

## Resinates

### GP P 12/1



### Gold - Palladium Resinate Solution / DPIS\*

\* Development Product Information Sheet

#### Description

GP P 12/1 is a liquid precious metal product for use on glazed ceramic and quartz glass. It contains gold and palladium in form of dissolved organo metallic compounds.

After firing a highly reflective white gold layer is obtained. Due to simultaneous sintering of non-precious metal oxides it offers high adhesion between gold-palladium and substrate.

#### Key Benefits

- Suitable for IR/heat reflective layers on quartz glass
- Free of lead, cadmium and nickel
- Free of phthalate
- REACH<sup>3</sup> and RoHS<sup>4</sup> compliant

#### Processing

1. Do not spatulate or shake prior to processing. Solution can build some deposit which will not dissolve, especially after a long period storage - this can cause defects after firing.

When stored in a refrigerator allow the solution to come to room temperature prior to opening, to avoid condensation.

2. The precious metal liquid can be applied by brush or spray application. For spray application it is necessary to add 25 - 35 % of thinner.
3. Level at room temperature for 5 minutes
4. Dry at room temperature for further 60 minutes
5. Fire at 820 °C (peak) for 10 - 15 minutes, with a total firing cycle time of 50 – 60 minutes.

**Thinner**      V 16 for spraying  
                   V 35  
                   V 39

#### Typical Properties (Solution)

Form:	Liquid solution
Viscosity:	140 - 170 mPas (20 °C, D = 50 sec <sup>-1</sup> )
Au/Pd Ratio:	4.42 : 1
Coverage:	Approx. 500 cm <sup>2</sup> / g (FFT at 0.3 µm)
Shelf Life:	6 months from date of shipment with correct storage (in a dry, cool (5 – 25 °C) and dark place with container tightly shut)

#### Typical Properties (Fired)<sup>1</sup>

Fired Film Thickness <sup>2</sup> : (FFT)	0.1 - 0.3 µm
Fired Residue:	12.8 – 13.2 %

## Resinates

### GP P 12/1



### Gold - Palladium Resinate Solution / DPIS\*

\* Development Product Information Sheet

- 1 Typical properties based on laboratory test methods. For optimum results all materials should be fired in a profiled furnace supplied with dried, hydrocarbon and other contaminant free air (PP-1).
- 2 Measured on quartz glass
- 3 REACH compliant according to the Commission Regulation (EU) No 143/2011 of 17 February 2011 amending Annex XIV to Regulation (EC) No 1907/2006 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; we define a material as REACH compliant, as long as substances used are not recorded in the Annex XIV.
- 4 RoHS compliant according to the Directives (European Union) No 2011/65/EC of Restriction of Hazardous Substances ("RoHS") and its subsequent amendments (including the exceptions No. 7. c. I of the EU Directive e.g. related to Pb)

The descriptions and engineering data shown here have been compiled by Heraeus using commonly-accepted procedures, in conjunction with modern testing equipment, and have been compiled as according to the latest factual knowledge in our possession. The information was up-to date on the date this document was printed (latest versions can always be supplied upon request). Although the data is considered accurate, we cannot guarantee accuracy, the results obtained from its use, or any patent infringement resulting from its use (unless this is contractually and explicitly agreed in writing, in advance). The data is supplied on the condition that the user shall conduct tests to determine materials suitability for a particular application.

#### Europe [TH]

Heraeus Precious Metals GmbH & Co. KG  
Thick Film Materials Division  
Heraeusstr. 12 – 14  
63450 Hanau  
Germany  
Tel: +49 (6181) 35 – 5466  
E-Mail: [th-info@heraeus.com](mailto:th-info@heraeus.com)  
Internet: [www.heraeus-thickfilm.com](http://www.heraeus-thickfilm.com)

#### Americas [TH]

Heraeus Materials Technology LLC  
Thick Film Materials Division  
24 Union Hill Road  
W. Conshohocken, PA 19428  
USA  
Tel: +1 (610) 825 – 6050  
E-Mail: [techservice.hcd@heraeus.com](mailto:techservice.hcd@heraeus.com)  
Internet: [www.heraeus-thickfilm.com](http://www.heraeus-thickfilm.com)

#### Asia [TH]

Heraeus Materials Technology Shanghai Ltd.  
No. 1 Guang Zhong Road  
Zhuanqiao Town, Minhang District  
201108 Shanghai  
People's Republic of China  
Tel: +86 (21) 3357 - 5688  
E-Mail: [th.hmts@heraeus.com](mailto:th.hmts@heraeus.com)  
Internet: [www.heraeus-thickfilm.com](http://www.heraeus-thickfilm.com)