TAIEI TECHNO PAINT CHEMICALS SECT.

FOR INTERIOR & EXTERIOR AUTOMOTIVE METAL PARTS

Metalstar BK Series

Super High Brightness Metallic Paint

Metal-tone coating, mainly for aluminum wheels

ISO 9001:2015 Certified (Intertek)

TAIEI INDUSTRIES Co.,Ltd. TECHNO PAINT CHEMICALS SECT.



Metalstar Silver Example ①



Metalstar Silver Example ②



Metalstar Silver Example ③

FOR INTERIOR & EXTERIOR AUTOMOTIVE METAL PARTS

Metalstar BK Series

Super High Brightness Metallic Paint

Product Description

The Metalstar BK series is an ultra-bright metallic (metal-tone) coating for metals, designed mainly for automotive aluminum wheels. It offers even higher brightness than our Metalstar series for plastics, together with paint film performance that withstands exterior use. It has the highest brightness of all our ultra-bright paint series for metals and plastics (in-house comparison).

Highest Brightness
Top of our ultra-bright series (in-house)

For Aluminum Wheels
Exterior-grade film performance

Corrosion Resistance
Salt spray 480 h / CASS 240 h

150°C × 20 min
Standard 3C3B drying

TAIEI INDUSTRIES Co., Ltd.

We are a paint manufacturer specializing in the development and production of metallic paints for OEM automotive exterior and interior parts.

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Product Lineup

Product name	Features
Metalstar BK-47-2SP Standard grade	For automotive interior and exterior parts, 3C3B specification. The standard grade of metal-tone paint.
Metalstar BK-WR-0347 Enhanced water & humidity resistance	For automotive interior and exterior parts, 3C3B. Based on BK-47-2SP, with enhanced humidity resistance and water resistance.
Metalstar BK-WR-0447 Finer particle, water resistant	For automotive interior and exterior parts, 3C3B. Finer particle size than BK-WR-0347, with improved water resistance.
Metalstar BK-JPH-05 High-brightness grade	For automotive interior and exterior parts, 3C3B. The highest brightness in the Metalstar BK series.
Metalstar BK Customer-specific grades	For automotive interior and exterior parts, 3C2B / 3C3B. We design and manufacture special-specification Metalstar coatings tailored to the customer's equipment.

Application & System

Main application

Designed for metal parts of automotive interiors and exteriors, mainly aluminum wheels.

Coating system (3C3B)

Base: Acryoh #4000 High Gloss Black → Middle: Metalstar BK → Top: Acryoh #3800 Clear

Drying condition

150°C × 20 min (KEEP) for each coat

How Is It Different from Ordinary Metallic Paint?

Very high brightness

With ordinary metallic colors, the graininess of the aluminum pigment makes the paint recognizable as metallic at a glance. Metalstar offers much higher brightness than ordinary metallic paint and can create a foil-like appearance in which the particles are hard to see.

Ultra-thin aluminum pigment

The aluminum pigment contained in this paint has a cross-sectional thickness of about 1/10 (0.03–0.05 µm) of conventional aluminum pigments. When oriented flat, it comes close to the state of a foil (PVD film). These are the biggest differences.

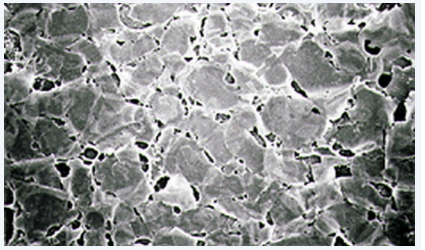
Performance for metal parts

The Metalstar BK series offers even higher brightness than the Metalstar series for plastics, together with paint film performance that withstands exterior use. It has the highest brightness of all our ultra-bright paint series for metals and plastics (in-house comparison).

