

DENSEXPLORER – INSPECTION SYSTEM FOR NON-DESTRUCTIVELY MEASURING THE DENSITY OF CERAMIC MATERIALS BASED ON X-RAY AND LASER TECHNOLOGY

DESCRIPTION OF THE INVENTION

The Instituto de Tecnología Cerámica (ITC) has developed, built, and patented Densexplorer, an instrument for measuring the bulk density of ceramic materials rapidly, precisely, and safely, thus assuring their quality. In addition, the system provides greater worker safety, as it avoids the use of mercury, the element used to date in such tests, which are performed several times a day at ceramic companies.

ITC sources note that “measuring ceramic tile bulk density is indispensable in the ceramic industry, as it avoids problems and defects in the finished tiles, such as differences in size, flatness, mechanical strength...”. They further point out that the new

system “is precise and reliable, and it constitutes a great advance for ceramic tile manufacturers because automation of this test, currently performed manually several times a day, saves testing time”.

The new technology developed by ITC is safe, as it avoids using mercury, used to date to conduct this test. Worker safety is thus assured as a potentially harmful element for human health is eliminated. In addition, the innovative measurement method is non-destructive and makes point measurements, providing hitherto unavailable information: 3-D maps of tile bulk density distribution, thickness, and X-ray absorption.

BUSINESS APPLICATION SECTORS

The technology is applicable to the following sectors: flat ceramics, construction materials and food industry.

TECHNICAL ADVANTAGES AND BUSINESS BENEFITS

- It is a method as precise as the mercury displacement method ($\pm 3 \text{ kg/m}^3$).
- Non-destructive, since the measurement is made throughout the tile, not in parts of the tile. The inspected tile can be fired and its bulk density distribution then measured again.
- Fast and easy to use
- Safe.
- Matches ceramic needs

DEVELOPMENT STATUS OF THE TECHNOLOGY

Developed for continuous measurement of ceramic tile bulk density in the manufacturing process, it is currently in the commercialisation stage. In the development stage in other sectors.

INDUSTRIAL PROPERTY RIGHTS

Patented: WO/2006/018463, 2006-02-23

Asociación de Investigación de las Industrias Cerámicas, AICE.

(EN) METHOD AND DEVICE FOR NON-DESTRUCTIVELY MEASURING THE DENSITY OF CERAMIC TILES

(ES) MÉTODO Y APARATO NO DESTRUCTIVO PARA LA MEDIDA DE LA DENSIDAD EN BALDOSAS CERÁMICAS

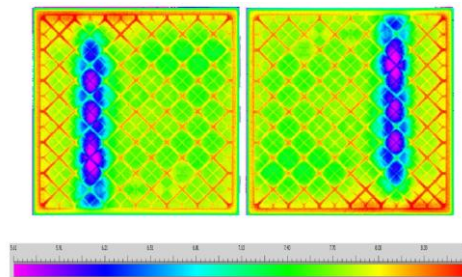
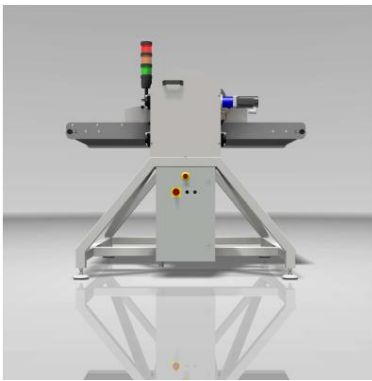
COLLABORATION SOUGHT

Companies interested in the following avenues of cooperation are sought:

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- Agreement for the development of an R&D project (technical cooperation) for application of the technology in other sectors.

RELATED IMAGES



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