

# A New Electroless Gold Plating Technique

## AEROSOL SPRAY DEPOSITION OF GOLD ONTO PLASTICS

Fulmer Research Laboratories, of Stoke Poges in the U.K., have developed an improved aerosol process for the deposition of thin gold films. Early references to similar processes are contained in the work of Wein (1), and Levy (2) subsequently developed a similar technique for use in aerospace applications. However, full details of these authors' methods were not released.

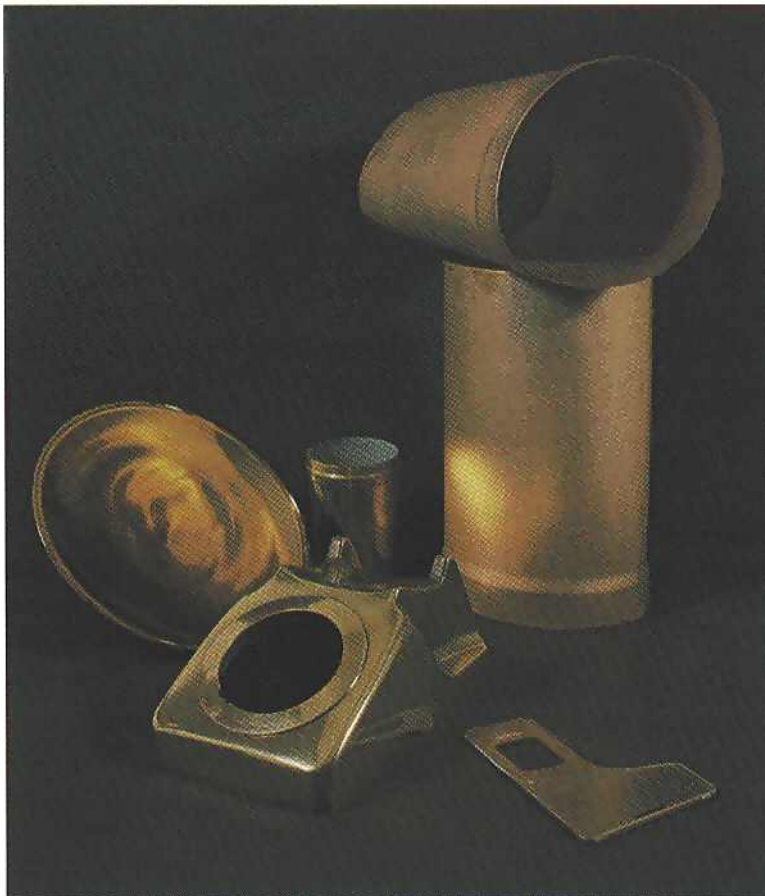
The Fulmer technique consists of the controlled spraying onto substrates of solutions containing a dissolved gold salt and a reducing agent. Additives are also incorporated, which improve throwing power and enhance grain refinement of the gold films. The process is suitable for depositing a thin layer of gold onto any material, provided that a suitable pretreatment rendering the surface impermeable and hydrophilic can be applied. It is particularly useful for the coating of large, complex shapes.

The method is at present being used for the deposition of an electrically conducting gold layer on the surface of fluoroplastic components. The mean thickness of the gold film is 170 nm and it has an electrical resistance of 0.25 ohm/square, or approximately twice the value reported for bulk gold. The adhesion of the coatings to the fluoroplastic surfaces is about 1 N/mm, as measured in peel tests on 25 mm wide samples. Considerably higher values are obtained when plating-grade plastics, for example acrylonitrile-butadiene-styrene (ABS) polymer, are used as the substrates.

M.C.S.

### References

1. S. Wein, 'Metallising Non-Conductors', Finishing Publications Inc., Westwood, N.J., 1945
2. G.S. Gomes and D.J. Levy, *Prod. Finishing (Cincinnati)*, 1963, 27, (10), 36



This photograph illustrates the decorative potentialities of aerosol-sprayed electroless gold coatings and shows the fully bright, as-deposited surfaces that may be obtained by the process developed by Fulmer Research Laboratories on articles of various materials, topographics and sizes