*W*aste synergy in the production of *IN*novative *CER*amic tiles

OBJECTIVES

The project aims to develop innovative ceramic tiles containing over 70 wt% of recycled materials from urban and industrial waste.
The specific objectives are related to:

- contribution to sustainable waste management by recovery of the amount of soda lime glass cullet waste that today is not re-introduced in glassware (about 30% of the total glass waste);
- reduction of the use of natural resources thanks to: the use of soda lime glass, coming from urban collection and the reuse of unfired scrap tiles, generated during the industrial process;
- improvement of the environmental performances of the ceramic tiles sector by reducing CO2 emissions, energy consumption and methane use.

The combination of these different waste enables the production of innovative ceramic tiles with similar or improved mechanical properties respect to the traditional ones. The productive cycle is similar apart two main innovation aspects concerning the body mix preparation (over 70 wt% of recycled waste in substitution of natural raw materials) and the firing cycle (maximum sintering temperature reduced).

ACHIEVED RESULTS

• Recycling of waste and saving of natural resources, reduction of energy consumption, reduction of GHG emissions.

• Innovative structural ceramics produced with more than 70 wt% of recycled materials in ceramic tiles and obtained with similar or improved mechanical properties respect to state of the art products.

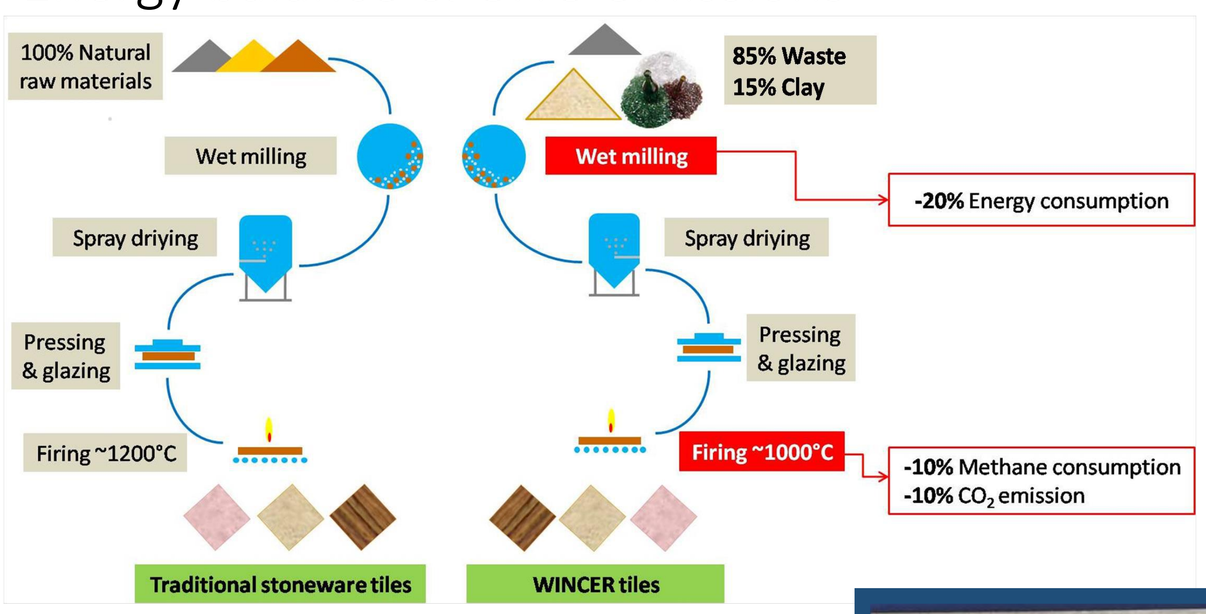
EXPECTED RESULTS

• Contribution to the improvement of the European ceramic industry through the acquisition of the world leadership in waste-based ceramic materials, the widening of the ceramic products spectrum by including more sustainable ones in substitution to other materials, and the reduction of energy consumption of the milling and firing processes.

INNOVATIVE GREEN CERAMIC TILES FIRED AT 1025° C WITH A PERCENTAGE CONTENT OF END-OF-WASTE MATERIALS OF 85%

WINCER ceramic process

Energy balance & GHG emissions

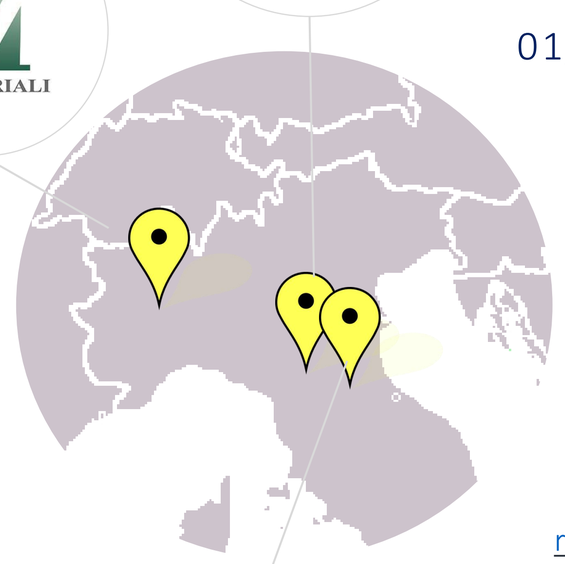


REACHED RESULTS

Industrial production of porcelain stoneware tiles 30x60 cm with low water absorption (≤0.5%) belonging to class BIa (EN 14411)

MARAZZI GROUP PROJECT DETAILS

MINERALI INDUSTRIALI



Duration
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Budget
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(EU contribution: 50%)
Contract number
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1	3	3	2015	1489312	744656
European State	Partners	Year - Duration	Start Project	Total Cost	Eu contribution