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

SANITSER

Assunta FILARETO, Life Cycle Engineering

TECNARGILLA - 25th September 2014 -

SETEC Group

VICENTINI

MINERALI INDUSTRIALI

G.E.M.I.C.A.

LIFE CYCLE ENGINEERING

1.2.3

LCE'S FACTS

1994 LCE ESTABLISHED

2009 EXPANSION TO USA

2013 TEA® PLATFORM LAUNCHED

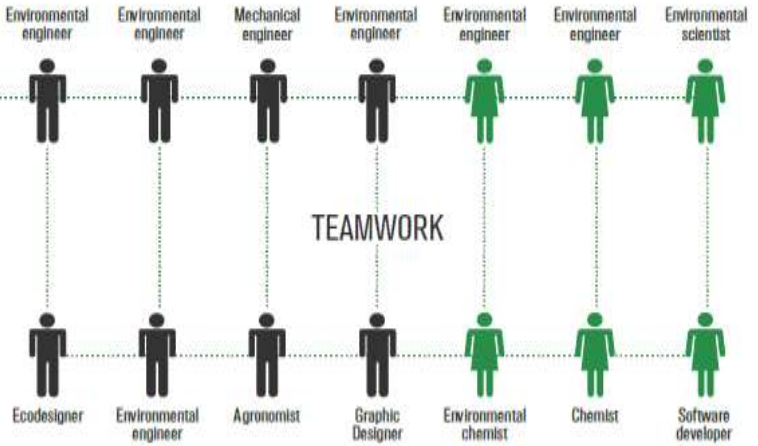
2014 LCE UK ESTABLISHED

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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Torino - Italy

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Nottingham, UK NG5 1AP

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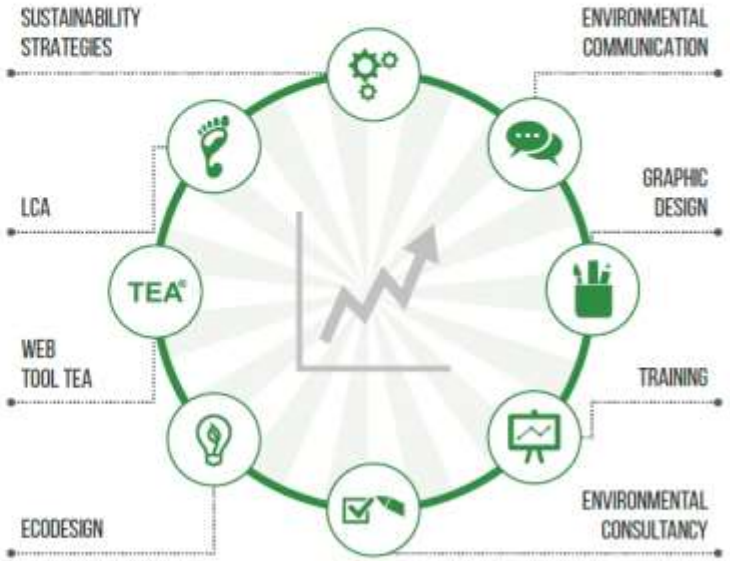
LIFE CYCLE ENGINEERING
we support your sustainable business



LCE role in the project

Dissemination activities: www.sanitser.eu

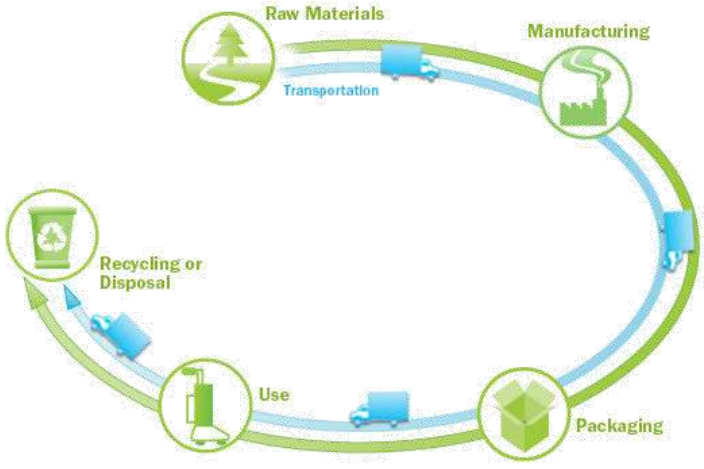
LCE role in the project

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)

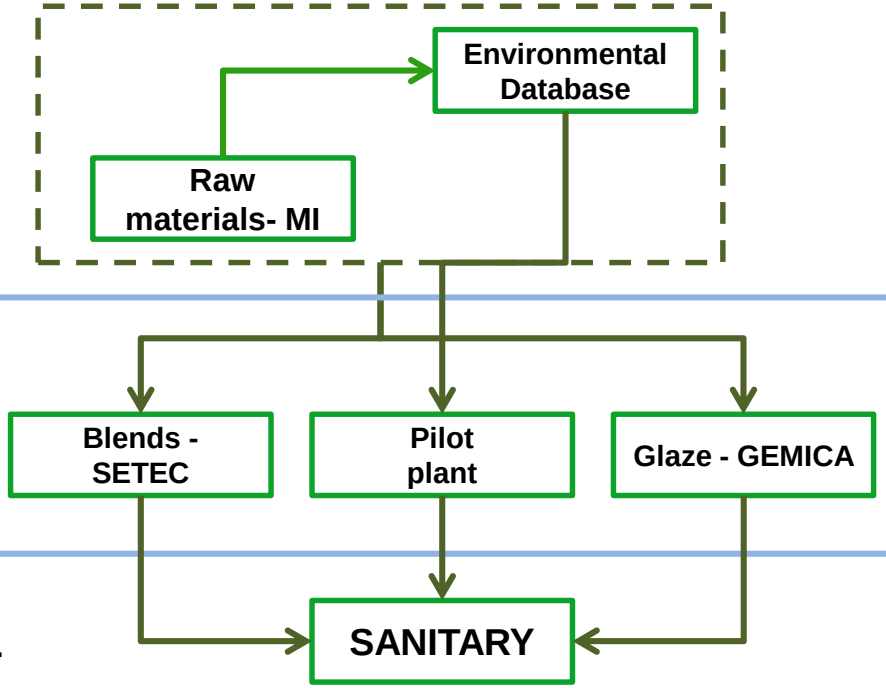
User that provides data about raw materials

