



SANITSER

Newsletter 02-15

European Project LIFE+ SANITSER

Sanitaryware production : use of waste glass for saving energy and resources

Progress of the project (from 15/04/2014 to 28/02/2015):

Sanitser project, realized with the contribution of the Life financial instrument of the European Community, started on July 1st, 2013 and will end on March 31st, 2017. Below a short account of our activities starting from April 15th, 2015.

Technical activities

Pilot plant development and start-up stage has been completed for all partners. The pilot plant for waste SLG and other raw materials preparation must be optimized, with a view to higher volumes to be provided for the pre-industrial tests.

Gemica made some glaze testing on 2 different selected slip formulations studied by SETEC, ready by May 2014 and then improved when necessary, in order to find the optimum formulation with the right linear thermal expansion and physical characteristics when fired over the slips selected.

Among all the slips and glazes formulations containing glass and other recycled materials tested in these months, the most suitable compositions have been identified, to guarantee preservation of technological quality of the final ceramic bodies with respect to present standards for marketability. To choose the best formulations the content of recycled materials was also taken into account:

- selected slip contains **more than 40%** of recycled materials (SLG glass, pitcher and granite from the recovery of the Verbania "historical" white granite quarries);
- selected glaze contains **more than 10%** of recycled glass.

Introducing these elements in the formulations has allowed to reduce the firing temperatures from 1230-1250 ° C of the traditional cycle to 1150-1170 ° C.

The first tests were carried out on 3 ceramic pieces, while new pieces made with the selected formulation are currently in casting stage, then they will be glazed with selected glaze and fired with the new firing cycle.





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Body used for manual casting of a wc in semi-industrial test.



Glaze tests with two different formulations of glazes studied by GEMICA.

All the formulations studied by SETEC were analyzed by University of Milan using X-ray powder diffraction methods to determine the phase composition in slips, adopting the Rietveld technique. The study of the University of Milan has been included in a report to complete the first stage of refinement of the parameters time / temperature / composition, transferable to industrial-scale application.





Monitoring environmental impact: LCA

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Regarding LCA activities, the Product Category Rules (PCR) related to sanitaryware were analysed (PCR 2012:01 Construction products and construction services, version 2). This document reports the specific rules for LCA and EPD (Environmental Product Declaration) realization for sanitaryware, it is compliant with EN 15804 and it is downloadable from the International EPD System website (www.environdec.com).

Web tool for LCA data collection and indicators evaluation

Software design was performed; main goals of this web tool are:

- Data collection of qualitative and quantitative information related to sanitary ware
- Calculation of environmental performance indicators related to sanitary ware

Social LCA

A detailed analysis of Social LCA guide (Setac – Guidelines for Social Life Cycle Assessment of Products) was performed to prepare data collection.

Dissemination

Publications and events

In the number 109/2014 (December 2014) of the magazine Ceramic World Review the second part of the article concerning the Sanitser was published: "The project Sanitser", which includes the characterization of soda-lime glass (SLG) and other recycled products as substitutes for traditional raw materials.

In the number 108/2014 (September 2014) of the magazine Ceramic World Review the first part of the article concerning the Sanitser was published: "The use of waste materials in sanitaryware production", which includes a presentation of the project explaining objectives, expected results and materials used in the research.

On September 25, 2014 all the partners attended the event "Presentation of the Project LIFE12 ENV/IT/001095 SANITSER" held in "Tecnargilla 2014" fair in Rimini.

On February 26-28, 2014 SETEC has participated in the expo Indian Ceramics 2014, where they exposed and disseminated informative materials about the SANITSER project.





Backend of Sanitser website (L.C.E.)

A reserved area was developed on Sanitser website. All partners can access to this area using their own credentials in order to:

- Share documents related to Sanitser project in a dedicated repository
- Create and modify the newsletter

Networking

Life Project Green sinks: on March 11, 2015 it was held a first meeting with Delta, the coordinating beneficiary of the project, to present our projects and to show SETEC's pilot plant.

Ecoinnovation Project WINCER Eco/13/630426, which involves the use of recycled glass in the production of ceramic: Minerali Industriali has participated in the kick off meeting held on January 27, 2015, to explain the Sanitser project, thus obtaining a first contact.

Next steps

Technical activities

Before the summer the optimization of the pilot plant for waste SLG and other raw materials preparation is expected to be concluded, as written above.

After that, the production of higher volumes and production of large ceramic bodies on SETEC's pilot plant will begin, to define then the final optimal process parameters in view of pre-industrial tests.

Dissemination

By June, the publication of a third article in the magazine Ceramic World, including a presentation of the first results achieved, and also on other magazines is expected.

The publication of at least one article on a scientific journal to present the study made by the University of Milan of all the formulations studied by SETEC is expected.

SETEC will exhibit at CERAMITEC fair in Munich (October 2015) where they'll expose and disseminate informative materials about the SANITSER project.

