

What is LIFE HYPOBRICK?

LIFE HYPOBRICK is a European project funded by the European Commission through the LIFE Programme, which seeks to foster the low-carbon economy in the fired-clay products manufacturing industry.

The project focuses on mitigating the adverse effects of climate change and on implementing the Circular Economy in this industrial sector.

What issue does LIFE HYPOBRICK seek to resolve?

The fired-clay products (roofing tiles, bricks, blocks, etc.) manufacturing industry consumes large amounts of energy and natural raw materials (clays, marls, limestone, etc.).

90% of this energy is thermal energy and stems from fossil fuel (natural gas, fuel oil, and coal) **combustion, which generates air emissions of carbon dioxide (CO₂)** this being one of the main gases responsible for climate change.

At present, for each tonne of manufactured brick, 1250 kg natural raw materials (taking into account the water used) are needed and 200 kg CO₂ are emitted, 75% of which is generated in a firing stage that takes place at temperatures between 850 and 1200°C.

Who is carrying out LIFE HYPOBRICK?

COORDINATING ENTITY



Instituto de Tecnología Cerámica (ITC)
<http://www.itc.uji.es>

PARTICIPATING PARTNERS



RCS (Recycling, Consulting & Services, S.L.)
España



LADRILLOS MORA, S.L.
España



SCHLAGMANN POROTON GmbH & Co. KG.
Alemania



THN (TECHNISCHE HOCHSCHULE
NUERNBERG GEORG SIMON OHM)
Alemania



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**BRICKS THAT BUILD
A BETTER SOCIETY**

**FIGHTING AGAINST
CLIMATE CHANGE**

**THROUGH THE
CIRCULAR ECONOMY**

This project is financed by the LIFE Programme 2014-2020 of the European Union for the Environment and Climate Action.



LIFE18/CCM/ES/001114

Con el apoyo de:



GENERALITAT
VALENCIANA

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How is it being carried out?

We are working on the development of a building materials manufacturing process in which, instead of having a high-temperature (1000°C) firing stage that uses much thermal energy, **alkaline activation technology** is used.

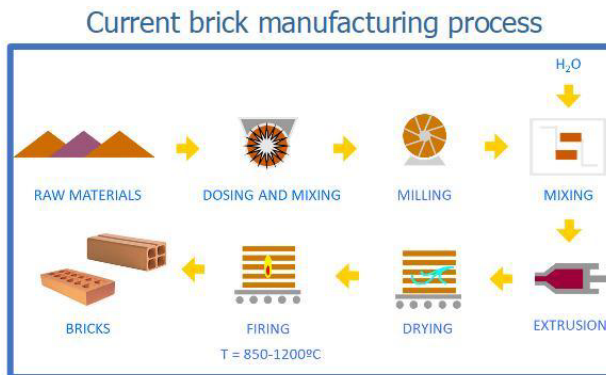
This technology allows process temperature to drop from 1000°C to 100°C, thus decreasing the thermal energy used and air emissions of CO₂ by 90%.

We are thus contributing to a huge decrease in greenhouse gases, the main drivers of the climate changes impacting our environment.

In addition, alkaline activation technology requires using silica- and alumina-containing compounds, which may be found in certain household and industrial glass waste.

We thus use fly ashes from thermal power stations, glass from cathode ray tubes of old TV sets, as well as solar panel glass.

Other waste, such as that from building construction and demolition and from ceramic brick manufacture itself, will also be used.



How does LIFE HYPOBRICK benefit society?

On the one hand, **by reducing air emissions of CO₂ and other harmful compounds** responsible for the greenhouse effect and, on the other, **by decreasing natural raw materials** consumption on reusing waste, part of which is currently being landfilled.

LIFE HYPOBRICK enables:

- **92% reduction of greenhouse gas emissions in brick manufacturing.**
- **Elimination of all acid emissions arising in firing.**
- **Elimination of volatile organic compound emissions (VOCs).**
- **Elimination of particulate material emissions in firing.**
- **Reduction of natural raw materials (clays, marls, limestone, etc.) consumption.**
- **Recycling fly ashes from thermal power plants, glass from TV monitors and solar panels building and demolition waste, and ceramic plant waste.**
- **Replication of the technology proposed for other ceramic products such as roofing tiles and pavers.**
- **Transfer of the results to cement-based construction products.**