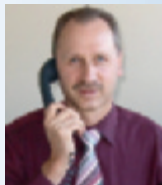


A Comeback of Gold Decoration? Trends and New Materials for Tile Decoration

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1 Situation in recent years

Gold is a precious metal that has fascinated mankind since its earliest discovery. People connect gold with high and long lasting value. Gold was one of the first processable metals, and it was soon discovered that gold could be combined with other metals to form alloys. This combination technique was the basis for the development of metallo-organic compounds, as used for the decoration of ceramics and glass.

Gold alloys allow the production of decorative materials with different gold colour shades, from lemon to yellow red, and also precious metal decorations varying from those with a high degree of brightness, through to semi-matt- and also matt-fired films, depending on the product types used. In recent years gold decorations have not found favour of designers within the tile industry, and gold decoration in general has been somewhat out of fashion. Where precious metals preparations have been used, then typically platinum has been incorporated into designs, a trend not only seen in tile decoration but also in tableware in glass decoration.

For approximately one and a half years, the price for gold has been increasing steadily, and – due to its relatively high profile as a traded commodity – the yellow metal generally receives more attention in the public consciousness. Two years ago exhibitors displayed the first new gold decorations at Cersaie: Signs of a “comeback” for gold in decoration on tiles?

Abstract

In recent years gold decorations have not found favour of designers within the tile industry, and gold decoration in general has been somewhat out of fashion. This trend was also found in tableware and glass decoration. But in 2005, the first new gold decorations on tiles were displayed at Cer-

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saie, increasing in 2007. The author discusses the trend of a comeback of gold decoration on tiles.

Keywords:

gold, precious metals, ceramic tile decoration trends

At the Cersaie 2007 in Bologna, exhibitors showed quite a number of new designs incorporating gold – the beginning of a new trend?

In fact, gold has never completely disappeared from tile decoration. Bright platinum and bright palladium preparations are based on gold alloys, which contain a higher gold content than platinum or palladium. Metals like platinum or palladium are only used to turn the metal colour shade of the gold alloy in the direction required. Other metals are added for a further fine-tuning of the metal colour after firing, or to increase the adhesion of the fired film to the substrate.

It is true to say that there has never been a unique worldwide trend. In the Middle East and North Africa for instance, gold kept its fascination and attraction, and the same can also be said about Asia.

Only in the regions under the strong influence of European designers were gold forms of decoration no longer as popular as in the past and this has been the case for approximately the last ten years, where gold bearing designs have not been in focus. They existed only as a niche and platinum designs were generally preferred.

However, two years ago the first signs of a possible “renaissance of gold” in tile decoration could be recognised. Now at Cersaie 2007 many new gold bearing decorations have been shown. Most amazingly, gold did not simply return in the old “well known” forms of decoration by means of fine line decorations and decorative elements for small border tiles (“listellos”), but in completely new design styles:

- Decorated wall tiles with large format designs were used to create strong visual effects (Fig. 1). “Decorative islands” were created to accentuate the artistic impression of the room.
- The decorative effect created was in harmony

with other objects within the room to provide the impression of a completely harmonious and individually designed area.

- Designers composed large area designs over several tiles. Decorations showed a form of textile structure. Floral motives could be seen using precious metals and colour.
- In new designs vetroso was used to create attractive surface structures often further accentuated with overlays of lustres and precious metals. Thick relief layers of vetroso, for many years dominantly incorporated on border tiles (listellos), are not longer in focus.
- Besides gold decorations, platinum designs remain popular. Metallic iridescent lustre designs have also found their way back into tile decoration.

Decorated tiles appear to have become a major part of design concepts, which incorporate all accessories of design in a room. All elements act in harmony with each other and result in “overall artistic design achievement”.



Fig. 1 • Precious metal decor “Tesor” by Piemme (Italy), presented at Cersaie 2007

The entire palette of precious metal preparations now appears to be back in use. Classical yellowish bright gold patterns can be seen, but also colour shade variations such as copper gold or reddish gold shades. Also matt gold decorations in differing forms of gold colour shades can be found.

2 How do today's gold preparations distinguish themselves?

Consumers have an increasing appreciation of gold decorations and understand its special value. Nevertheless to achieve high market acceptance of gold bearing tiles it is important, that they can be sold at a reasonable price. That is not an easily achievable target, given by the circumstance of frequent metal price increases (Figs. 2–4). Heraeus, as a producer of precious metal preparations, constantly works to improve its precious metal products. The technical objectives our developers strive to achieve are rather complex. In the final decoration this cannot be distinguished.

