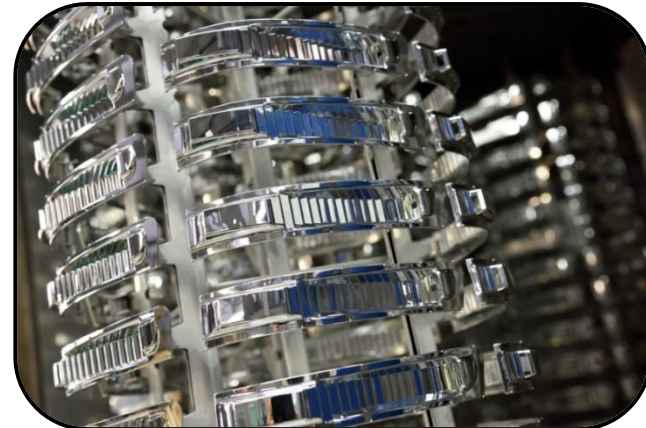


METAL-PVD and NANOanodizing



***Nanometer surface coatings based on
PVD and PECVD technology***



METAL-PVD and NANOanodizing **Features**

- **METAL-PVD:** the process deposits a thin film (0.1 – 0.2 micron) of pure metals or alloys, such as Al, Ni/Cr and steel.
- **NANOanodizing:** this deposition technique allows to apply a thin film of Al + mixed oxides of $Al_2O_3 + SiO_x$

Thermal evaporation in vacuum

(2×10^{-4} mbar)

Protection technology with PECVD
(Plasma Enhanced Physical Vapour Deposition)

Plastic material coated: PC, ABS,
PC/ABS, PA, PP, PPS, PSU, PEEK,
PE (LD-HD)...

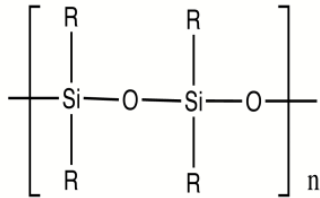


METAL-PVD and NANOanodizing

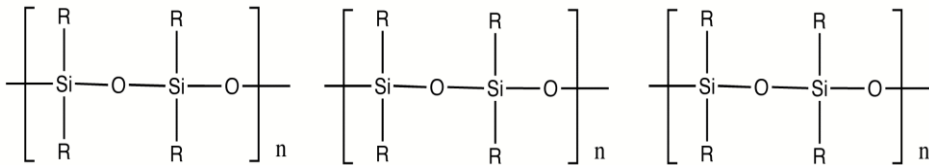
Advantages

	METAL - PVD	NANOANODIZING
High purity film	+	+
Complete or selective evaporation on details	+	+
Possibility of treating objects of any shape and complexity	+	+
Total adhesion of metal coating to the substrate due to the activation process	+	+
Chemical and physical resistance adaptability to needs thanks to PECVD technology	+	+
Clean technology with low environmental impact	+	+
Corrosion resistance of the aluminium film	+	++
Surface hardness	+	++

METAL-PVD and NANOanodizing Hybrid process PVD/PECVD



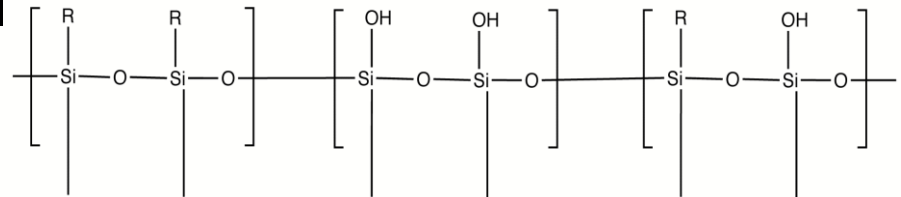
Deposition of organic precursor with **PVD** and...



...subsequent polymerization of the precursors with **PECVD** to grow a protective **transparent** coating whose physical properties may be tuned by changing the process parameters.

