

PMD GILDAURA

A RANGE OF COLOUR GILDING

PROCESSES

INTRODUCTION

Gildaura is a gold plating process developed specifically for the decorative and jewellery industries. It is a simple, yet reliable electrolyte colour gilding technique designed to meet requirements where deposits of the highest quality are needed.

Gildaura deposits are brilliant, uniform and cover rapidly. A range of solutions is available to meet all requirements.

Applications for Gildaura are: fancy goods, fountain pens, bird cages, metal fittings, metal furniture, metallised plastics, watch cases and bracelets, spectacle frames and the whole field of jewellery products both base and precious metals. It is particularly suitable as low cost natural finish to 9 carat alloys, thus rendering these metals resistant to tarnish.

The rapid covering power of Gildaura is especially beneficial when applying gold to the thin conductive skin of metallised plastics.

Silver contacts may be made impervious to atmospheric tarnish by a simple barrel gilding technique with Gildaura.

For applications where thick deposits of coloured gold are specified the related process Micaura should be used.

BENEFITS

Consistent colour of deposit

Non tarnishing deposit

Easy to use

Wide pH operating range

Economical to use

SOLUTION MAKE - UP

Gildaura Electrolyte salts	1 unit
DI water	to volume

OPERATING DATA

Voltage	3 - 12 V (Optimum 7V)
Temperature	50°C - 80°C (Optimum 65°C)
pH	6.5 - 9.5
Vat Plating Time	8 - 25 seconds (15 secs = 0.1 micron)
Barrel Plating Time	40 - 60 seconds
Agitation	Not required

Deposits up to 0.5 micron thickness may be applied by barrel techniques, plating at 3.5 volts for 3 minutes.

EQUIPMENT

Tanks	Stainless steel, polypropylene.
Heating	Stainless steel or PTFE electric immersion heater with thermostatic control.
Filtration	Periodic filtration through a 5 - 10µm cartridge guaranteed free of winding lubricants is required to remove accumulated solid matter.
Anodes	Stainless steel, Platinised titanium or carbon.

INSTALLATION

It is essential that the tanks to be used for Gildaura are thoroughly cleaned and leached before any product is introduced. If in doubt as to the cleaning procedure please contact PMD (UK) Limited Technical Department.

Gildaura is supplied in salt form, in pack sizes according to the required volume of solution.

1. Half fill the tank with hot DI water.
2. Add the contents of the pack of gilding salts.
3. Heat to 80°C and ensure that all the salts are dissolved.
4. Make up to the operating volume with DI water and mix thoroughly.

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5. Heat to operating temperature.

MAINTENANCE AND CONTROL

The Gildaura solution should be maintained by the additions of Gildaura Replenisher salts. These are supplied in 31.1g gold units which should be dissolved in hot deionised water and made up to 2.2 lts. (Alternative size units are available on request).

An addition of 200ml per amp hour will maintain the solution.

Density is maintained by addition of Gildaura Base Matrix salt. Maintain the density at a minimum of 1.040gm/cm³. An addition of 10g/l Base Matrix Salt will raise the SG by 0.010.

pH of the Gildaura solution is very stable within the range 6.5 - 9.5. However if the adjustment is required, it may be raised by additions of a 20% solution of sodium hydroxide. 25% v/v phosphoric acid may be used to lower the pH.

NOTES

Pre -Treatment

Gildaura may be applied directly to all copper alloys, brasses, bronzes, gilding metal and nickel silver. Equally suitable are silver, nickel plate, rolled gold and gold alloys. Most other metals require an undercoat of copper, silver or nickel plate.

Post-Treatment

Hot water rinsing is recommended after the drag out rinse to ensure that parts are properly rinsed. This also acts as a drying aid.

Solution Contamination

Gildaura is very tolerant of most metallic contaminants since it contains chemical substances which, in general, render these harmless. However, two metallic materials commonly found in plating shops do have a very deleterious effect and so should be avoided at all times. One is chromic acid, which is regularly used in chromium plating solutions, and the other is sodium stannate, the material used in alkaline tin plating baths. When present in Gildaura the former causes the discolouration of the gold deposit as orange-brown colour over a wide range of current densities. The latter causes the formation of black sooty deposits, especially at high current densities. It is generally not possible to rectify contamination by these two materials.

An attempt should be made at all times to keep organic brighteners and wetting agents out of Gildaura. This can usually be achieved by proper rinsing techniques before the work parts enter the gold bath. When present in Gildaura these materials usually reveal themselves by the formation of reddish films on the plated work that can readily be

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removed by light rubbing with the hand. Wetting agents usually betray their presence by the easy formation on the surface of the solution of persistent foams.

It is usually possible to remove all these materials from Gildaura by continuous filtration of the warm solution over a carbon filter.

Physical Parameters

1. Inter electrode distance, i.e. distance from workpieces to anodes, should be 3 inches or 75mm minimum.
2. Anodes should be evenly distributed along the anode bus bars and should not extend below the bottom of the plating jigs.
3. When vertical heaters are employed it will be necessary to stir the solution before production is started in order to ensure that the cooler solution residing at the bottom of the tank is thoroughly mixed with the warmer solution at the top.

DISPOSAL

Dispose of in accordance with local authority requirements.

PRODUCT FAMILIES

The following product or families of products are referred to in this data sheet.

<u>Product Name</u>	<u>Product Number</u>	
	(a) <u>Electrolyte Salt 1 lt Unit</u>	(b) <u>Replenish 31.1gm Gold Unit</u>
Gildaura 3N	039022	049008
Gildaura 4N	039023	049009
Gildaura 5N	039010	049004
Gildaura 5NW	039029	049012
Gildaura 9CS	039013	049005
Gildaura 9DF	039001	049001
Gildaura 9PY	039026	049511 (50gm Unit)
Gildaura 12RP	039033	049016
Gildaura 12Y	039034	049017
Gildaura 14MR	039025	049510 (50gm Unit)
Gildaura 15P	039016	049006
Gildaura 15PB	039027	049011
Gildaura 15PS	039028	049512 (50 gm Unit)

PRODUCT FAMILIES (CONT)

<u>Product Name</u>		<u>Product Number</u>
Gildaura 18G	039032	049015
Gildaura 18L	039031	049014
Gildaura 18MY	039004	049002
Gildaura 18PL	039024	049010
Gildaura 22G	039019	049007
Gildaura 22H	039030	049013
Gildaura 22Y	039007	049003
Gildaura Base Matrix Salts		060020
Gildaura 9PY Base Matrix Salts		060024

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