

Sanitary ware production: use of waste glass for saving energy and resources



Assunta FILARETO, Life Cycle Engineering
TECNARGILLA - 25th September 2014 -



1.2.3

LCE'S
FACTS

 **1994**
LCE
ESTABLISHED

 **2009**
EXPANSION
TO USA

 **2013**
TEA PLATFORM
LAUNCHED

 **2014**
LCE UK
ESTABLISHED

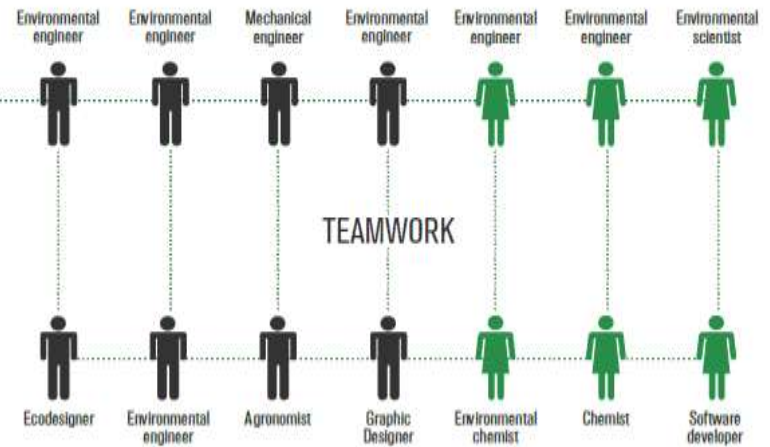
14 LCE TEAM
CONSULTANTS



20
YEARS
On specific fields (LCA, EPD, CSR tools, Eco design, eco-labelling, carbon footprint, environmental communication, environmental law).

OVER
100 SUSTAINABLE
PROJECTS

Our working group is composed by highly qualified engineers, biologists, sustainable design specialists and environmental experts. We pay particular attention to the education of our staff and to the use and development of professional instruments for the success of research projects.



WHERE WE ARE AND WHERE WE WORK

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LCE role in the project

Dissemination activities: www.sanitser.eu

SANITSER

With the contribution of the LIFE financial instrument of the European community

About Sanitser | Project Objectives | Partners | Events | Press & News | Contact

SANITSER

SANITARYWARE PRODUCTION

Use of waste glass for saving energy and resources

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

L'obiettivo del progetto è quello di rivedere il processo di produzione dei sanitari introducendo nelle miscele di ceramica una quantità rilevante di scarti di vetro derivanti dallo smaltimento dei rifiuti urbani

Risultati previsti:
risparmio di risorse primarie: 40-50 %
risparmio di energia: 16-18 %

The project aims to revise the production process in the Vitreous Sanitary Ware (VSW) ceramic sector by introducing relevant amounts of glass cullet waste from urban waste disposal in the ceramic blends formulations

Expected results:
saved primary resources: 40-50 %
saved energy: 16-18 %

Start date: 01/07/2013 - End date: 31/03/2017
www.sanitser.eu

Sanitser Project

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

Expected results:
saved primary resources: 40-50 %
saved energy: 16-18 %

Link

- LIFE Programma
- Ministero dell'Ambiente

Presentation Of The Project During TECNARGILLA 2014

SE.TE.C., Minerale Industriali, G.E.M.I.C.A. and LCE are pleasure to invite you to the

Presentation of the Project LIFE12 ENV/IT/001095 SANITSER.

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

[Read more](#)

SETEC Has Participated In The Expo Indian Ceramics 2014

On 26-28 February 2014

SETEC has participated in the expo Indian Ceramics 2014, where it exposed and disseminated informative materials about the SANITSER project.

News

Available document:

- [Newsletter 01-14.pdf](#)
- Project description LIFE portal.pdf

[Download Acrobat Reader](#)

Networking

- PROGETTO MEGGLASS (Minimizing the Environmental Impact of GLASS recycling and glass container production.)

