

ECOPOSIT™ Plastic Metallisation

A sustainable future for plastic plating



ECOPOSIT™ Process Elements

1. Preparing the plastic surface

Chromic acid or Chrome free etch

- REACH compliant or traditional plastic surface conditioning

2. Full Body and 2-shot bimold catalysation

CATAPOSIT™ PM 957/PM 959

- Effective colloidal catalysation of full body and 2-shot bimold parts

3. Making plastic conductive

NIPOSIT™ Ammonia Free Electroless Nickel

- ECOPOSIT™ Formaldehyde Free Electroless Copper

4. Next generation electrolytic copper

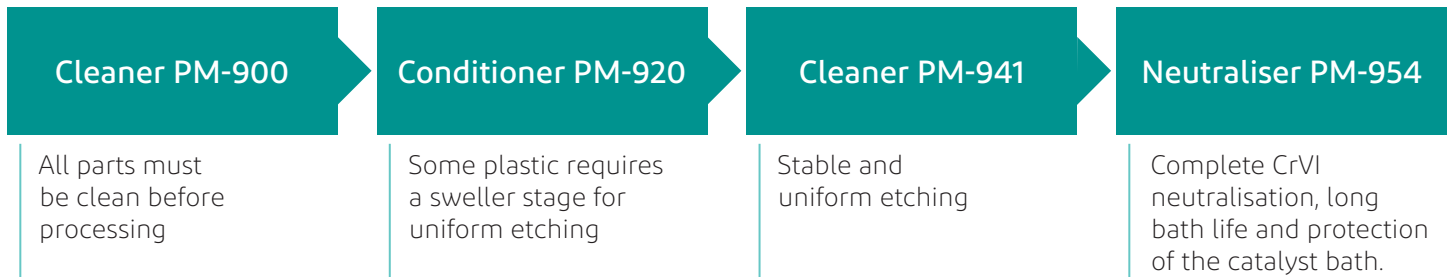
ECOPOSIT™ Electrolytic Copper

- Major advantages in metal distribution and stress reduction

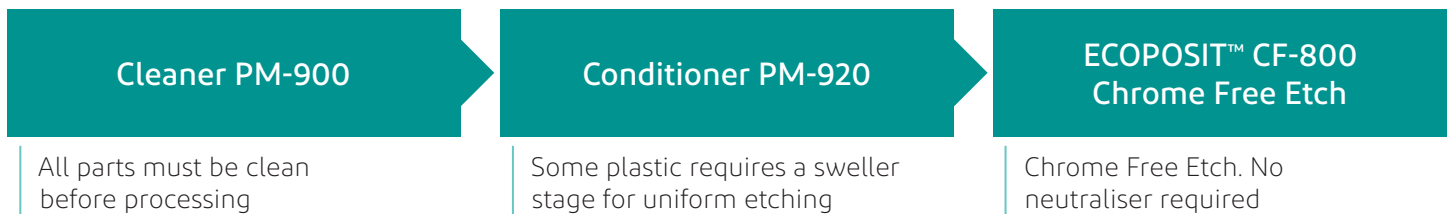


Preparing the Plastic Surface

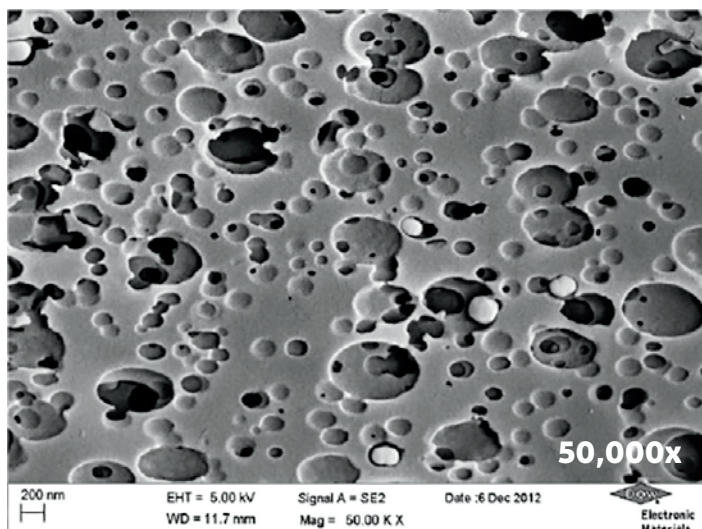
Traditional Chromic Acid Etching



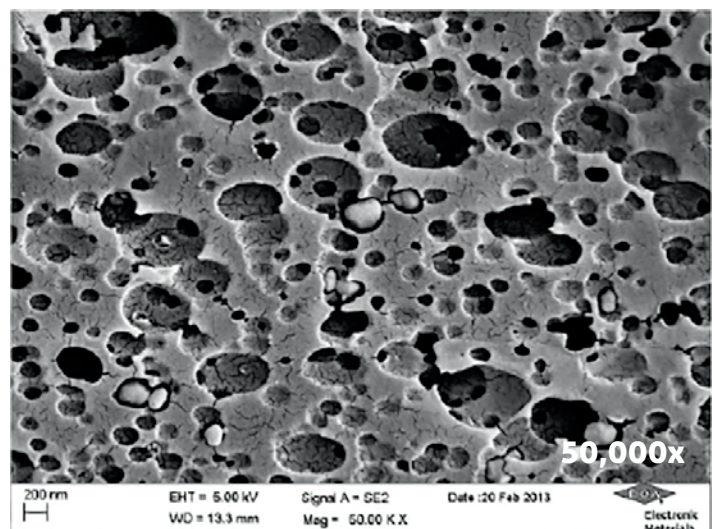
REACH Compliant ECOPOSIT™ CF-800 Chrome Free Etching



ABS: Cr(VI) Etch



ABS: ECOPOSIT™ CF-800 Etch



The mechanism for both etches is the same, thus creating the familiar structure shown, resulting in the same performance as measured by peel testing, etc

- Oxidative removal of polybutadiene nodules
