

## AVAILABLE TECHNO

### CQ-MAT

#### Quality control and non-destructive testing of metallic materials by electronic transport

metallic materials / material characterization / measurements / metrology /  
quality control / non-destructive testing



## CONTEXT

Non-Destructive Testing (NDT) brings together all the techniques and processes capable of providing information on the health of a part or a structure without resulting in alterations detrimental to their subsequent use (no sampling of 'samples, material, no breakage of parts).

If certain techniques allow a partial answer to the question (electromagnetic methods, ultrasound), these methods do not make it possible to detect early damage and fine variations in microstructure.

## DESCRIPTION

This new quality control and non-destructive testing device implements electronic transport and more particularly the determination of the Absolute Thermoelectric Power (ATP) of a metallic material as a means of detecting all microstructural transformations and the appearance of defects in a material.

The procedure is simple and applicable to any type of metallic material in a wide temperature range. A lightweight, portable device is attached to the object to be tested.

By creating a temperature difference at its surface, the PTA of the material that constitutes it is determined. The measuring device comprises two probes which are placed in electrical contact with the surface of the material to be characterized.

## COMPETITIVE ADVANTAGES

- Simple procedure without constraint on the shape of the material, possible in situ;
- Precise and very fast measurement (< 2min)
- No constraint on the temperature gradient;



### Markets & applications

- ❖ Characterization and non-destructive testing of materials;
- ❖ Study of aging and quality control (impurities, precipitates, etc.);
- ❖ Verification of the conformity of a material, post-incident expertise;



### Development stage

Prototype validated at laboratory scale (TRL 4)



### Research team

LCP-A2MC Laboratory - University of Lorraine



### Intellectual property

Patent issued: FR 1257261 and software filed with the APP



### Target partnership

Co-development

## CONTACT-US

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