

ITALGRANITI GROUP



IMPRONTA CERAMICHE



ITALGRANITI

LIFE12 ENV/IT/000436



Sustainable Mission



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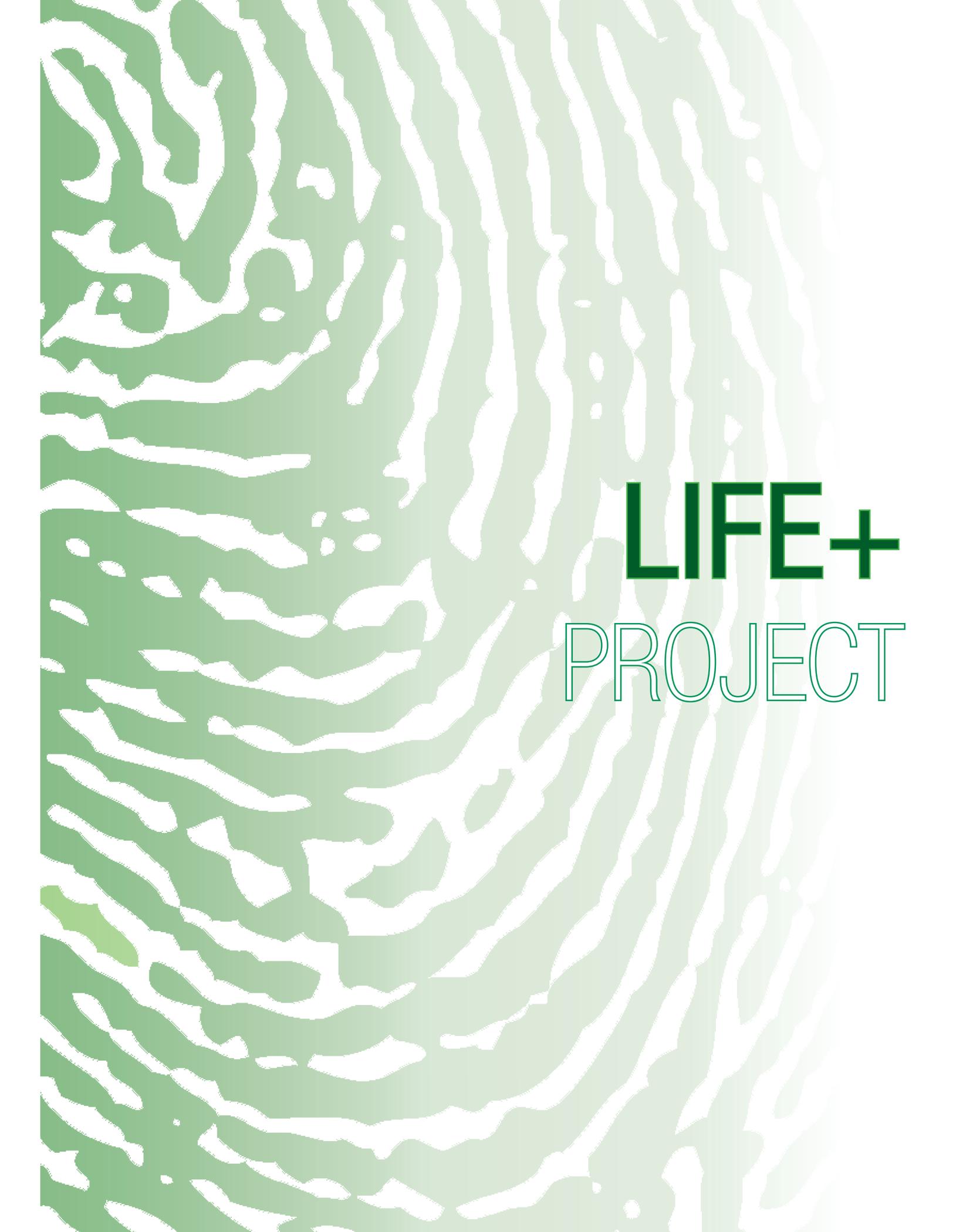
ITALGRANITI GROUP S.P.A.

LIFE12 ENV/IT/000436

FINAL REPORT

Annex 04

Layman's Report
(deliverable D1.8)



LIFE+
PROJECT



Life Sustainable Mission

The project "LIFE Sustainable Mission", which began on 01/10/2013 and ended on 30/09/2015, introduced in the ceramic sector a new concept that Europe has been trying to apply to the overall economy for some years: the circularity. It is about the developing of new business strategies that should consider the whole life cycle of resources, transforming waste into new raw materials for some other process, adopting strategies for their economic enhancement. This concept has been fully applied to our company, with the project "LIFE Sustainable Mission", funded by the European Union through the EU Programme for the Environment LIFE +.

With the project is demonstrated the possibility to create a productive cycle with advanced technologies that can collect and reuse all production waste as new raw material in a process that is self-managed.

To make this possible, it was necessary to modify the starting raw materials, constituted in this case by glassy compounds arising from recycling and other glass and ceramic waste, up to a maximum of 70% in weight.

In this way, it is also extended the concept of circularity in recycled materials coming from the outside, thus avoiding the use of natural primary resources (lands, clays, etc.).

The new process, lastly, is energetically less costly than the traditional one and allows lower water consumption.

The environmental problem targeted

The ceramic tile production today involves environmental concerns, also important, even if in recent years the technologies have already made great advancements towards the significant increase of the overall sustainability of this sector.

However, several problems remain:

- high energy consumption for the realization of increasingly and high-performance technical products that require very high firing temperatures (1710-2805 KJ / Kg);
- high CO2 emissions (1.7 kg / kg of finished product produced);
- generation of machining wastes (cutting sludge, polishing etc. to 1,95 Kg / m2 of tile machined), hardly reusable.