- Cavern formation
- Rough surface
- Mechanical anchoring of plated metal layers
- Adhesion

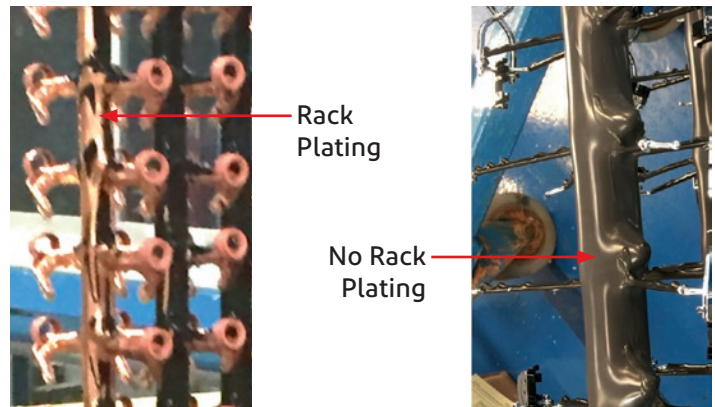
CATAPOSIT™ PM-957 Catalyst – Effective Full Body Catalysation



The catalyst design and properties define the capability of the plastic plating process. The CATAPOSIT™ PM-957 colloid is designed for full coverage and excellent adhesion at the lowest palladium concentration.

Use of the correct Accelerator is essential, to ensure appropriate catalytic palladium exposure, as well as avoidance of over-plating.

When the prior stages are operated to specification, avoiding degraded function due to contamination, the catalyst displays very long bath life with stable performance.



CATAPOSIT™ PM-959 Catalyst – Selective 2-shot Bimold Catalysation



2-shot bimold parts are commonly used for interior body parts, where one plastic must be fully plated and the other not plated. This precise selectivity requirement demands a process designed to deliver selective plating, with an effective working window

The etch structure must be delivered at the etching stage. Poor structure or contrast is never solved further down the line.

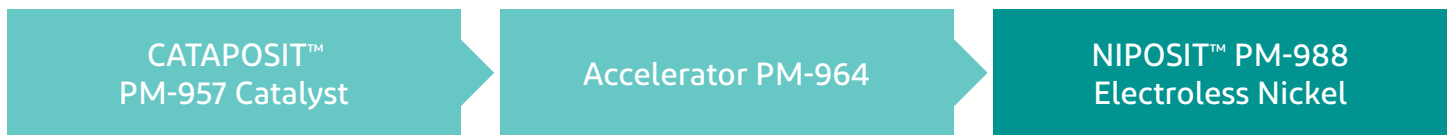
The selection of catalyst and accelerator however, is the most critical decision in delivering a capable 2-shot POP process.

CATAPOSIT™ PM-959 with Accelerator PM-964 allows the necessary amount of palladium on the platable part, whilst keeping the non-plated part free of metallisation.

Many complex parts are emerging, such as interior lighting panels, where high quality selective plating is mandated



NIPOSIT™ PM- 988 Ammonia Free Electroless Nickel

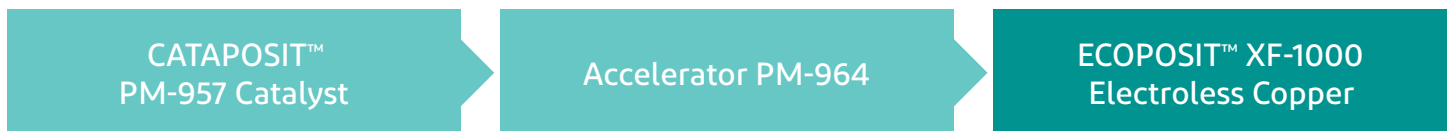


Ammonia based electroless nickel has been the dominant choice for conductive seedlayer formation for most of the POP history. However ammonia is an irritant and a metal complexor causing waste management problems.

Eliminating ammonia from the POP factory is a very positive step anywhere in the World and we see significant momentum and desire for this change.

NIPOSIT™ PM-988 Ammonia Free electroless nickel is installed and running in high volume production in Europe, the Americas and Asia.

ECOPOSIT™ XF-1000 Formaldehyde Free Electroless Copper



Electroless Nickel is used by the majority of plating on plastics companies



Electroless Copper solves all the above, but contains formaldehyde



The ECOPOSIT™ XF-1000 resolves the formaldehyde problem, whilst delivering all the advantages of electroless copper.

- No formaldehyde
- Higher conductivity
- Shorter process
- Line space/capacity gain
- No ammonia
- No phosphate
- No boric acid

ECOPOSIT™ 950 Next Generation Electrolytic Copper

Often overlooked, but critical to the performance of plated parts and plant capacity, efficiency, capability and cost.

The “low cost” dyed brighteners used throughout POP history, typically exhibit very low throwing power, poor metal distribution and high deposit stress.

ECOPOSIT™ 950 Electrolytic Copper is designed for excellent throwing power, improved metal distribution and low stress.

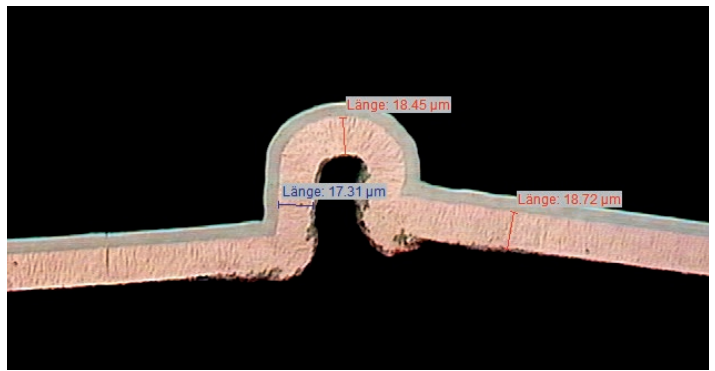
This minimises plating times to achieve the customer specifications in recessed areas, saving time, capacity and cost, while delivering higher performance due to uniform distribution and lower stress.

