

2nd World Congress and Expo on

Recycling

July 25-27, 2016 Berlin, Germany



F Andreola

University of Modena and Reggio Emilia, Italy

Recycling of wastes in traditional ceramic manufacturing

The progressive increase in wastes requires not only measures to reduce their generation, but also recycling and reuse. In this regard, the European directives concerning waste, Directives 2006/12/CE and 2008/98/CE, are oriented to transform the European Union into a “recycling society” that attempts to avoid the generation of waste and promotes their use as a resource. Inorganic wastes in Europe are estimated more than 1,500 million tonnes/year and traditionally they have been disposed of in landfills. Alternative ways of reuse or recycling of non-hazardous inorganic waste should be investigated and implemented. On the other hand, traditional ceramic manufacturing requires massive amount of natural raw materials, which until few years were mainly based on the conventional system clay-silica-feldspar. Besides, natural raw materials used show a wide range of compositional variations and the resulting products are very heterogeneous. Therefore, such products can tolerate further compositional fluctuations and raw material changes, allowing different types of wastes to be incorporated into the internal structure of ceramic tiles and bricks as part of their own matrix. Nowadays, ceramic tile cycle works at zero emissions permitting to recycle within own manufacturing process all by-products and partially residues derived from depuration process and wastes coming from other productive cycles. In this review, will be described the state of art regarding the introduction of wastes in ceramic tiles and bricks manufacturing. Case studies of formulations using different percentages of alternative raw materials as waste glass, MSWI bottom ash, agro waste and polishing sludge are reported.

Biography

F Andreola has completed her graduation in Chemical Engineering at the University of Bologna (1992). She completed her PhD in Materials Engineering at the University of Modena and Reggio Emilia (1997). She currently develops her activity at Department of Engineering “Enzo Ferrari” (DIEF) from University of Modena. Her research is mainly focused on the science and technology of materials, and in particular on the study and development of eco-compatible products for building sector (ceramic tiles, bricks, ecological bodies, and glass-ceramics). She is Co-author of 100 papers in international peer-reviewed journals. She has presented her research activity in a large number of national and international congresses. She is a member of the Italian Ceramic Society, Italian Association of Materials Engineering and Italian Group of Clays. She acts as a Reviewer for several peer reviewed journals like *J. European Ceramic Society*, *Ceramic International*, *Waste Management*, and *J. of Sustainable Engineering*.

fermandanora.andreola@unimore.it

Notes: