

## Resumen nº 6 – Ponencia C2

### **Technosable®: A new raw material for wall tiles made from an original treatment of sludge.**

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Keywords: Sludge valuation, argillaceous residue, Tiles industry, Sustainable Development.

The ceramic industry is looking for less costly raw materials, and public authorities seek transport that emits less CO<sub>2</sub>.

Faced with the difficulty involved in the agricultural spreading of slurry from water purification stations, the VEOLIA Environment Group has developed an original treatment for these slurries, which, when put under 250 bars of pressure in a pure oxygen atmosphere (ATHOS Wet Oxidation), produce a concentrated mineral residue with no smell and no pathogens, called Technosable®.

Five local authorities (Brussels, Epernay, Aix en Provence, Milan and Rennes) have currently chosen this type of process to treat their slurries which, in total, will produce approximately 10,000 tonnes of Technosable® per year, a stabilised argillaceous residue.

Brought to less than 30% water content by a filter press, Technosable® comprises 35% of illitic clay, 20% of quartz, 20% of calcium carbonate and 10% of calcium phosphate and 3% of ferric oxide.

This composition, allied with the natural low grain size of the product (D50: 2µm, an undeniable advantage for the tile production sector, used to grinding together its feldspathic materials from 6 mm gravel), has enabled an evaluation study to be undertaken regarding this residue in ceramic field. This work was realised by the SFC/French Industrial Technical Center of ceramics, with support from the Agency for the Environment of Energy Saving (ADEME).

The association of the residue with a white calcic earthenware mass for wall tiles can go up to 7% without colorimetric degradation and, pushed to 15%, allows the complete replacement of the crushed chalk, a part of the quartz and the reduction of 6% of the costly imported clays.

The final tile exceeds standardised requirements (modulus of rupture: +40%; moisture expansion and quality of the enamel) making possible a reduction of the firing temperature of 20°C.

An industrial pilot test of 1500 kg conducted by DESVRES for 100 sq. m. of 15 x 20 cm tiles enabled the confirmation of laboratory results and in particular confirmation of the absence of rheological disturbance of the slip and the lack of adverse effect of the addition on the coating quality of the glaze. The nature of the fumes emitted during the test complied with current regulations.

It has been possible to bring this project to completion thanks to the complementary nature of the partners from various disciplines who have each worked for the success of incorporating wet oxidation residues into wall tiles.

This work integrates perfectly into the objectives of QUALICER 2010, in particular for the Spanish red body tile industry in which more than 20% argillaceous Technosable® can be used.