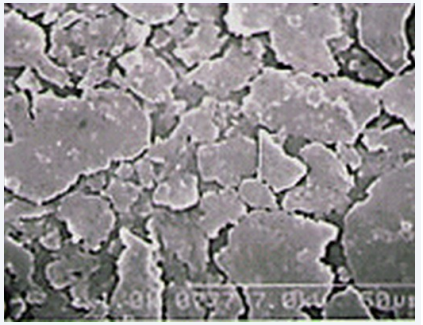
Metalstar Paint Layer Structure



Aluminum Pigment Comparison



Metalstar aluminum pigment



Ordinary aluminum pigment

Standard Coating Specification — Metalstar BK Series (3C3B) for Metals

Substrates: metals (after chemical conversion treatment)　Main application: automotive aluminum wheels

Item	1　Base coat	2　Middle coat	3　Top coat
Paint	**Acryoh #4000** High Gloss Black	**Various 3C3B types of** Metalstar BK series	**Acryoh #3800** Clear
Thinner	SGL-40 (standard drying) ST-41 (for electrostatic coating)	No adjustment	SGL-40 (standard drying) ST-41 (for electrostatic coating)
Mixing ratio (by weight) Paint / Thinner	100/50–70	No adjustment	100/30–40
Recommended viscosity (Anest Iwata NK-2 cup)	14–17 sec	7±1 sec	12–14 sec
Spray gun (recommended nozzle)	Conventional air spray gun Nozzle diameter 1.0–1.5 mm	LVLP air spray gun Nozzle diameter within 1.3 mm Recommended: Mesac G05-23 / S-14-23	Conventional air spray gun Nozzle diameter 1.0–1.5 mm
Atomizing air pressure	0.2–0.3 MPa	0.15–0.25 MPa	0.2–0.3 MPa
Spray volume	1.25–1.5 turns	0.125–0.25 turns	1.25–1.5 turns
Number of coats (laps)	About 4–6	About 6–10	About 4–6
Standard film thickness	20 ± 3 μm	Less than 1.0 μm	20–25 μm
Setting time	About 5–10 min	About 5–10 min	About 5–10 min
Drying condition	150°C × 20 min (KEEP)	150°C × 20 min (KEEP)	150°C × 20 min (KEEP)

Remarks

- Shake each paint can well before use.
- Always filter the paint when filling the paint cup or paint supply tank.

Paint Film Performance — For Metals (3C3B)

Test system: chemical conversion treatment → Acryoh #4000 High Gloss Black → Metalstar BK-47-2SP Silver → Acryoh #3800 Clear

Test item	Test method	Result
Film hardness	Mitsubishi Hi-Uni pencil	**H–2H**
Initial adhesion	1.0 mm cross-cut, adhesive tape peel	**100/100**
Impact resistance	DuPont impact tester, 2.9 N (300 gf), 20 cm or more	**PASS**
Alcohol resistance	Traverse tester, absorbent cotton, 80% ethanol 0.5 ml, 1 kgf/cm² × 30 cycles or more	**PASS**
Adhesion after humidity exposure	50°C, 98% RH, 240 h, then adhesion test	**100/100**
Water discoloration resistance	5 ml distilled water dropped inside a ring sealed to the test surface; 55°C × 4 h	**ΔE* ≤ 0.8**
Alkali resistance	5 ml NaOH (0.1 N) dropped inside a ring sealed to the test surface; 55°C × 4 h	**ΔE* ≤ 1.5**
Acid resistance	5 ml H_2SO_4 (0.1 N) dropped inside a ring sealed to the test surface; 23°C × 24 h	**ΔE* ≤ 1.5**
Volatile oil resistance	Immersed in No. 1 volatile oil at room temperature (20°C) for 3 h	**PASS**
Dry rubbing fastness	Gakushin-type rubbing tester, 5 layers of gauze, 500 g load × 200 cycles	**PASS** No substrate exposure
Accelerated weathering	SWOM (sunshine weather meter), 1000 h	**Gloss retention ≥ 90%** **ΔE* ≤ 3.0**
Salt spray test	5% saline sprayed for 480 h at 35 ± 2°C onto a specimen tilted at 20° ± 5° (specimen cross-cut beforehand)	**PASS** Rust width ≤ 2.0 mm
CASS test	5% saline with acetic acid and copper chloride, adjusted to pH 3.0, sprayed for 240 h at 50 ± 5°C onto a specimen tilted at 20° ± 5° (cross-cut beforehand)	**PASS** Rust width ≤ 3.0 mm
Filiform rust resistance (TAC test)	(24 h salt spray → humidity test 40°C, 85% RH, 120 h → 24 h at room temperature) × 8 cycles (specimen cross-cut beforehand)	**PASS** Rust width ≤ 3.0 mm