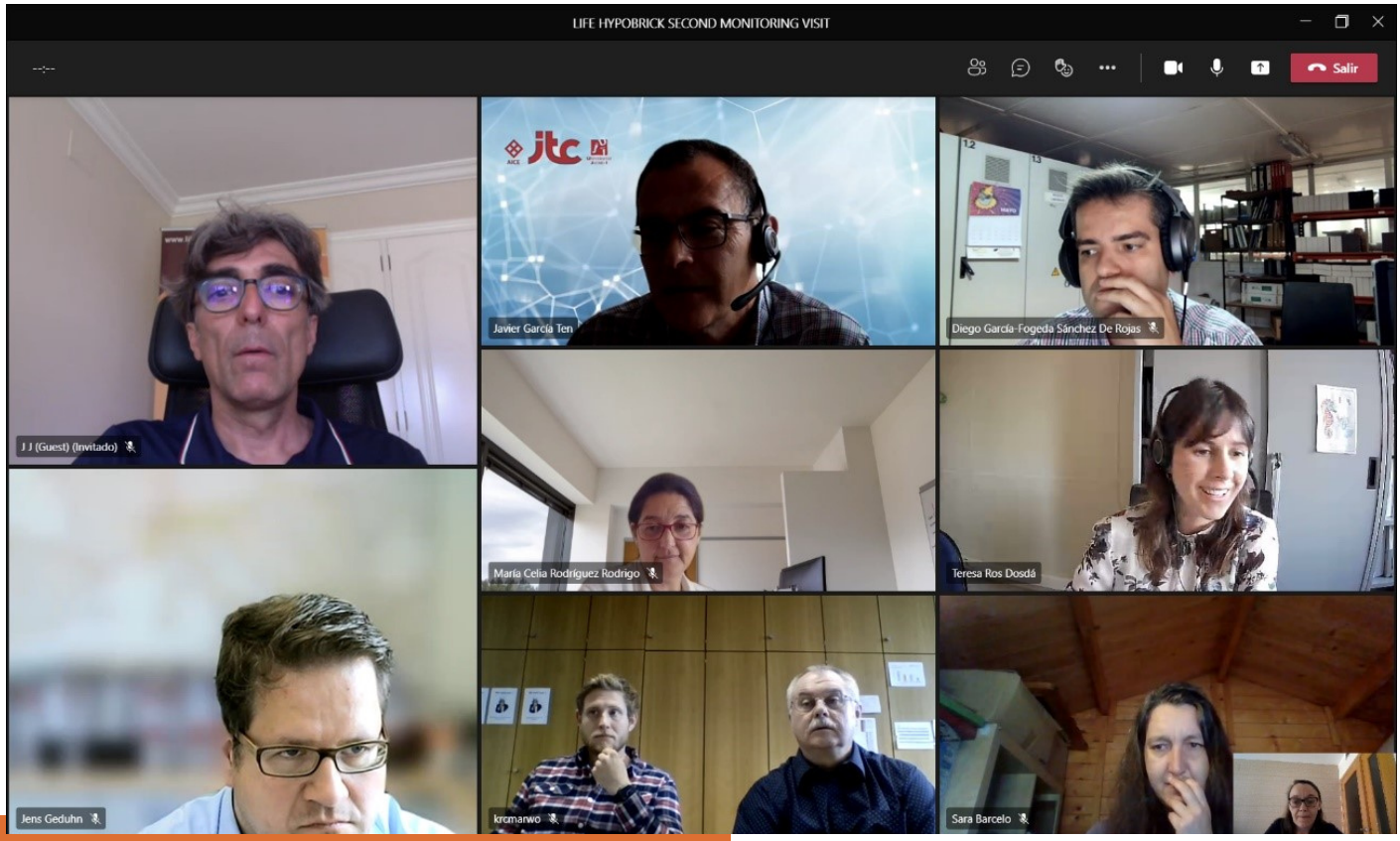
This project is financed by the LIFE Programme 2014-2020
of the European Union for the Environment and Climate
Action under the project number:
Ref: LIFE18 CCM/ES/001114

NEWSLETTER Nº 2

LIFE HYPOBRICK

CONTENT



Monitoring online meeting of the LIFE HYPOBRICK Project. 20- 21/05/2021.

HOW DID THE LIFE HYPOBRICK PROJECT COME ABOUT?

