



## Product Information Technical Barrier Solution (primer) RL A4841-H/2 BLUE T

### 1 General Information

The liquid metal barrier solution RL A4841-H/2 Blue T is a sprayable organo-metallic solution for use on different metal alloys. After firing a transparent metal oxide film is achieved. This film works as barrier between metal substrate and metal layer, applied in a second step.

Besides the barrier function RL A4841-H/2 BLUE T supports a good adhesion between the precious metal layer and the substrate.

### 2 Standard Firing Range

Substrate	Firing range
625 Inconel	580 - 620°C
Stainless steel	530 – 550°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 preparation are determined by its production recipe. From each lot produced, we take a sample and check defined characteristics.

Form: Blue liquid  
 Viscosity: 0,5 - 5mPas  
 (Brookfield LVDV, 25°C, D=60s<sup>-1</sup>)  
 Solid content: 2,5% +- 1,0%  
 Chemical characterization: Silicon resinate, synthetic and natural resins dissolved in organic solvents.



Barrier solution  
RL A4841-H/2 BLUE T  
after firing



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



GG 991BD-H T  
on top of barrier solution  
RL A4841-H/2 BLUE T  
fired on 625 Inconel

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.

## 3.1 Storage

Liquid gold/platinum materials are subject to an ageing process. Therefore, we recommend using the material within 6 months. The material should be stored at room temperature (20°C). Cool storage – but no freezing – has a positive impact on the shelf life.

## 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 cm<sup>2</sup>.

## 4 Application recommendation

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.

Spray of the barrier solution RL A4841-H/2 BLUE T 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. Possible thinners: V16 H (for spraying) and V35 H or V 39 H for brush application.

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 on top. We are offering a metallo organic gold: GG 991BD-H T and alternatively a gold/platinum solution RL PT APP 100A-H BROWN T. Take care that you apply the material in a homogenous layer. For more information on the metal solution, please check the separate product information sheets.

The firing of RL APP 100A-H BROWN T 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 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.

### 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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