



Dusting Precious Metal Preparations in Flake Form for the Decoration of Porcelain and Bone China

1 General Information

Dusting preparations are made of fine hand-made flakes. A special machine crushes the flakes with the addition of a viscous liquid. The original gold particles are of an irregular size with a diameter of approx. 10 to 100 µm and a thickness of 0.1 to 1µm. The gold particles keep their structure.

Dusting precious metal preparations on the basis of flakes are powdered onto a varnish print and are burnished at the same time. Therefore polishing after firing is not necessary.

Dusting precious metal preparations are heavy-metal free.

2 Firing range

Type of substrate	Firing range
Porcelain	780°C (1440°F) - 880°C (1616°F)
Bone China	750°C (1382°F) - 880°C (1616°F)
Vitreous China	750°C (1382°F) - 850°C (1562°F)
Glass	550°C (1022°F) - 650°C (1202°F)

3 Characteristics

3.1 Mechanical Resistance

The mechanical resistance of precious metal decorations is influenced by the flux used as well as the mixing ratio, the firing conditions and layer thickness of the decoration.

The mechanical resistance of dusting precious metal preparations is comparable to the mechanical resistance of burnish precious metal preparations.



3.2 Chemical Resistance

All details as to whether ceramic decorations are dishwasher resistant or durable are to be regarded as approximate values, as test results vary widely according to the type of dishwasher, washing programme, washing-up detergent, water quality and firing conditions. To avoid defective production the user should test the colours in connection with materials involved in further processing and determine whether the desired dishwasher proof or resistant decorations are achieved.

Heraeus tests whether finished decorations are dishwasher resistant or durable roughly following the test-washing programme of the Technical Standards Committee for Material Testing (Fachnormenausschuss Materialprüfung, FNM) in a Miele continuous dishwasher.

The statements concerning our products correspond to our current knowledge and experience. It is the obligation of the purchaser to examine the usefulness of the products in its intended use in each individual case. In order to prevent production losses the user has to test the preparations in connection with every other material being involved in the production process and has to be satisfied that the intended result can be consistently produced.

If a decoration withstands 500 washing cycles essentially without damage, we designate it as dishwasher durable. If it withstands 1000 washing cycles, we designate it as dishwasher resistant.

Users must test the required properties under their own individual conditions.

3.3 Storage

Dusting precious metal preparations should be kept dry to ensure unlimited shelf life.

3.4 Consumption

The average product consumption of dusting precious metal preparations is approx. 0.1 – 0.4 g / 100 cm².

4 Application Recommendations

4.1 Printing of Decals with a Dusting Precious Metal Preparation on a Varnish Film

- Printing of the varnish.

Special medium Nr. 300310, which is the support layer for the dusting preparation, should be mixed with 5 to 30 % flux. We recommend the addition of our flux H 0032. The flux should be homogenised with a triple roll mill which ensures a homogenous distribution of the flux particles within the medium.

Standard screen printing media are not suitable for the printing of varnish underlays, because they are too thin. They might foam, smear or be squashed when printed and might dry too quickly. We recommend the use of screen printing medium Nr. 300310.

The dusting gold medium Nr. 300310 is available in the thixotropic levels thix 2 and thix 7, which should be mixed with each other depending on the decoration. For surface covering decorations a mixture of $\frac{2}{3}$ thix 2 with $\frac{1}{3}$ thix 7, and in fine line decorations a mixture of $\frac{1}{3}$ thix 2 with $\frac{2}{3}$ thix 7 have shown the best results. The mixing ratio for the best print results depends on the decoration and pressure conditions and should be determined by individual tests.

- Print the motif with the mixed varnish. We recommend a 150 to 165T polyester screen for printing.
- Drying of the varnish film.

The drying time depends on the individual drying conditions (eg. room temperature, humidity). It has to be determined under the users own individual conditions. In general, the surface of the varnish should still be sticky for powdering but should not smear.

- Powdering of printed surfaces with dusting precious metal preparation. The dusting preparation has to be applied on the varnish surface by means of a soft, broad paint brush or cotton wool. Finally, the precious metal surface should be burnished with cotton wool, velvet or another soft material. Be sure not to polish in just one direction. Polishing in one direction might lead to an irregular and streaky precious metal surface after firing.
- Drying of the precious metal layer. Generally, the precious metal film should be dried for 2 to 3 days.
- Printing of the covercoat film. We recommend screen printing covercoat L 406 and a 32HD / 83 polyester or steel screen.
- Drying.

4.2 Firing

Fired decorations made of dusting precious metal preparations based on flakes show a silk matt gloss after firing. However, we recommend slightly burnishing the decoration after firing. Burnishing presses down and flattens the gold particles which increases the mechanical and chemical resistance of the decoration.

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Colour	Product	Precious Metal Content	ASTM-resistant	microwave-resistant	Sanitary Ware	Notes
light yellow	Nr. 27/S	73%	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	-
light yellow	Nr. 26/S	85%	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	-
yellow	Nr. 23/S	98%	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	-
yellow	PU 5000 B	98%	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	- <i>new!</i>
red	Nr. 28/S	97%	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	- <i>new!</i>
white	PU 5001		<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	- <i>new!</i>
white	Nr. 36/S	85%				-

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