±2	8.2	17.6	35.7	--	--	99.9	MS	144.9	24.6	Plastic coating, Inks, Auto paints
T-4935	70±2	7.7	17.3	34.5	--	--	99.9	MS	142.2	22.1	Plastic coating, Inks, Auto paints

■ Particle size and brightness

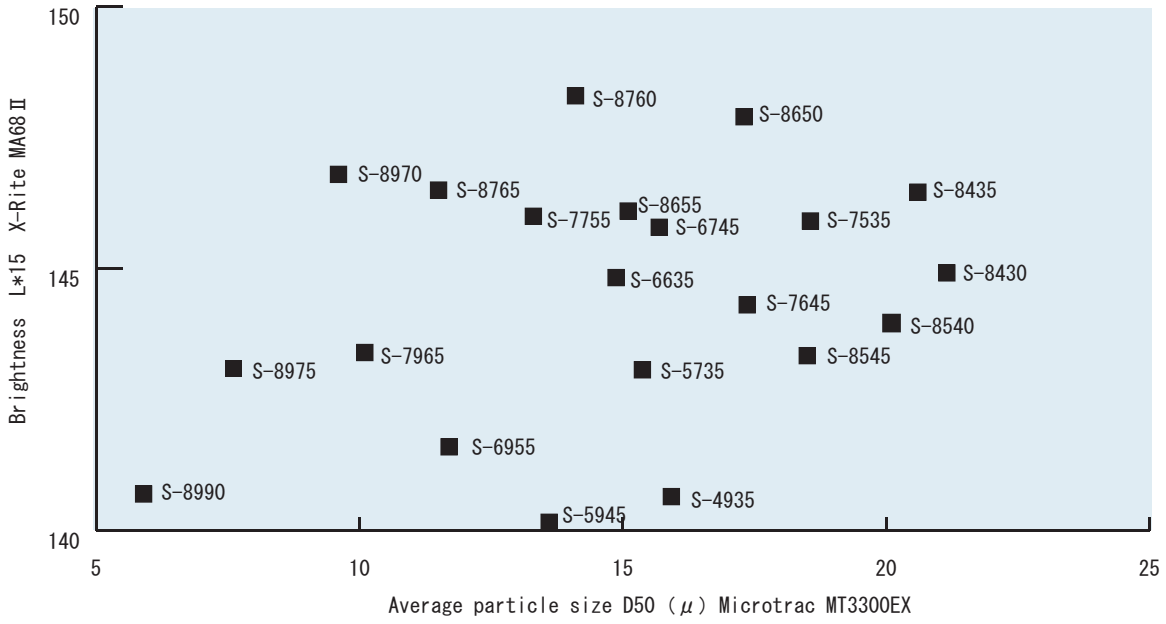


S-series

■ Grades

Grades	Non volatile content%	Particle size (μ)			Screen analysis (%)			Mixed solvent	Brightness L*15	Flop index Xrite	Applications
		D10	D50	D90	115μ	75μ	45μ				
S-8990	75±2	2.8	5.9	11.1	--	--	99.9	MS	140.8	19.2	Auto paints, Plastic coating, Inks
S-8975	75±2	3.5	7.6	14.9	--	--	99.9	MS	143.1	20.8	Auto paints, Plastic coating, Inks
S-8970	75±2	5.2	9.6	17.1	--	--	99.9	MS	146.9	24.9	Auto paints, Plastic coating, Inks
S-8765	75±2	5.9	11.5	20.8	--	--	99.9	MS	146.5	26.1	Auto paints, Plastic coating, Inks
S-8760	75±2	7.8	14.1	23.5	--	--	99.9	MS	148.5	27.6	Auto paints, Plastic coating, Inks
S-8655	75±2	8.2	15.1	25.5	--	--	99.9	MS	146.1	27.4	Auto paints, Plastic coating, Inks
S-8650	75±2	9.9	17.3	28.0	--	--	99.9	MS	147.9	28.2	Auto paints, Plastic coating, Inks
S-8545	75±2	10.8	18.5	30.0	--	--	99.9	MS	143.3	25.7	Auto paints, Plastic coating, Inks
S-8540	75±2	12.1	20.1	32.3	--	--	99.9	MS	144.0	25.0	Auto paints, Plastic coating, Inks
S-8435	75±2	12.3	20.6	32.9	--	--	99.9	MS	146.5	25.0	Auto paints, Plastic coating, Inks
S-8430	75±2	12.7	21.2	34.0	--	--	99.9	MS	144.9	24.8	Auto paints, Plastic coating, Inks
S-7965	75±2	4.8	10.1	19.2	--	--	99.9	MS	143.4	22.3	Auto paints, Plastic coating, Inks
S-7755	75±2	6.9	13.3	23.4	--	--	99.9	MS	146.0	26.4	Auto paints, Plastic coating, Inks
S-7645	75±2	9.6	17.4	28.5	--	--	99.9	MS	144.3	26.0	Auto paints, Plastic coating, Inks
S-7535	75±2	10.5	18.6	30.4	--	--	99.9	MS	145.9	24.4	Auto paints, Plastic coating, Inks
S-6955	75±2	5.0	11.7	22.5	--	--	99.9	MS	141.6	21.4	Auto paints, Plastic coating, Inks
S-6745	75±2	7.7	15.7	27.2	--	--	99.9	MS	145.8	24.5	Auto paints, Plastic coating, Inks
S-6635	75±2	7.9	14.9	25.3	--	--	99.9	MS	144.8	25.4	Auto paints, Plastic coating, Inks
S-5945	75±2	5.6	13.6	25.8	--	--	99.9	MS	140.2	20.3	Auto paints, Plastic coating, Inks
S-5735	75±2	7.2	15.4	27.7	--	--	99.9	MS	143.1	24.2	Auto paints, Plastic coating, Inks
S-4935	75±2	6.9	15.9	28.4	--	--	99.9	MS	140.7	21.7	Auto paints, Plastic coating, Inks

■ Particle size and brightness



U-series

Product series	ASTROSHINE U-Series Fine grades
Product type	Non-Leafing, Silver-dollar, Thin-flake
Applications	Auto paints, Plastic coatings, Inks
Description	U-Series is the thinnest series in ASTROSHINE product line, and these fine grades are specially designed for silky finish. Brightness and hiding power are maximized with narrow distribution and high aspect ratio. Recommended for gravure ink, auto paints, and plastic coating.

Technical data	Grade	U-8990	U-8980	U-8975	U-8970
	Non volatile content	70 +/- 2%	70 +/- 2%	70 +/- 2%	70 +/- 2%
	Screen analysis (45um)	99.9%	99.9%	99.9%	99.9%
	Particle size (D50)	9 micron	10 micron	11 micron	13 micron
	Mixed solvent	Solvent naphtha			

Composition	Aluminum	CAS.7429-90-5	70%
	Solvent naphtha	CAS.64742-95-6	28%
	Oleic acid	CAS.112-80-1	2%

Grade mapping