

SURFACE TREATMENT PLATFORM

Equipments

More of 20 tanks for surface treatment of materials (up to 600 l)

8 rectifiers included 5 bi-polar pulsed currents rectifiers from 1 to 220 kW

Painting cabin for spraying applications

Solvent degreasing machine

Sand blasting and shot peening machines

2 salt spray corrosion test chambers (400 and 1000 l)

3 potentiostats for electrochemical measurements (corrosion rate evaluation, development and setup of surface treatment process at laboratory scale)

Optical and scanning electron microscope (FEG-SEM) coupled energy dispersive X-ray spectrometry (EDX)

Glow discharges optical emission spectroscopy (GD-OES)

Optical profiler

Micro-hardness instrument

Inductively coupled plasma atomic emission spectroscopy (ICP-AES)

Metallographic preparation of materials (precision micro cutting machine, polishing machine)



PROCESSES

Light alloys treatment (Al, Ti, Mg alloys) CrVI free

- Chemical conversion (CrIII/ZrIV conversion, Ti conversion, ...)
- Sulfuric anodic oxidation (DC mode, thickness < 20-25µm)
- Sulfo-tartaric anodic oxidation (DC mode, thickness < 20µm)
- Sulfo-phosphoric anodic oxidation (DC mode, thickness < 10µm)
- Phosphoric oxidation (DC mode, thickness < 2µm)
- Hard anodizing under DC or pulsed mode ($e > 20\mu\text{m}$ and up to $200\mu\text{m}$, hardness up to 600hv)
- Plasma electrolytic oxidation (pulsed mode, thickness up to $300\mu\text{m}$)
- Anaphoresis coating

Steel, stainless steels, nickel based alloys treatment

- Degreasing, etching and passivation with or without fluorides
- Electro-polishing without CrVI
- Hard chromium plating without CrVI
- Nickel plating
- Zn-Ni and Zn-Fe plating
- Zn flake coating
- Plating on plastics without CrVI for decorative applications
- Paint applications by spray with or without pre-treatments



TECHNICAL SERVICES

- Scientific expertise
- Scale-up: validate process/materials at an industrial scale (tanks from 50 to 600 liters, rectifiers up to 1500A, ...)
- Process development: Proposition of surface treatment that address the issues
- Industrial support: Implementation of surface treatment processes on your facilities
- Post-damage audits (wear, breakage, corrosion, etc.).
- Characterization: Morphological observations, chemical analyses, monitoring of the surface treatment baths, corrosion rate evaluation, ...



PLATFORM AVAILABILITY

- Multi-partner research projects with public co-funding
- Research studies/services
- Platform rental with technical support
- Training

ABOUT IRT M2P

IRT M2P is a mutualized research center bringing together skills of industrial and public research, based on public-private co-investment and partnerships. IRT M2P accelerates innovation and growth for industrial companies, develops key technologies (shared amongst major industrial sectors) and provides technological platforms for industrial companies (processing of metallic materials, life cycle assessment and recycling, mechanical surface treatment, surface treatment and coating, thermal and thermochemical treatments, composites, forging, mechanical processes for multi-material assembly).

CONTACT

Joffrey TARDELLI
joffrey.tardelli@irt-m2p.fr

Headquarters

IRT M2P
4, rue Augustin Fresnel
F-57070 Metz Technopôle
Tél. : +33 3 72 39 50 85

Surface treatment platform

IRT M2P
12, rue de l'Artisanat
F-67120 Duppigheim
Tél. : +33 3 88 49 10 58



Find other projects and platforms on our website :



irt-m2p.fr