LIFE HYPOBRICK was created thanks to the wish of a group of companies interested in the transition of the brick industry towards a hypo carbonic economy with the objective of mitigating the negative effects of climate change. Likewise, LIFE HYPOBRICK aimed to introduce this industry into the concept of circular economy because of its great potential to valorize waste from other industries. We are currently working on a new process to obtain sustainable bricks, through a dramatic reduction of the processing temperature and the use of waste as raw materials.

LIFE HYPOBRICK, MAKING PROGRESS IN THE CONSTRUCTION OF AN INDUSTRIAL PROTOTYPE FOR THE PRODUCTION OF UNFIRED BRICKS

INTERVIEW WITH MR. DIEGO GARCÍA-FOGEDA, TECHNICAL DIRECTOR OF CERÁMICAS MORA, MANUFACTURING COMPANY WHICH HAS BUILT THE LIFE HYPOBRICK PROTOTYPE.

Diego García-Fogeda, Technical Director of CERÁMICAS MORA.

1.- In the framework of the LIFE HYPOBRICK project, CERÁMICAS MORA has been in charge of building the prototype for the manufacturing of the bricks in its facilities. First of all, could you describe your company, its characteristics and work field?

Our company has been producing bricks for four generations. We have been dedicated to this activity for more than 50 years, and today we have become a reference in the sector. This has meant an evolution, through which we have gone from manufacturing bricks for enclosures and partition walls to achieving the highest quality in clinker facing bricks. We are located in Illescas, Toledo (Spain) and we have been exporting clinker bricks to all five continents for years, without forgetting the Spanish

market, home to much of the best architecture today. This has come through an enormous amount of effort and imagination, always aiming at producing an excellent product, in a wide range of colors and shapes and which has Ladrillos Mora's quality seal.

2.- How have you acquired this awareness and responsibility for the environment and construction?

This has been embedded in our company's genetics from the very beginning. The original project for our factory, 50 years ago now, was conceived from the outset with the aim of optimizing both the use of energy and natural resources. Therefore, we use clean energy and recover energy from our own process in order to generate the least impact on the environment and reduce the emission of greenhouse gases, following the international protocols and the most cutting-edge technology in the sector or the Best Available Technologies.

The product that we manufacture is one hundred percent natural, inert, free of polluting substances and does not require raw materials which may harm the ecosystems.

In addition, we use photodegradable packaging, we generate photovoltaic solar energy and we carefully manage potentially hazardous. We also monitor particulate emissions and carry out environmental noise measurements. All these actions prove that our commitment is firm and long-lasting.

3.- What is the current status of the LIFE HYPOBRICK industrial prototype?

Through LIFE HYPOBRICK, we at CERÁMICAS MORA are implementing a prototype in which pilot tests will be carried out with the aim of obtaining bricks made from different types of waste, eliminating the traditional firing process and replacing it with the innovative alkaline activation technology, by which the bricks are subjected to a curing process at very low temperatures.
LIFE HYPOBRICK has entrusted us, CERÁMICAS MORA, with the mission of becoming one of the most modern brick factories in Europe, with two production lines fully dedicated to the manufacturing of clinker bricks at high temperature. Some of the stages in this new process are quite similar to the existing ceramic process, but others are different, and so we have had to implement a new prototype to manufacture the new bricks. The main differences between the two processes are on the one hand the use of an alkaline solution for the preparation of the brick instead of

water, and on the other hand the fact that all machinery in contact with the new raw material must be resistant to high pH (hoppers, conveyor belts, mixers, etc.). There is a change in the shaping of the brick, which is usually done by extrusion, and will be carried out through a different technique. This is why it has been essential to develop a prototype when shaping the new bricks, as it has to be based on the alkaline activation process and shaped by plastic pressing.

4.-What have been the main difficulties you have experienced?

The prototype is already developed and we have to say that we have encountered many difficulties, given the conditions imposed by the outbreak of the COVID-19 pandemic, to which we had to add the additional difficulty of the "Filomena" snowstorm in Spain, which meant that we had to endure very adverse weather conditions in this geographical area, which resulted in serious damage due to the abundant snowfall. This delayed the installation and fine-tuning of the prototype.

5.- How does the prototype of LIFE HYPOBRICK work?

