# flux

## FLUX F080802 LEAD FREE for decal printing

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

F080802 is the special lead free protective flux designed for the Heraeus Gold under Flux System. The Heraeus Gold under Flux System is a decal based system where the bright gold / platinum or palladium layer is covered and protected by a thin layer of flux. The so protected precious metal layer is far more scratch resistant than a regular bright precious metal layer. The system is recommendable to be used for all decorations on ceramic which are exposed to significant physical stress, for example for often used restaurant tableware.

### 2 Standard firing range

| Substrate | Firing range [°C] |
|---|---|
| porcelain | 820-860 |
| tiles | 820-860 |

**Directly to the product:**

Click

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### 3 Properties of the product

### 3.1 Storage

F080802 is a lead free flux powder. The material should be stored in a dry environment.

### 4 Application of the material

### 4.1 Recommendations for the usage

- For the pasting of the lead free flux F080802 with special medium No 258 we recommend a mixing ratio of 100:100 parts by weight. The flux paste should be homogenized with a triple roll mill.
- For the printing of the flux paste on top of the pre-printed bright gold, bright platinum or bright palladium paste we recommend using a 100-40 up to a 77-50 polyester screen.
- The finished decals should be applied and fired as soon as possible. A longer storage of the decals is NOT recommended. During storage the decals might get brittle and with the heavier layer of precious metal plus a flux on top the application to the substrate will get more difficult.
- If the decal cannot be properly squeegeed anymore, that will negatively impact the adhesion of the fired decoration. For more information about the Heraeus Gold under Flux System please check our special Product Information Sheet about this decoration system.

Spray application: F 080802 should be mixed with a medium (for example Nr. 221 or Nr. 258) in ratio 1:1. The most efficient way is to mix the 2 components with a 3-roller-mill (the rollers have to be adjusted as tight as possible to make sure, that there are no coarse powder particles will be left in the mixture ). The prepared mixture should than be diluted by turpentine oil in ratio 15 : 10 = mixture : turpentine oil by weight. This mixture should than be rolled for a few minutes at a roller machine to make it homogeneous. After rolling, the final mixture should be sprayed with a 0,5 – 1,0 mm nozzle onto the ware. To get a glossy layer of the flux after firing, 2 – 3 layers should be applied, depending on diameter of the noozle. 1 layer won`t be thick enough and will show a matt appearance after firing. Take care, that the flux layer will not be applied too thick as otherwise, the flux could show cracks and in worst case could chip of ( COE ). After application, the ware should be left for a few minutes for drying, before it should be fired again at 820°C in along cycle. Again take care, that there is a very slow cool down at the temperatures in between 600°C – 500°C ( quartz inversion ). After firing the gold under flux should show a shiny appearance. Of course it will never show the same glossiness as pure gold without flux, but it will now be protected by flux. Make sure, that a possible cleaning detergent is not too strong, as it could attack the flux layer by time and as much more strong detergent, as much faster the flux could be attacked. Also make sure, that there are no minor cracks from COE in the flux, as this could also cause defects when cleaned by detergent ( attack of the gold, as detergent will infiltrate the flux through the cracks).

### 5 Safety data information

For safety data information please check our Safety Data Sheet for Flux F080802.

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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.