A bright gold decoration has to fire out brilliant, bright and shiny in the requested gold colour shade. Besides this, it has to withstand mechanical attacks (such as grouting and normal cleaning) as well as the chemical attack from detergents. The decoration has to maintain a bright and permanent fired film. To compensate for the higher cost of gold and platinum, the objective is to achieve these targets with even finer (thinner) precious metal layers.

Heraeus has improved its gold and platinum preparations for the tile industry constantly, strictly orienting on the latest needs of the industry. Gold alloys have been modified with the target to reduce the metal consumption per decoration area, without sacrificing the chemical and mechanical characteristics of a satisfactory fired decoration. But, to achieve the optimum results, not only the metal alloy needs to be optimised, but also the organic resins and oils used in metallo-organic compound play a vitally important role.

The work of developers is nowadays further complicated by the fact that an ever-increasing number of resins and oils, used in our precious metal preparations, are no longer offered by suppliers within the chemical industry. That is a first consequence of REACH.

Producers of precious metals are increasingly faced with the challenge of sourcing alternative organic resin systems. Within the complex struc-

ture of a precious metal preparation any change of a single component can have multiple effects on the characteristics of the preparation. The development of precious metal preparations basing on "future save" REACH-registered organic components will be a development object for years to come.

What is REACH?

REACH is a regulation of the European parliament and council for the Registration, Evaluation, Authorisation and restriction of CHEMicals in Europe. It came into force on June 1, 2007.

The target of REACH is to check and evaluate possible risks of chemicals for human beings and the environment. REACH not only refers to new chemicals which are brought onto the market but also to long time existing chemicals. Eventually, there should be comprehensive information about the characteristics of chemicals available, which are traded.

REACH only refers to chemicals, which are produced in amounts of 1 t per year or more. From June 1, 2008 the pre-registration phase will start. This pre-registration will continue, depending on the production quantity of a chemical per year, far into the future. In a second step the chemicals will get evaluated to define the risks linked to the substances. This evaluation will create quite some cost to the producer. Therefore it is expected, that quite a number of chemicals will not be registered but simply taken off the market.

More detailed information about REACH can be obtained from "Umweltbundesamt" (www.reach-info.de).

3 How are precious metal preparations typically applied onto tiles?

The dominant application technique is direct screen printing. But liquid precious metals are also applied, using a brush. New application technologies and product types could also be a "driver" for increasing the use of gold products. Some examples are:

- In the tableware and cosmetic container industry, semi-thermoplastic precious metal pastes have been introduced in recent years. They allow the direct decoration of uneven surfaces with the help of silicon pads ("bomb printing"). The silicon pad takes the special precious metal paste, either from a cliché or from a pre-printed area. Pad printing operates utilising the temperature differential between the decoration material, the pad and the surface temperature of the item to be decorated.



Fig. 2 • Gold price in US\$ per ounce

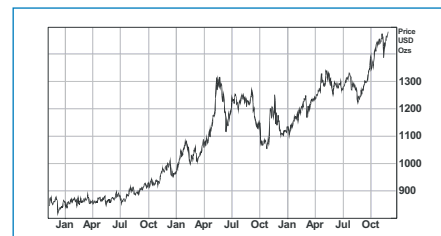


Fig. 3 • Platinum price in US\$ per ounce



Fig. 4 • Rhodium price in US\$ per ounce

- UV-curable preparations could also be of interest in the field of tile decoration. Many years ago Heraeus introduced UV-curable bright precious metal pastes and lustre pastes – without great success at that time. But nowadays, UV-curable precious metal pastes, lustres and colours are all commonly used by glass decorators. It seems that it will only be a question of time until UV-technology will also grab the attention of tile decorators, and a range of Heraeus products already exists which can be tailored to the individual needs of tile producers.

4 Conclusion

Wendelin von Boch illustrated, in a presentation given a few years ago, that decoration trends are following a "several years cycle". A wave like movement! Starting with this thought (which the author shares) gold decoration on tiles is on its way out of a valley. Gold is once again a trend – and not only on tiles. It is anticipated that this particular direction of growth will also be seen in tableware decoration and on glass. The prospect of a "golden age" ahead of us is not the worst expectation one can think of!

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