

platinum resinate paste

RP PT 10003-12,5% H for direct screen printing wet paste

Heraeus Precious Coatings is a global manufacturer of precious metal decoration products for ceramics and glass. Heraeus profits from over 100 years experience in ceramic and glass decoration designs, which has always made the department a pioneer in the development of precious metal colours. Modern precious metal preparations have to meet high demands on different types of substrates – such as on porcelain, tiles, drinking glasses, flacons and bottles. Decorations have to achieve good mechanical and chemical resistance such as dishwasher durability. The products supplied by Heraeus Precious Coatings include: Bright gold and platinum products, silk-matt gold and platinum products, burnish gold and platinum products, lusters and metallo-organic preparations for technical use.

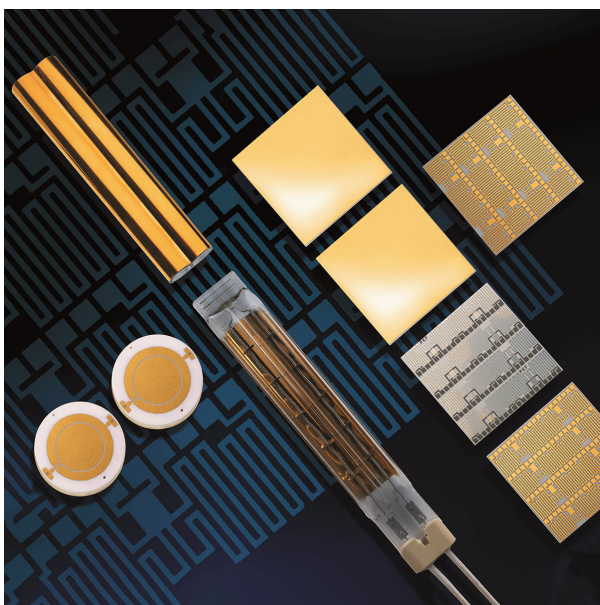
1 General information

RP PT 10003-12,5% H is a metallo organic platinum conductor paste for direct screen printing on alumina or glazed alumina substrates. The materials rheology assures a sharp outline print even of fine line structures. In case a higher film thickness is required (e.g. beyond 0,15 µm), multi layers can be printed. Each layer should be fired, before the next one is getting printed on top.

2 Standard firing range

Substrate	Firing range [°C]
aluminum oxide (glazed or unglazed)	800-850

The firing result depends on the firing temperature, the soak time and the total cycle of the firing as well as on the type of substrate. For an optimal firing result we recommend pre-tests under the users own individual conditions.



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3 Properties of the product

The major characteristics of a Heraeus precious metal preparation are determined by its production recipe. From each lot produced, we take a sample and check defined characteristics.

Form:

Thixotropic direct screen printable paste

Viscosity (structure):

10 – 18 Pas (Physica MCR 301, 20°C, D=20s-1)

Viscosity (printing):

XX – XX Pas (not yet defined) (Physica MCR 301, 20°C, D=100s-1)

Solid content:

12,5% \pm 0,5%

Coverage

Approx. 400cm²/g for fired film at 0,4µm

Resistivity:

$\leq 5\Omega/\square$ (DFT : 10 µm)

HTCR (25-125°C)

3300-3900 ppm/K

3.1 Processing

The material is supplied ready to use. In case the paste has lost solvent during a time of storage or a longer printing, one can adjust the solvent content by adding thinner V 170 H. Please take care to carefully homogenize the paste after the addition of thinner. Three role milling to homogenize the paste is recommended.

3.2 Storage

Metallo organic pastes are subject to an ageing process. Therefore, we recommend using the material within 12 months. The material should be stored at room temperature (20°C). Cool storage – but no freezing – has a positive impact on the shelf life. Silver pastes should be stored in dark with the container tightly closed.

3.3 Consumption

The material consumption depends on the thickness of the applied precious metal layer. Under our conditions, the consumption is approx. 0,15 to 0,30g/100 cm².

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4 Application of the material

- Make sure that the surface of the substrated to be printed on is clean and dry. Dust, fingerprints and water condensation can affect the printed paste during firing.
- Take care that the objects to be printed on are not taken from a cold store into a warm shop. A fine condensation film may occur, which is not visible to the naked eye. This results in firing disturbance (pinholes) in the fired metallo organic film. Allow enough time so that they can adjust to the decoration room temperature.
- Work in a well-ventilated room. The room temperature is recommended to be between 20 and 25°C with a relative humidity of 60 to 70%.
- We recommend the usage of a 300 to 350 mesh stainless steel screen with an emulsion thickness of 15 to 20 µm.
- Dry the printed pieces at 90°C for about 15 minutes. Do not exceed a peak of 130°C in this drying process.
- We recommend to fire at 850°C with a 45 minutes heat up and an approximately 10 minutes soak time.

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5 Compliance to regulation

The properties of the product are determined following standardized laboratory test procedures. For optimal results the material should be fired in a profiled furnace supplied with dried, hydrocarbon and other contaminant free air.

5.1 REACH (SVHC)

The material is REACH (SVHC) compliant according to the latest ** Annex XIV to Regulation (EC) of the European Parliament and of the Council on the Registration, Evaluation, Authorisation and Restriction of Chemicals ("REACH") by European Chemicals Agency and its subsequent amendments; the material does not contain any substance listed in Annex XIV.

5.2 RoHS

The material is RoHS compliant according to the latest ** Directives (European Union) of Restriction of Hazardous Substances ("RoHS") and its subsequent amendments (including the exceptions related to Pb)

Contact

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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.