LIFE HYPOBRICK prototype consists of a hopper that receives the "mass" - or composition of the new bricks- from a mixer. A moving belt runs through the bottom of this hopper carrying the molds, and a spatula fills them completely while smoothing the surface of the bricks, which will be later extracted through a hydraulic process. Once the brick has been extracted from the mold, it is placed on the actual production line until it reaches the curing stage, undergoing different conditions which have been previously arranged to reach the temperature and humidity levels set in the laboratory.

6.- How has the experience of working on a project like LIFE and with a team led by ITC been for you? What results do you expect to achieve when the project is completed?

Well, we are very happy, in general, although it is true that there have been many complications and setback stemming from external agents that have affected us. The experience, even so, is positive and we feel strengthened. As I said before, our commitment with the environment has been in the DNA of Cerámicas Mora since its very origin; therefore, we wanted to participate in this "adventure" that the project represents.

For us, this is a challenge to which we can contribute with our experience and knowledge, and which serves to demonstrate that it is possible for the brick industry in Europe to work with high quality standards, and in a way which has as little an impact as possible on the environment. That is why we have contributed our work and commitment, so that LIFE HYPOBRICK can be implemented and replicated as far as possible in the brick industry, and so that it meets the objectives set by the European Union in terms of sustainable development, implementation of circular economy in the brick manufacturing industries, as well as eliminating emissions of any gases and compounds that are harmful to the atmosphere.

LIFE HYPOBRICK prototype in the facilities of Cerámicas Mora.

WE HAVE BEEN AT...

57 EDITION OF THE CONGRESS OF THE SPANISH SOCIETY OF CERAMICS AND GLASS- SOCIEDAD ESPAÑOLA DE CERÁMICA Y VIDRIO (SECV)

The LIFE HYPOBRICK project was presented at the 57th edition of the Congress of the Spanish Society of Ceramics and Glass, held from 26 to 29 October 2020 at the facilities of the Faculty of Health Science of Universitat Jaume I in Castellón.

This was the first time that the city hosted this scientific congress, which was attended by a total of 242 participants, 123 in person and 11 online. Specifically, the presentation was given by Dr. Mónica Vicent, under the title: "Waste-based unfired building materials".

WE HAVE BEEN AT...

ANNUAL CAMPUS ENERGY CONFERENCE NÜRNBERG. THN

Our partner Felix Kugler, from THN, presented the first results of our #LIFEHYPOBRICK project at the annual NÜRNBERG Campus Energy Conference. The conference was held online on 12 December 2020. However, as our THN partner says: "Anyway, several attendees from the fields of research and industry were connected and interested in our project".

WE HAVE BEEN AT...

www.lifehypobrick.eu

Waste-based unfired building materials

Javier García-Ten
Mónica Vicent
Mª Magdalena Lorente-Ayza
Eva Miguel

The project "Towards hypocarbonic economy. Development of non-fired building materials based on wastes - LIFE HYPOBRICK" is funded by the European Union Environment and Climate Action Programme LIFE 2014-2020 with reference LIFE18 CCM/ES/001114. It is also supported by the Valencian Institute of Business Competitiveness (IVACE) of the Generalitat Valenciana (GVA).

