## What is LIFE HYPOBRICK?

**LIFE HYPOBRICK** is a European project funded by the European Commission through the LIFE Programme, wich 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 ($CO_2$)** this being one of the main gases responsible for climate change.

Al present, for each tonne of manufactured brick, 1250 kg natural raw materials (taking into account !he water used) are needed and 200 kg $CO_2$ are emitted, 75% of which is generated in a firing stage that takes place al temperatures between 850 and 1200 ºC.

## Who is carrying out LIFE HIPOBRICK?

### COORDINATING ENTITY

**Instituto de Tecnología Cerámica (ITC-AICE)**
http://www.itc.uji.es
Spain

### PARTICIPATING PARTNERS

**Recycling, Consulting & Services, S.L. (RCS)**
http://www.recyclingservices.eu
Spain

**LADRILLOS MORA, S.L. (MORA)**
http://ceramicasmora.com
Spain

**SCHLAGMANN POROTON GmbH & Co. KG (SCHLAGMANN)**
https://www.schlagmann.de
Germany

**TECHNISCHE HOCHSCHULE NUERNBERG GEORG SIMON OHM (THN)**
https://www.th-nuernberg.de
Germany

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Life Hypobrick

**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

## 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 ºC) firing stage that uses much thermal energy, **alkaline activation *technology*** is used.

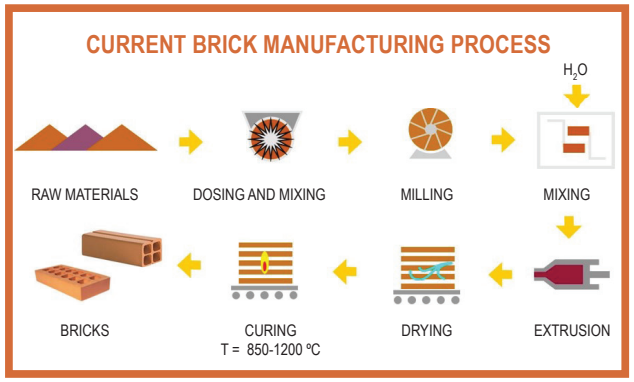
*This technology allows process temperature* ***drop from 1000 ºC to 100 ºC, thus decreasing the thermal energy used and air emissions of $CO_2$ by 90%.***

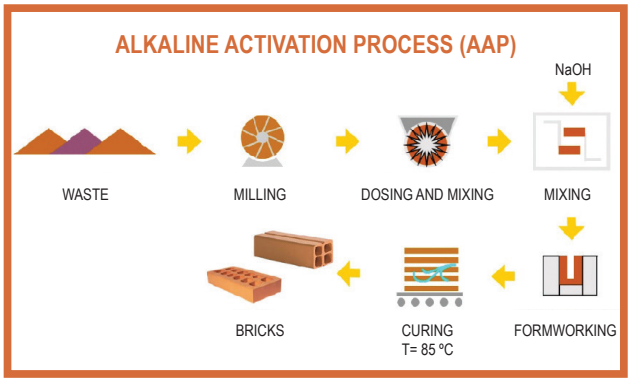
We are thus contributing to a huge decrease in greenhouse gases, the main drivers of !te climate changes impacting our environment.

In addition, alkali-activated 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 materials, 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 $CO_2$ and other harmful compounds** responsible for !he greenhouse effect and, on !te other, **by decreasing natural raw materials** consumplion 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.) comsumption.***
- ***Recycling fly ashes from thermal power plants, glass from TV monitors and solar panels, construction and demolition waste materials, and ceramic plant waste materials.***
- ***Replication of the technology proposed for other ceramic products such as roofing tiles and pavers.***
- ***Transfer of the results to cement-based construction products.***