

CERAMIC SLURRY WITH INCORPORATION OF EGGSHELL WASTE



TECHNOLOGY SUMMARY

Process for preparation and incorporation of eggshell waste in the formulation of a ceramic slurry for porous pavement. With this invention aims to promote the use of a residue which has become an environmental issue, valorizing it by industrial application. The main advantage of this the chance to enlarge the possibility of using a calcium residue substituting calcite, the traditional raw material, more expensive, without affecting final ceramic properties.

BENEFITS

For egg transformation industry:

ECONOMIC VALORIZATION OF AN ONEROUS RESIDUE

For ceramics industry:

COSTS REDUCTION: cheaper raw material.

SIMILAR FINAL CERAMIC PROPERTIES: final product with porosity, water absorption and linear retraction fulfilling industrial requisites.

For both industries:

REDUCTION OF ENVIRONMENTAL IMPACT accordingly to EU environmental policy.

CONTEXT

Egg transformation industry generate a big amount of eggshell waste, which cause significant environmental problems. In USA, Canada and United Kingdom 626 thousand tons of this residue are generated every year. Portugal produces 2600 tons/year, with transport and treatment associated costs of 122€/ton. On the other hand, ceramics industry is based on limited resources, which exploitation is associated with several environmental problems, such as residue generation and many of them are toxic.

The present technology allows the using of eggshell waste, which is composed by 95% of calcium carbonate, adding its value and avoiding its deposition in landfills, while granting ceramics industry the possibility to enlarge its capacity to use industrial residues without affecting final product properties comparing to calcite, the traditional raw material.

APPLICATIONS

This method can be used in the production of:
CERAMIC SLURRY FOR POROUS PAVEMENT

Additionally, it allows the valorization of a residue of the industry of:

EGG TRANSFORMATION

This technology also has the potential to be applied in other areas, such as printing and writing paper.

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IP RIGHTS

National patent granted.

DEVELOPMENT STAGE

TRL 4: The invention is in laboratorial prototype phase.

In a short period of time is possible to develop an industrial prototype to test processing conditions, namely conformation and sintering.

KEYWORDS

RESIDUE

EGGSHELL

CERAMICS

POROUS PAVEMENT



DEVELOPED BY

Researchers of GEOBIOTEC – Geosciences, Geoengineering and Geotechnologies of the University of Aveiro and of the Higher School of Technology (ESTT) of the Polytechnic Institute of Tomar (IPT).

BUSINESS OPPORTUNITY

Licensing agreement.

Joint further development.

Adaptation to specific needs.

Testing of new applications.

PARTNERSHIP

The University of Aveiro seeks partners in ceramics industry, as well as in food industry, namely in egg production and transformation.

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