

H107 Series — High Adhesion Metal Baking Ink



TECHNICAL DATA SHEET

1. Product Description

H107 is a high-performance, single-component heat-curing metal ink specially developed for difficult-to-adhere metal surfaces. It is suitable for screen printing and pad printing applications.

After high-temperature baking, it provides excellent adhesion, abrasion resistance, alcohol resistance, solvent resistance, and long-lasting durability on tinplate, electroplated metals, and other demanding metal substrates.

2. Recommended Substrates & Applications

Recommended for tinplate, electroplated metal parts, stainless steel, steel sheets, aluminum, anodized aluminum, coated metal surfaces, and stamped metal components.

Surface compatibility should be confirmed before production, as metal surface conditions and coatings may vary significantly.

3. Key Features

- Designed for difficult-to-adhere metal surfaces
- Single-component system with excellent baking performance
- Strong adhesion after high-temperature curing
- Excellent resistance to alcohol, solvents, and abrasion
- Suitable for tinplate, electroplated metal parts, and industrial hardware applications
- Suitable for screen printing and pad printing

4. Printing Instructions

1. Remove dust, oil, and other contaminants before printing. Anhydrous ethanol or a compatible industrial surface cleaner may be used where suitable.
2. Stir the ink thoroughly before use. Select the recommended thinner according to ambient temperature, printing speed, and image requirements. Consult Hongsheng for the appropriate thinner grade.
3. If fine lines or text show spreading, feathering, or blurred edges, add the recommended retarder paste in a controlled amount.
4. Recommended screen mesh: 100–130T. Select the final mesh count according to ink deposit, artwork, and printing conditions.
5. The printed film must be baked at an actual workpiece temperature of at least 150°C for complete curing. A reference condition is 150°C-200 for 30 minutes.
6. Allow the printed part to cool and condition for 12 hours before final adhesion and resistance testing.

4A. Baking & Conditioning

Reference cure: actual workpiece temperature of 150°C-200°C for 30 minutes.

The ink requires at least 150°C baking for complete curing.

Maximum reference heat resistance is up to 200°C; confirm suitability for the required exposure time and color.

Condition printed parts for 12 hours after cooling before final performance testing.

5. Precautions & Storage

1. Always conduct a production trial before mass printing. Adhesion and resistance may vary with metal grade, coating chemistry, pretreatment, and actual workpiece temperature.
2. Typical thinner addition is 10–15%. Adjust viscosity according to printing conditions and the working environment.
3. Do not evaluate final performance before complete baking and post-cure conditioning.
4. Flammable product. Keep the container tightly closed and store in a cool, well-ventilated area away from heat, sparks, and open flames.
5. Use suitable personal protective equipment. Avoid skin and eye contact. If the product enters the eyes, rinse immediately with plenty of water and seek medical attention.
6. Shelf life is 12 months from the date of manufacture in unopened original packaging. Re-test suitability before using expired material.

6. Technical Reference Data

Test Item	Result	Test Method / Condition
Ink Fineness	$\leq 12\ \mu\text{m}$	Grind gauge
Dry-Film Gloss	$\geq 65\ \text{GU}$	60° gloss meter
Surface Drying	Hot air: 40–60°C for 3–5 min	Reference flash-off condition before baking
Full Cure	Oven cure at 150–200°C for minimum 30 min	Actual workpiece temperature; reference condition
Alcohol Resistance	No visible change	500 g load; 100 double rubs with an alcohol-saturated cotton pad
Adhesion	100/100 squares retained	1 mm × 1 mm, 100-grid cross-cut; 3M tape peel
Acid Resistance	No visible change	5% HCl immersion for 24 h
Alkali Resistance	No visible change	5% NaOH immersion for 24 h
Salt-Water Resistance	No visible change	5% NaCl immersion for 24 h
Water Resistance	No visible change	Tap-water immersion at 20°C for 96 h
Abrasion Resistance	No substrate exposure	500 g load; 3,000 double rubs with an abrasive eraser
Heat Resistance	No visible change	150°C for 30 min

Note: Performance data is based on internal laboratory tests and may vary depending on substrate and application conditions. Please conduct a trial test before mass production.

7. Compliance Information

Standard colors in this series can be supplied to meet applicable RoHS, EN 71, and ASTM heavy-metal requirements. Confirm the required regulation, test method, color, and target market before ordering. Supporting test reports are available for selected products upon request.

8. Important Notice

The information in this document is based on internal reference testing and is provided as technical guidance only. Because substrate grades, surface treatments, printing conditions, film thickness, curing, and end-use requirements vary, users must verify suitability through their own trials before production.