Technological Services for the Industry

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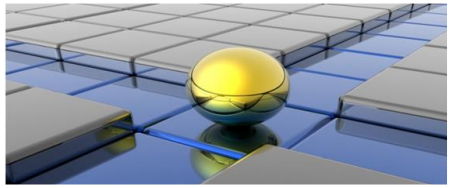
CENTRO TECNOLÓGICO CTC

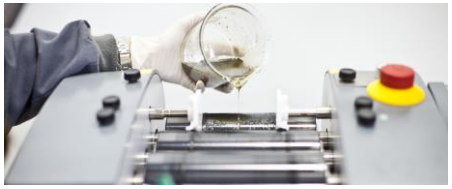


Prospective studies on new technologies, processes, products and materials aimed at analysing the technical and economic feasibility of new technological solutions linked to processes and products.

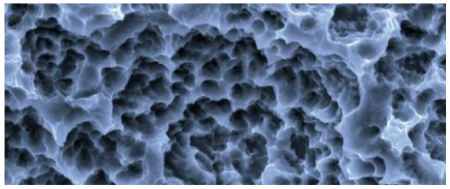
Microencapsulation of materials, production of solid particles on a micro scale, transformation of liquids into dry micro-powder, dispersion of nanomaterials into micro-particles, etc. Spray drying technology.

Analysis by atomic force microscopy (AFM). Morphological analysis of nanomaterials. Imaging, topography, electrical, magnetic, thermal and mechanical properties.

Metallographic and microstructural analysis, grain size, porosity, phases, cracking. Surface analysis of coatings. Thickness determination. Microscopic analysis (OM).



NPs dispersion processes. High shear force technology (three roll mill, ultrasonic homogeniser).



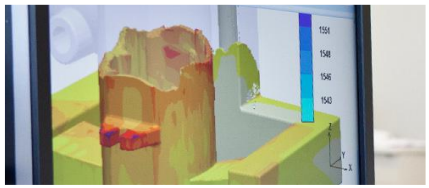
Characterisation of surfaces and coatings. Adhesion, roughness and thickness measurements. **Microhardness, abrasion and scratch** tests.

Degradation tests against the environment under real operating conditions (corrosion, biofouling) Marine laboratory in the open sea, MCTS El Bocal.

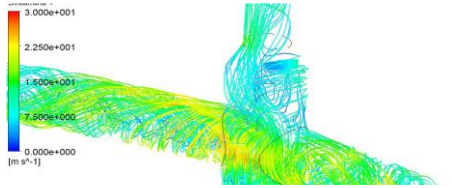
Accelerated environmental ageing: UV radiation, water and temperature, according to standards. Salt fog chamber (UNE-EN ISO 9227), QUV (UNE-EN ISO 11507, UNE-EN ISO 4892-3). Alternating immersion test. For other standards, please enquire. Thermal/humidity tests.

Analysis of thermal conductivity, specific heat, thermal diffusivity and effusivity of any type of solid, liquid, paste and powder material.

Cavitation tests on materials and coatings using ultrasound.



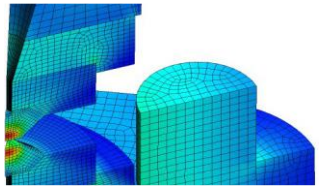
Simulation of casting processes: Injection, gravity and microfusion. Ferrous and nonferrous materials. Solution to defect problems and cost savings.



Fluid dynamics and heat transfer analysis: Simulation of aerodynamic behaviour and combustion processes, cavitation, phase change, etc. Hydrodynamic analysis.

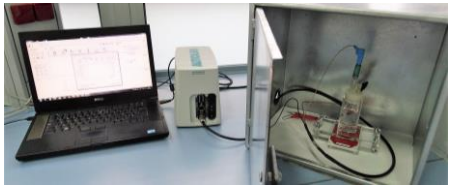
Spectrocolorimetry. Comparative-quantitative analysis of colour in materials and products.

Determination of the density of solids (non-porous) and liquids at room temperature.
Determination of the **viscosity** of fluids at different temperatures.



Structural analysis of components through simulation by the finite element method: stresses and deformations for static and dynamic loads.

Characterisation and modelling of sensors and inertial measurement units. Platform testing (Hardware in the Loop). Acutronic 2-axis motion simulator with detachable thermal camera.



Electrochemical tests. Metals and metallic coatings, (potential and corrosion rate, polarization resistance, etc.); organic coatings (EIS, impedance, ACET tests according to UNE-EN ISO 17463).

Mechanical characterisation of polymeric materials (plastics, thermosets and elastomers) and metals. Tensile, bending and compression tests.

Guidance, navigation and control of autonomous unmanned vehicles. Test robot with differential and holonomic movement, 3D LIDAR sensors with 360° vision.

Development and characterisation of navigation systems (multi-antenna GNSS, multi-receiver), data fusion from other sensors (INS, odometry, etc.). **Experimental installation** composed by a radome and high precision 2-axis rotary table.