MINERALE INDUSTRIALI | GEMICA | SETEC | Engineering LIFE Cycle Engineering

With the contribution of the LIFE financial instrument of the European Community



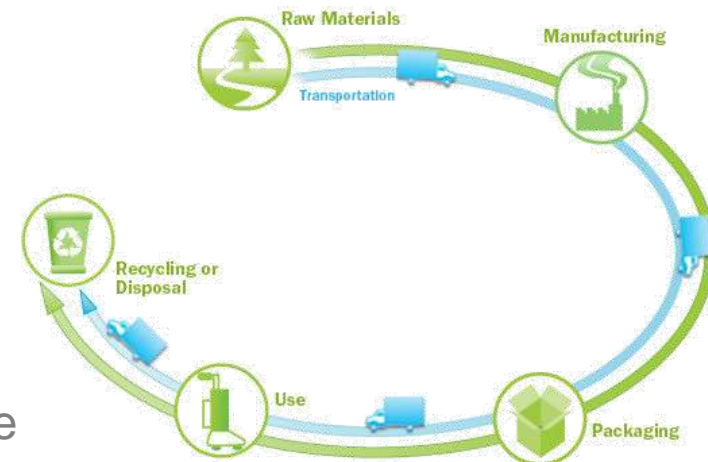
LCE role in the project

Evaluation of environmental, social and economic performances of two systems for sanitary ware production:

1. **Traditional** system
2. **Innovative** system: introduction of relevant amount of glass cullet waste (from urban waste disposal) in the ceramic blends formulations instead of virgin materials

life cycle assessment (LCA), life cycle costing (LCC) and social LCA will be adopted




- **Scientific** methodologies
- Regulated by **ISO Standards**
- Supply chain taken into consideration from raw materials production to final product delivery, use and end of life scenarios





LCE role in the project

A customized Web tool for data collection and calculation is designed and developed

1. Qualitative and quantitative **data collection** for LCA, SLCA, LCC purposes  **On-line questionnaire** for each partner involved in the project
2. Evaluation of **environmental, social and economic performances** for each process involved (raw materials extraction, blends formulations, etc.)  **Performances** of raw materials formulations, glazes and pilot plant
3. Evaluation of **environmental, social and economic performances** for the produced sanitary ware  **Performances** of each sanitary ware produced

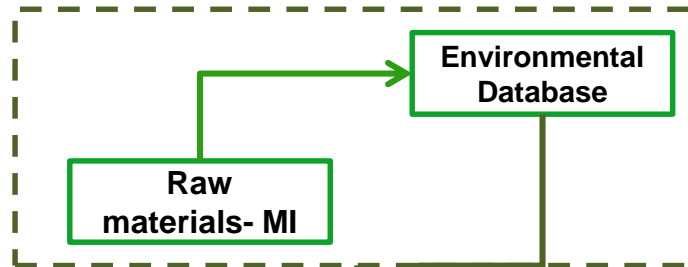
WEBTOOL – Environmental data collection

LEVEL 0: Webtool analysis and environmental data collection

LEVEL 1

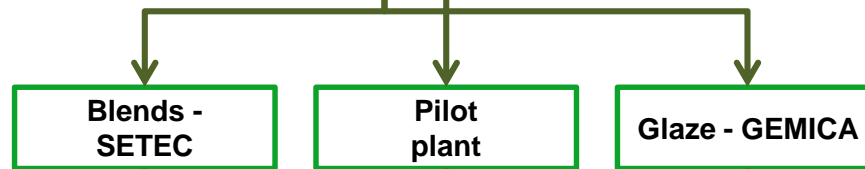
Database (DB)

User that provides data about raw materials



LEVEL 2

User who enters data related to mixture, pilot plant and glaze.



LEVEL 3

Admin SANITSER brings together info about mixture, glazes and plant.

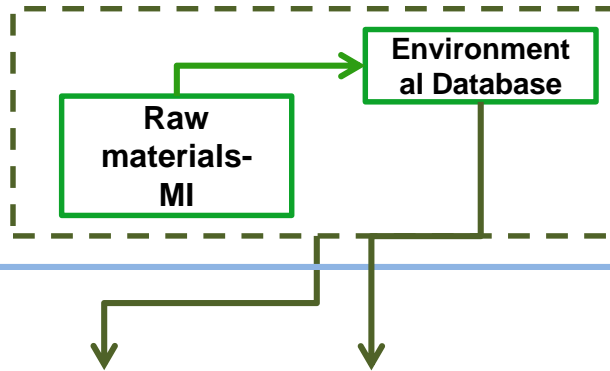


WEBTOOL – Environmental data collection

LEVEL 1

Database (DB)

User that powers the DB relative to raw materials



Data collection - Materials

MATERIAL		ENERGY	EMISSIONS	TRANSPORTS	WASTE
NAME		amount	udm	note	
KAOLIN	◆		kg		
CHALK	◆		kg		
GLASS for RECYCLING	◆		kg		
QUARTZ	◆		kg		

