Material surface states qualification

STATE SURFACE – QUALITY CONTROL – HARDNESS – DENSITY – FRICTION COEFFICIENT

COMPETITIVE ADVANTAGES

- A multicriteria rapid qualification of surface states;
- Application to anisotropic materials;
- A compact, portable and easy to use sensor;
- Usable for industrial purposes.

APPLICATIONS/MARKETS

- Quality control all along the manufacturing process;
- Research and development;
- Characterization of new materials;
- Multi materials: wood, textiles, plastics et composites, etc.

INTELLECTUAL PROPERTY

- Patent deposited on the 25/01/2013;
- Collaboration sought: partnership for device industrialization and commercialization;
- Readiness level: industrial demonstrator.

LABORATORY

- LERMAB Laboratory

CONTACT

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PRESENTATION

The LERMAB laboratory of the University of Lorraine has developed a **surface qualification device, which uses acoustic vibrations of a feeler moving on the analyzed surface**. Variations of surface state in every directions are taken into account thanks to the feeler's circular trajectory. It reproduces the circular movement of a finger to obtain the same approach as the universal visio-tactile principle, while returning more usable information.

Within few seconds, this new device allows numerical evaluation of a surface global quality by signal integration. The surface anisotropy is evaluated by signal analysis on preferential directions. Main frequencies informs on the material hardness and density. The travel time of the feeler on one lap gives information on the friction coefficient.