Al

Plastic

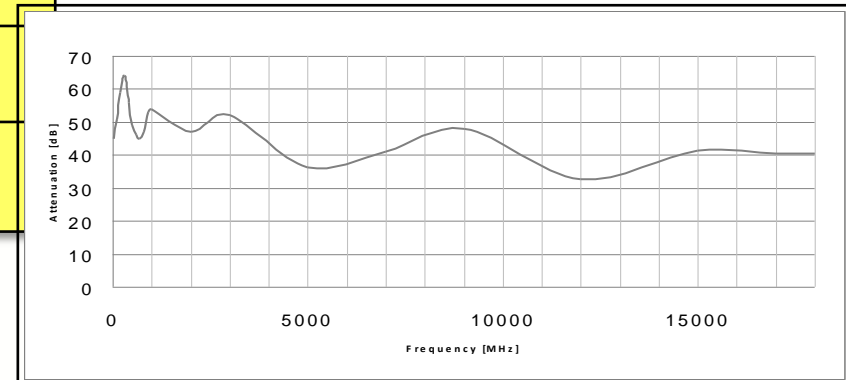


METAL-PVD and NANOanodizing

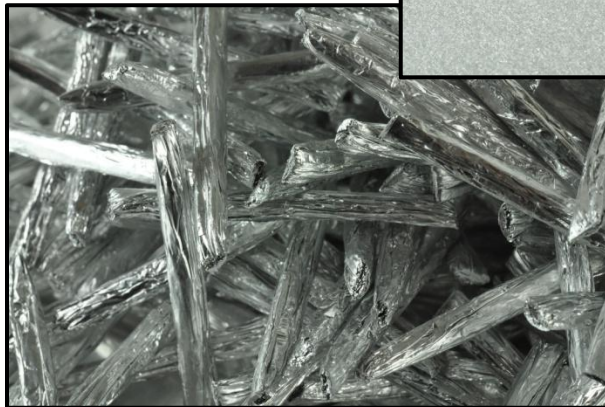
Performances

PROPERTIES	METAL – PVD	NANOanodizing
Thermal resistance	500h@70°C	500h@70°C
Adhesion	Class II ISO2409	Class II ISO2409
Humidity chamber	150h @ 40°C e 95% U.R.	100h @ 40°C e 95 - 100% U.R.
Corrosion resistance	15 min NaOH, 0.2% p/p	15 min NaOH, 0.2% p/p
EMI Shielding	60-70 dB @ 300Mhz	60-70 dB @ 300Mhz
Hardness (pencil test)		3H

EMI Shielding

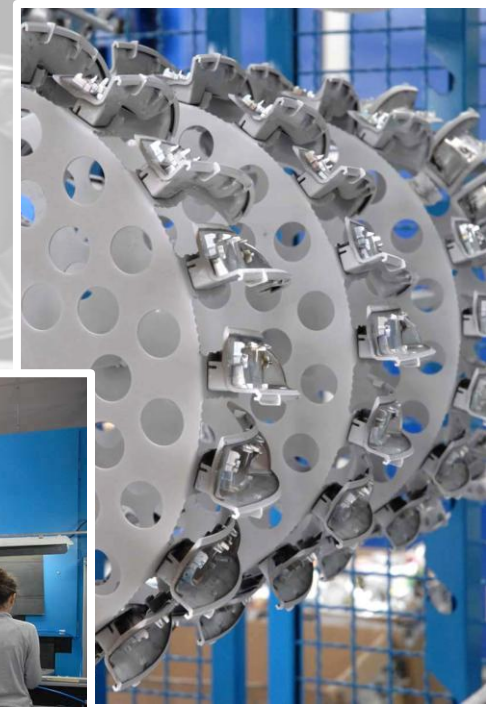


METAL-PVD and NANOanodizing



We manage the entire industrial process from molding plastic to components finishing.

METAL-PVD and NANOanodizing

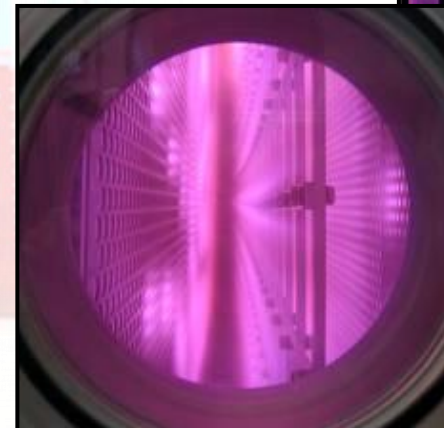
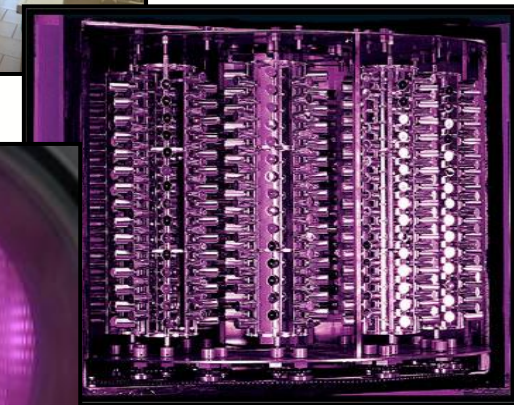