SAVE

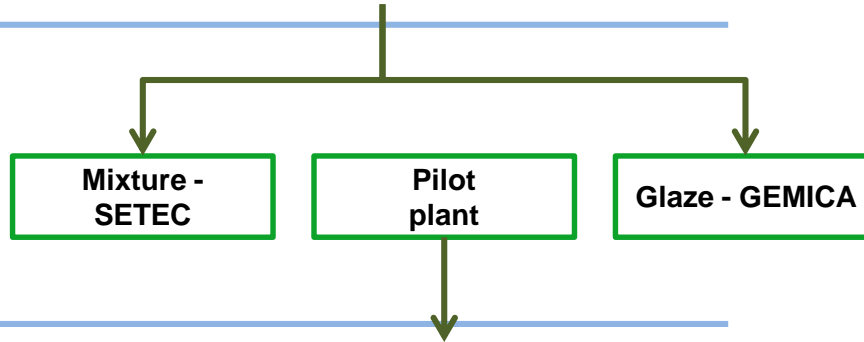
SEND



WEBTOOL – Environmental data collection

LEVEL 2

User who enters data related to mixture, pilot plant and glaze.



Data collection - Energy

MATERIAL	ENERGY	EMISSIONS	TRANSPORTS	WASTE
NAME	amount	udm	note	
ELECTRICITY ITALY		kWh		
METHANE		nm3		
DIESEL		l		
WATER WELL		l		
WATER SUPPLY		l		

SAVE

SEND



WEBTOOL – Environmental data collection

LEVEL 3

Admin SANITSER brings together info about mixture, glazes and plant



REPORT

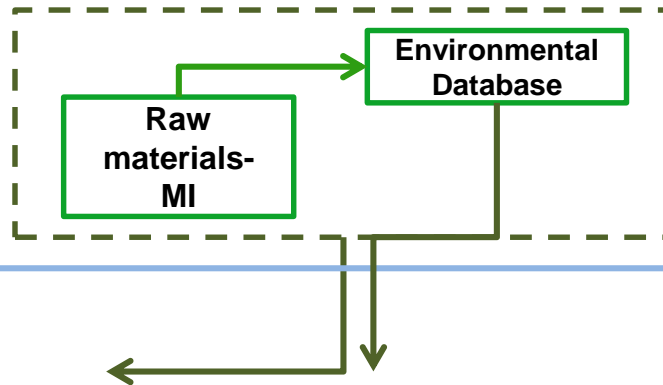
Results per kg

TOTALE	GWP	GER	BLU WATER	Raw material saved	Hazardous waste	Not Hazardous waste
	[kg CO2eq]	[MJ]	[litri]	[kg]	[kg]	[kg]
ENERGY						
MATERIALS						
EMISSIONS						
WASTE						
TRANSPORTS						
TOTALE	GWP	GER	BLU WATER	Raw material saved	Hazardous waste	Not Hazardous waste
CALCOLI TOT	[kg CO2eq]	[MJ]	[litri]	[kg]	[kg]	[kg]

WEBTOOL – Environmental data collection

LEVEL 3

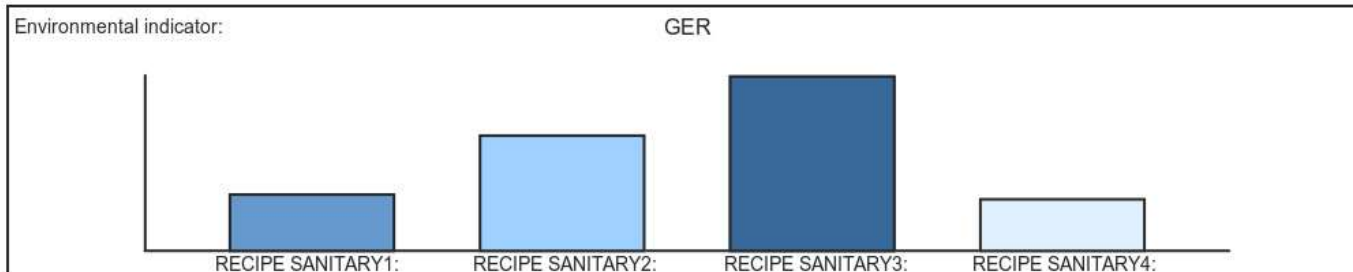
Admin SANITSER brings together info about mixture, glazes and plant.



REPORT SANITARY

Environmental indicator:

TYPE RECIPE	ELETRICTY [MJ]	METHANE [MJ]	DIESEL [MJ]	WATER SUPPLY [MJ]	WATER WELL [MJ]	GER [MJ]
RECIPE SANITARY 1						
RECIPE SANITARY 2						
RECIPE SANITARY 3						
RECIPE SANITARY 4						



Life Cycle Engineering – Torino, Italy



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