ECO innovative methodologies for the valorization of construction and urban waste into high grade TILES

with the contribution of the LIFE Programme of the European Union

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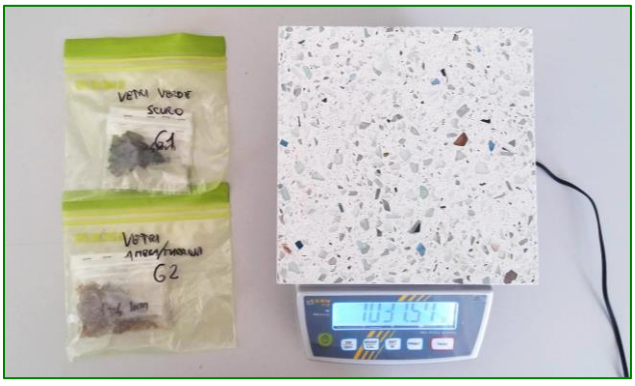
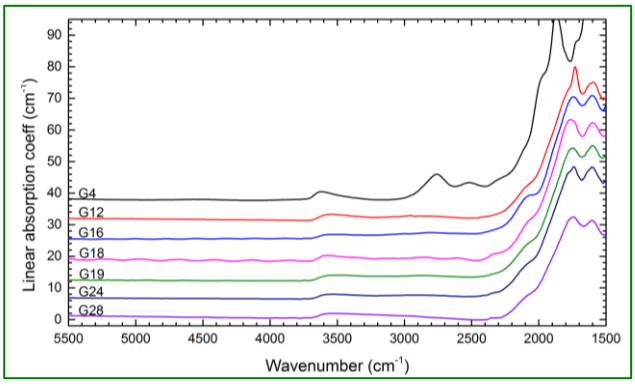
scientific developments

Scientific research is one of the pillars of the ECOTILES Project and it's carried out mainly from the Geochemistry-Mineralogy-Petrology Group at University of Camerino.
Among the different waste materials selected for the design of the first demonstrative products a set of 35 industrial glass wastes with different colors and end-use have been fully characterized for chemical composition and water content. The analyzed glass waste are made with a combination of various oxides and they are commonly referred to as "soda-lime" glass (SLG). Silica oxide (SiO_2) is the most abundant raw material in glass composition along with alumina, magnesia, lime and iron oxides, while Na is the predominant alkaline element. Preliminary analysis of our samples revealed that even though all the glasses are compositionally similar they differ for the elements used for coloring. These small chemical differences can affect the glass structure, depending on the role of each element as network former, modifier or intermediate. Infrared analysis showed that all the studied glasses are anhydrous, a crucial characteristic for waste material since water content influences several glass physical properties (e.g. viscosity, density).





Thus, understanding the chemical composition of glass waste can be critical to recycling because has significant implications for managing the behavior of molten glass. The results of this research will be presented at the next European Mineralogical Conference (EMC2016) held in Rimini (Italy) from the 11st to 15th of September.

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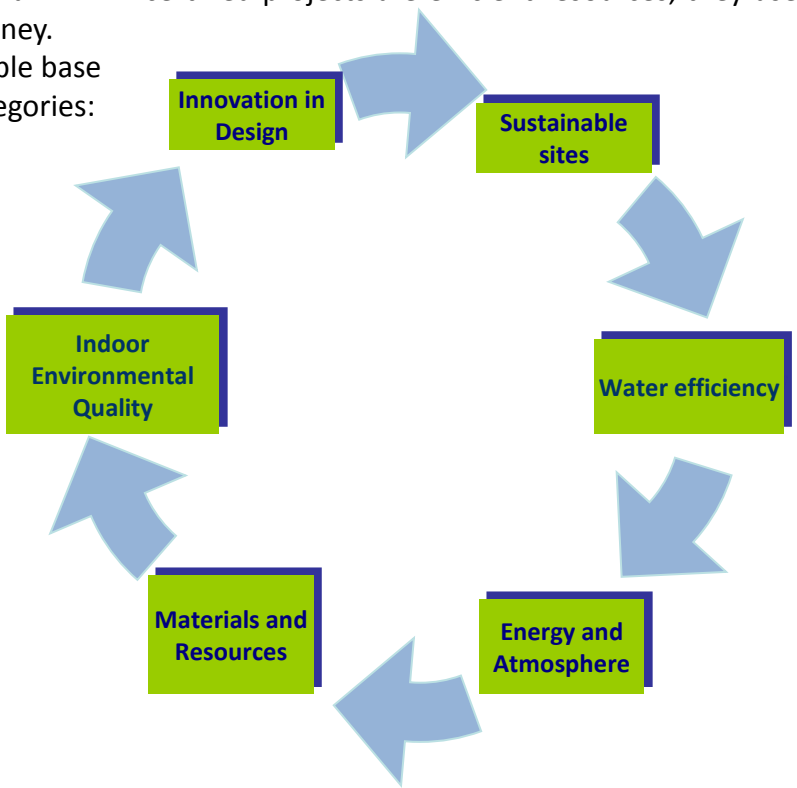
sustainability achievements

During the Fuori Salone event (Brera, Milano, 12 -17 April), the project LIFE ECOTILES has been presented to former and new customers that are interested in innovative sustainable project.
During these encounters the opportunity of an ECOTILE fitting the LEED (Leadership in Energy and Environmental Design) standards has been debated. Among the different green building sustainability rating tools, LEED is the most widely used third-party verification for green buildings, with around 1.85 million square feet being certified daily. The LEED rating systems address a wide variety of buildings types, including commercial buildings, homes, retail, schools, as well as every phase of the building lifecycle including design, constructions, operations and maintenance.
Projects pursuing LEED certification earn points across several areas that address sustainability issues. Based on the number of points achieved, a project then receives one of four LEED rating levels: Certified, Silver, Gold and Platinum. LEED certified projects are efficient resources, they use less energy and doing so they save money.
Under LEED 2009, there are 100 possible base points distributed across six credit categories:



Developed by the non-profit U.S. Green Building Council (USGBC), LEED has evolved since 1993 to more accurately represent and incorporate emerging green building technologies. LEED standards are available also in Italy thanks to the Green Building Council Italia (GBC Italia) which created a local Italian version of the certification, based on precise prerequisites of sustainability, both from an energetic and resource use point of view.