Traditional

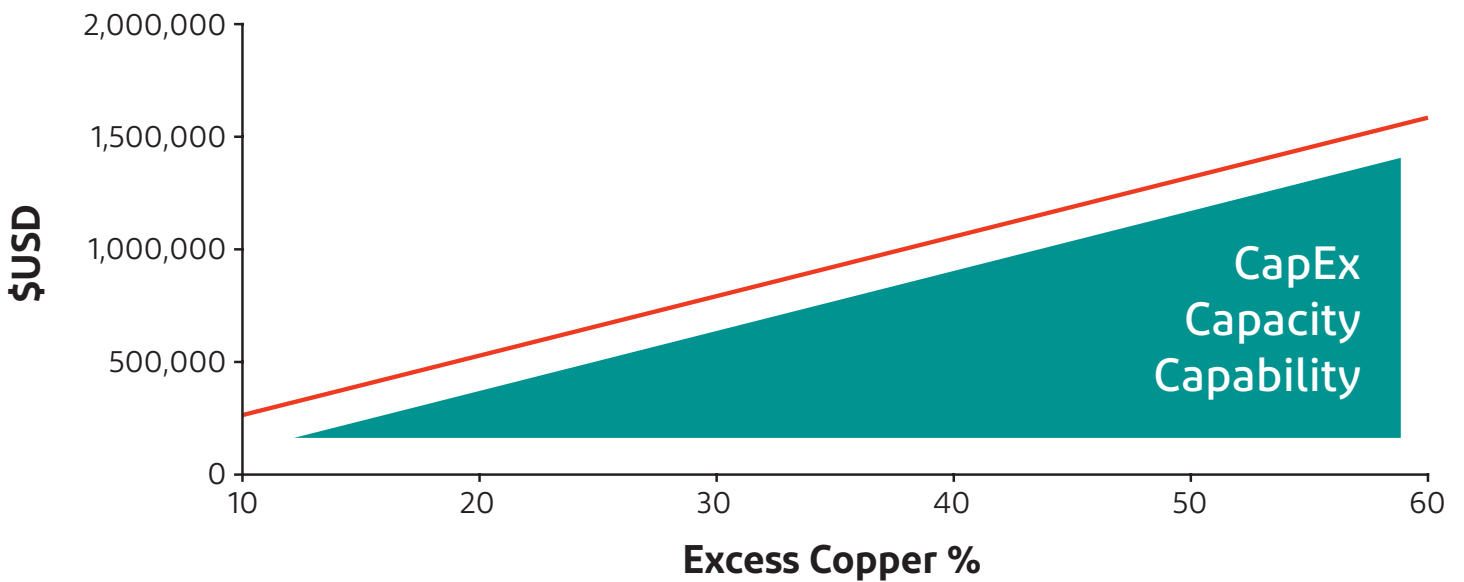


Poor copper throwing power

ECOPOSIT™



Excellent copper throwing power



ECOPOSIT™ Plastic Metallisation – Sustainable POP

ECOPOSIT™ Plastic Metallisation process incorporates novel products and knowhow to eliminate regulated and toxic substances, whilst improving the capability to plate complex parts, including bimold, offering users reduced cost

Ready for the future of POP

- Formaldehyde Free
- Single Stage - no strike
- 2-shot molding compatible
- Chrome free etch compatible
- No ammonia, phosphate or borate

ECOPOSIT™ CF-800 Etch

CATAPOSIT™ PM-957/959

Accelerator PM-964

ECOPOSIT™ XF-1000

ECOPOSIT™ 950

About DuPont Electronics & Imaging

With the 2017 merger of Dow and DuPont, Dow Electronic Materials and DuPont Electronics & Communications have combined their portfolios and expertise to create the new DuPont Electronics & Imaging business, which is part of the new Specialty Products Division of DowDuPont. DuPont Electronics & Imaging is a global supplier of materials and technologies serving the semi-conductor, advanced chip packaging, circuit board, electronic and industrial finishing, photovoltaic, display, and digital and flexographic printing industries. From advanced technology centers worldwide, teams of talented research scientists and application experts work closely with customers, providing solutions, products and technical service to enable next-generation technologies.

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