METAL-PVD and NANOanodizing

Research and Development

Continuous research carried out by our technicians in partnership with Polytechnic and University of Turin allow us to develop specific processes to improve technical performances such as:

- surface hardness
- control of surface tension
- corrosion resistance in acid and alkaline environments
- biocompatibility
- increasing of the range of metals available for the process of deposition



METAL-PVD and NANOanodizing Applications



**Electronics
Domotics**



Automotive

**Clean technology
with low
environmental
impact**

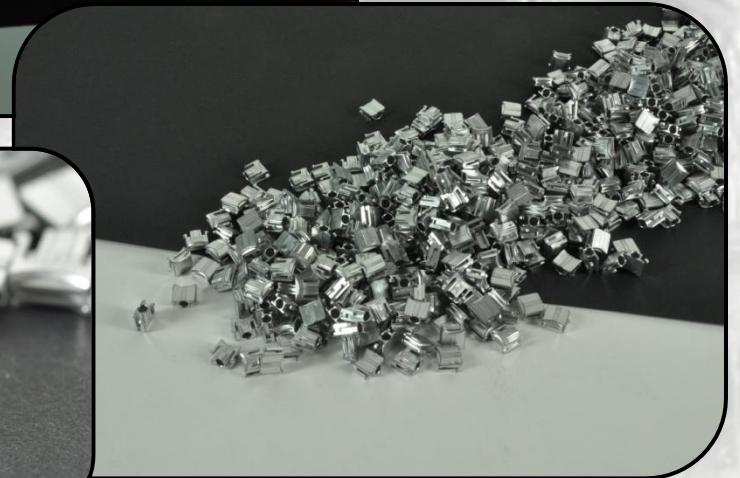
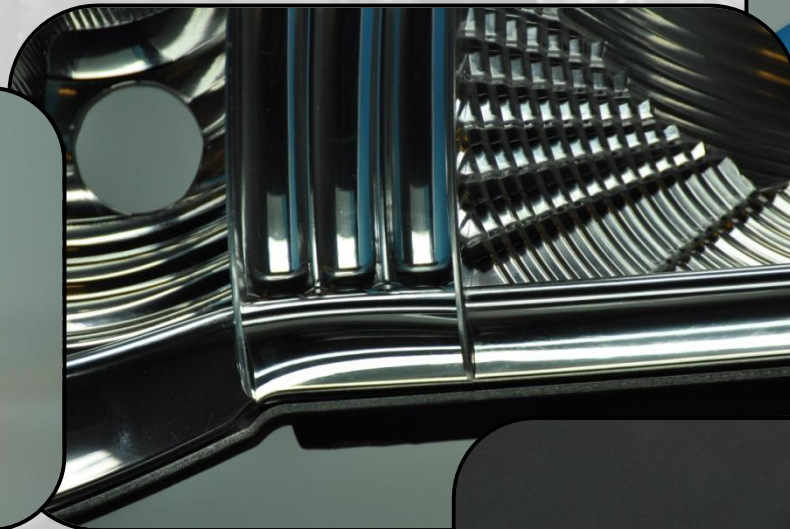
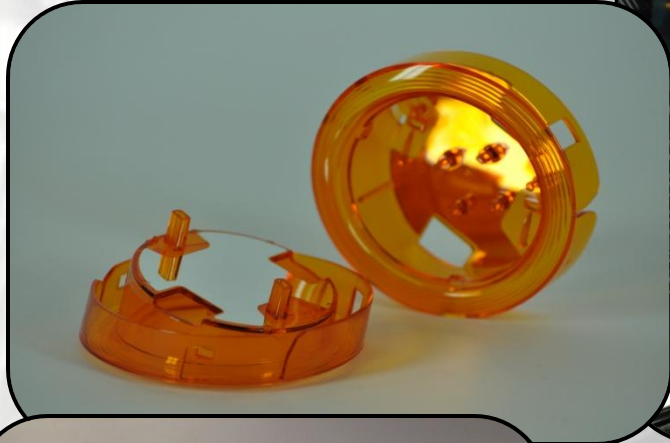


Optics (lenses and frames)



Decorative

METAL-PVD and NANOanodizing **Applications**



METAL-PVD and NANOanodizing

Contacts

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