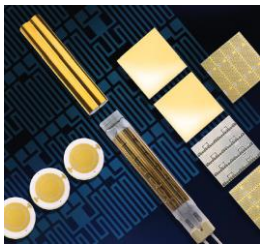

Product Information Technical
Liquid gold/platinum solution for metal substrates
RL PT APP 100A-H BROWN T

1 General Information

RL PT APP 100A-H BROWN T is a sprayable metallo organic gold/platinum solution typically used on metal alloy substrates like 625 Inconel, titanium alloy or stainless steel. It is used in combination with a “barrier solution” which is acting as a primer. Such solution like RL A4841-H/2 BLUE H is sprayed first and RL PT APP 100A-H BROWN H is applied on top. The barrier solution assures a good firing of the metal layer on top and improves its adhesion onto the metal substrate.

The gold/platinum film created is highly reflective for infrared radiation and resistant to high temperatures.

The material is used to reduce the rate of heat transfer on engine shrouds, drag-shute containers, tailcone assemblies, blast shields and cooling ducts. Heat reflectors in aircrafts and military applications to protect heat sensitive parts from infrared heat radiation generated by enginers is another area of usage.

2 Standard Firing Range

Substrate	Firing range
625 Inconel	600 – 750°C
Stainless steel	540 – 750°C
Aluminum alloy	500 – 540°C
Magnesium / Titanium alloy	400 - 480°C

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

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:	Dark brown liquid
Viscosity:	0,5 - 50mPas (20°C, D=50s^{-1})
Metal content:	5,50% +- 0,3% Au 0,75% +- 0,2% Pt
Chemical characterization:	Gold/platinum sulforesinates, metal resinates, resins dissolved in organic solvents

RL PT APP 100A-H BROWN H
on top of barrier solution
RL A4841-H/2 BLUE H
fired on 625 Inconel

3.1 Storage

Liquid gold/platinum materials are subject to an ageing process. Therefore, we recommend using the material within 9 months. The material should be stored at room temperature (20°C). Cool storage – but no freezing – has a positive impact on the shelf life.

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3.2 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.

4 Application recommendation

Do not shake the material before usage. The material might have built minor settlement, especially after a longer period of storage, which should not be shaken up. Had the material been stored in a fridge, please give it a bit time to adjust to the room temperature before starting to use it.

First spray of the barrier solution for example RL A4841-H/2 BLUE H acting as primer and adhesion promoter. The right deposit of the barrier solution is important for the success of the system. The layer should neither be too thin nor too thick. You will need to find the optimal application thickness by own tests under your individual conditions.

Firing of the barrier solution. The firing conditions depends on the type of substrate used.
(We test the barrier solution on 625 Inconel and fire at 610°C, with a 20 minutes heat up and 10 minutes soak.)

Spray of the liquid metallo organic RL PT APP 100A-H BROWN H. Take care that you apply the material in a homogenious layer.

The firing of RL APP 100A-H BROWN H depends on the substrate used.
(We test fire the material on 625 Inconel at a temperature of 750°C, 60 minutes heat up and 60 minutes soak.)

5 Firing

During the first heating phase the organic components of the preparation burn off. This process is completed at approx. 400°C. The gold film is formed. A constant, slow temperature increase, enough oxygen and sufficient ventilation are decisive for the quality of the fired precious metal decoration.

The firing profile considerably influences the mechanical and chemical properties of the fired decoration.

The rate of cooling has no major influence on the quality of the gold decoration, unlike the firing temperature and soak time. However, the firing process should not be stopped too abruptly after the soak time. If the rate of cooling is too fast, there may be a danger of damaging the article.

6 Remarks

6.1 Determination of the properties

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

6.2 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.

6.3 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)

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