Project's objectives

The main target was therefore being able to demonstrate the possibility to redefine the whole production process in order to minimize the aforementioned problems with a focus to the circularity of materials used and minimizing energy consumption.

More specifically:

- Use of glassy materials waste for the obtaining of a sinterable ceramic mixture at temperatures significantly lower compared to the state of the art;
- "Circular" re-use of all the processing waste in a state process;
- Reduction of energy consumption resulting from lower temperatures involved;
- Reduction of CO2 emissions, for the same reason;
- Reduction of water consumption during cutting, grinding and surface treatments;
- Bring all this knowledge to a large number of people in order to disseminate as much as possible our idea and to sensitize a large number of persons regarding the problem of environmental and economic sustainability of industrial activities.

Performed activities

In order to achieve completely our expectations, partners had to complete a series of technical, administrative and disseminative activities such as:

- Definition of the mix of recycled and virgin materials for the composition of the sinterable ceramic body at a low temperature;
- "green" forming and manufacturing process (cutting, grinding, surface treatment) and system for the immediate recovery of the raw waste;
- Modification and adaptation of drying and firing process;
- Development of the entire demonstrative line;
- Mass and energy balance and LCA;
- Management and monitoring of project activities, also in terms of reporting;
- Dissemination of results.

Achieved results

- Elimination of about 0.9 kg of sludge per m2 of ceramic tile, thanks to the technique of cutting, grinding and dry surface treatments, which allow the total reuse "circular" of the scraps.



- Saving of approximately 0.8 m³ of water per m² of tile, also for the effect of dry machining.
- 50% reduction in energy consumption in the operations of cutting and surface treatments.
- 40% increase of the useful life of the cutting tools.
- 20% reduction in fuel consumption of drying and sintering process.
- Use of glassy materials recycled within the mixture, with a maximum of 70% of the weight.
- Reduction of the sintering temperature from about 1200 ° C to about 1.050 ° C.

To learn more about the project, see at:

<http://www.italgranitigroup.com/main/azienda/green-building/life>



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Sustainable Mission

The LIFE Programme

A new LIFE Programme

After more than 22 years, €3.4 billion and 4 170 LIFE projects, the EU's financial instrument for the environment continues to co-finance nature conservation, environmental and climate action projects.

A bigger programme

The LIFE budget for the period 2014-2020 is higher than ever before: €3.46 billion.

An evolving programme

In addition to the traditional LIFE projects, there are now four new types of projects (integrated, technical assistance, capacity-building, preparatory) and two financial instruments (Natural Capital Financing Facility, Private Financing for Energy Efficiency).

LIFE's two sub-programmes: Environment and Climate Action

The Environment sub-programme has three priority areas: The Environment and Resource Efficiency priority area will develop, test and demonstrate approaches, best practices, solutions and integrated approaches to environmental challenges, as well as improving the related knowledge base. The Nature and Biodiversity priority area will develop, test and demonstrate best practices, solutions and integrated approaches to contribute to the development and implementation of nature and biodiversity policy and legislation, as well as improving the related knowledge base. The Environmental Governance and Information priority area will promote awareness-raising on environmental matters, support the communication, management and dissemination of environmental information, and promote better environmental governance by broadening stakeholder involvement.

The Climate Action sub-programme has three priority areas: The Climate Change Mitigation priority area will contribute to the reduction of greenhouse gas emissions, notably by contributing to the implementation and development of related policy and legislation, improving the knowledge base, developing integrated approaches, and developing and demonstrating innovative technologies, systems, methods and instruments. The Climate Change Adaptation priority area will support efforts to increase resilience to climate change, notably by contributing to the implementation and development of related policy and legislation, improving the knowledge base, developing integrated approaches, and developing and demonstrating innovative technologies, systems, methods and instruments. The Climate Governance and Information priority area will promote awareness-raising on climate matters, support the communication,



management and dissemination of climate information, promote more effective compliance with climate legislation and promote better climate governance by broadening stakeholder involvement.

An expanded range of LIFE projects

LIFE's universally-acknowledged success is based on "traditional" LIFE Nature, Biodiversity, Environment and Information projects. These best practice, demonstration, pilot and awareness-raising projects continue, but are now accompanied by a whole new sub-programme for climate action, four new types of projects (integrated, technical assistance, capacity-building, preparatory) and two financial instruments (Natural Capital Financing Facility, Private Financing for Energy Efficiency).

- *Best practice projects*
- *Demonstration projects*
- *Pilot projects*
- *Information, awareness and dissemination projects*
- *Integrated projects*
- *Technical assistance projects*
- *Capacity-building projects*
- *Preparatory projects*
- *Operating grants*
- *Natural Capital Financing Facility (NCFF)*
- *Private Finance for Energy Efficiency instruments (PF4EE)*



How can I learn more about LIFE?

Visit the LIFE web-site: <http://ec.europa.eu/life>

Discover each LIFE project: <http://ec.europa.eu/environment/life/project/Projects/index.cfm>

Discover LIFE by country: <http://ec.europa.eu/environment/life/countries/index.htm>

Read the LIFE Regulation: <http://ec.europa.eu/environment/life/about/index.htm#life2014>

Read the LIFE Multi-Annual Work Programme:

<http://ec.europa.eu/environment/life/about/index.htm#mawp>

Contact your National Contact Point:

<http://ec.europa.eu/environment/life/contact/nationalcontact/index.htm>

Contact EASME: easme-life@ec.europa.eu

Contact the European Commission: env-life@ec.europa.eu; clima-life@ec.europa.eu