VITROGEOWASTES 2020

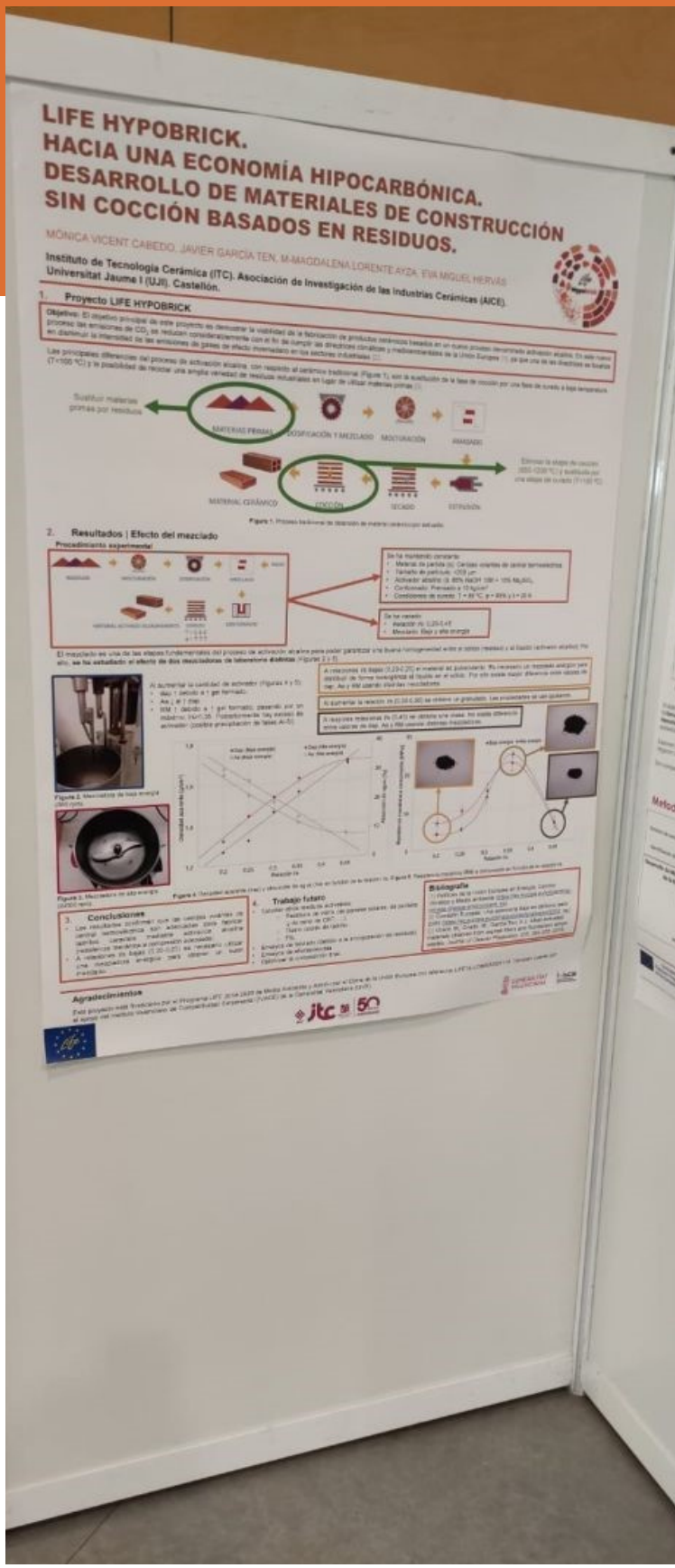
The Instituto de Tecnología Cerámica (ITC) disseminated the LIFE HYPOBRICK project at the Vitrogeowastes Congress, from 23 to 26 May 2021, via online, with the presentation: "Waste-based unfired building materials". The Congress was held in Baeza (Spain), both on-site and online.

WE HAVE BEEN AT...

ENVIRONMENTAL CONGRESS CONAMA 2021

From 31 May to 2 June, CONAMA 2021 was held in Madrid (Spain) at the National Environmental Congress. The LIFE HYPOBRICK project presented a poster at this congress, which is a reference in this field in Spain.

LIFE HYPOBRICK is a research project supported by the LIFE programme of the European Union, (Ref: LIFE18 CCM/ES/001114), through which we aim to bring the brick manufacturing industry closer to the de-carbonization of manufacturing processes, trying to implement the principles of circular economy and the mitigation of the negative effects of climate change in these construction industries.



WE HAVE BEEN AT...

PRESENTATION OF LIFE HYPOBRICK IN THE PODCAST "INNOVACIÓN AL DÍA"

The LIFE HYPOBRICK project was presented in the Podcast "Innovación al día" from REDIT, the Network of Technological Institutes of the Valencian Community. This is a new channel to disseminate and foster the most cutting-edge innovations.

IVOOX: https://www.ivoox.com/audios-innovacion-al-dia_s0_f21071572_p2_1.html?o=all

LINKEDIN: https://www.linkedin.com/feed/update/urn:li:activity:6810476383077232640

WHO MAKES LIFE HYPOBRICK?

COORDINATOR:

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

PARTICIPANTS:

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

LADRILLOS MORA, S.L. Spain.
https://ceramicasmora.com/

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

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

WITH THE FUNDING SUPPORT OF THE
LIFE PROGRAMME
REF: LIFE18 CCM/ES/001114

Find us on:
www.lifehypobrick.eu