



BANGALORE REFINERY

PALLADIUM PEN PLATING SOLUTION (PPPS)

GENERAL INFORMATION:-

PPPS (Palladium Pen Plating Solution) is a traditional palladium plating electrolyte for pen plating. The chemical make-up of this ammonia based product deposits a consistent layer of 99.9% pure palladium to the metal substrate which it is applied. PPPS is primarily used for flash plating as the maximum thickness achievable is 0.2 micron. The palladium deposit can be used as a barrier to prevent copper migration which is common to metal substrates containing significant amounts of this element.

TECHNICAL DATA SHEET:-

<u>Parameters</u>	<u>Values</u>
Metal Concentration	2g Pd / 100 ml
Product's pH	Neutral to slight alkaline (7 - 7.8)
Solution form	Liquid
Solution form	Ready-to-use
Plating solution colour	Yellow/Green
Storage Time	2 years
Volume	100 ml
Metal Purity (%)	99.9
Plating appearance	Shiny
Plating colour	White
Voltage [V]	3 volts – 4 volts
Working temperature [°C]	Ambient room temperature
Exposure time (sec)	Immediate (8 – 10) seconds
Anode	Platonized Titanium
L*	84,2
a*	0,4
b*	4,1

PREPARATION:-

PPPS is a ready-to-use pen plating solution at the concentration of 2g/100ml. No preparation is required.

EQUIPMENT:-

Power supply: Pen plating machine (5 Amp – 12 Volt rectifier). Anode: A pen with a platinum collar
Tips: Fiber (white or brown).

PRE TREATMENT:-

Work pieces designated to undergo a pen plating operation, must go through the same cleaning procedures as recommended for bath plating operations. The items to be treated are prepared according to the usual process. In general it is recommended to start by degrease the pieces in an ultrasonic solution followed by rinsing and a subsequent alkaline electrolytic degreasing step at 5-6 volts for 1-2 minutes. Neutralization is done by immersion in a 5% sulfuric acid solution or similar solutions, followed by a rinse in demineralized water and then the palladium pen plating step. Avoid the application of too much high voltages as they can cause localized burns of the surface close to the high current density areas which will be visible after successive plating treatments even. If the palladium plating treatment is applied as an intermediate layer on white gold items which are then rhodium plated, it is important to do both plating steps in rapid sequence. After the palladium pen plating treatment, the pieces are rinsed with demineralized water and neutralized. Never perform complete electrolytic degreasing treatment on the palladium plated pieces as it will cause blackening of the pieces due to the absorption of the gaseous hydrogen in the palladium layer and generated by the water reduction close to the cathode. If you have accidentally done this, an anodic treatment (inverted polarity) or heating of the pieces for a few minutes at 80°C should restore the original features of the plating. PPPS can be deposited directly onto silver, gold, nickel and its alloys. An intermediate deposit or precious metal plating strike is necessary before depositing onto tin, lead, zinc, aluminum and iron.

POST TREATMENT:-

Electrolyte should be removed from the surface as quick as possible. Rinse off in a recovery rinse (still rinse). Rinse the parts in running water and dry.

PLATING SOLUTION MAINTENANCE:-

Use until the palladium pen plating solution is completely exhausted without incorporating replenishment or additives.

SAFETY INFORMATION:-

Although PPPS can be considered a product of low-toxicity, irritation to the skin, eyes and mucous membrane cannot be excluded. Caution should be exercised when using the product, avoiding contact with the eyes and skin. Use gloves and safety goggles.

DISCLAIMER:-

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