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.

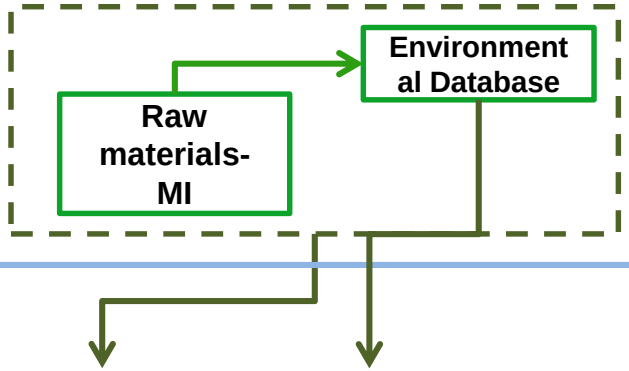


WEBTOOL – Environmental data collection

LEVEL 1

Database (DB)

User that powers the DB relative to raw materials



Data collection - Materials

MATERIAL | ENERGY | EMISSIONS | TRANSPORTS | WASTE

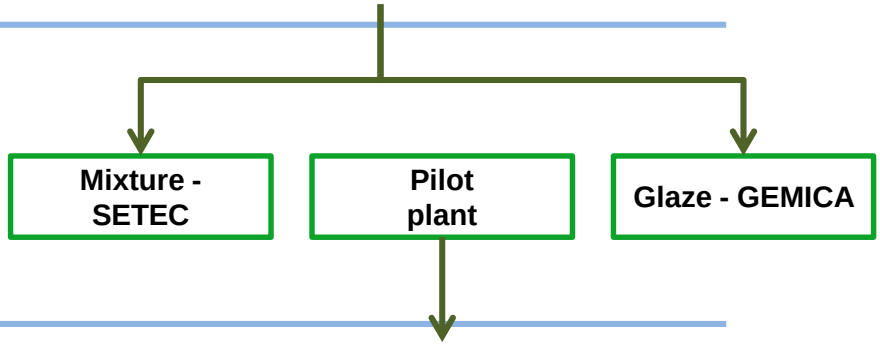
NAME	amount	udm	note
KAOLIN		kg	
CHALK		kg	
GLASS for RECYCLING		kg	
QUARTZ		kg	

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

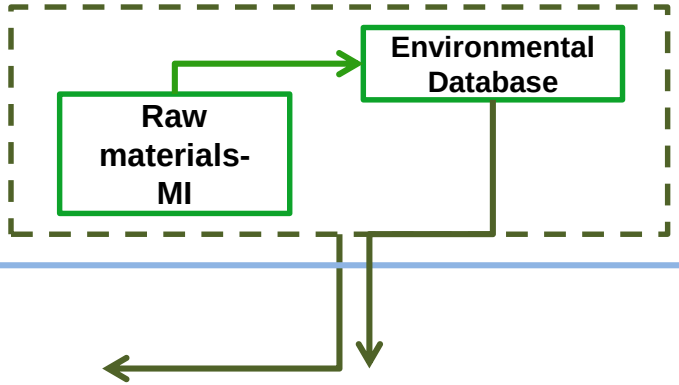
Risults per kg

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

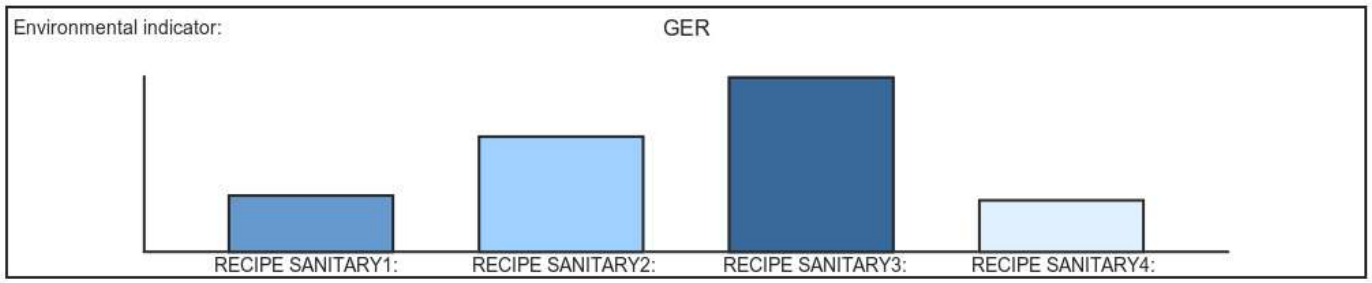
Admin SANITSER brings together info about mixture, glazes and plant.



REPORT SANITARY

Environmental indicator: GER

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						



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