

Dear Reader,

we proudly share with you the fourth newsletter of the CREATE project. The aim of this newsletter is to provide you with an overview of the progress achieved so far in the CREATE project as well as elaborate on the plans for the next period of the project.



Compact REtrofit Advanced Thermal Energy storage
An economically affordable, compact and loss-free heat battery for existing buildings

TIMELINE



MATERIALS MANUFACTURING



Materials manufacturing: The leap from 1 kg to 100 kg

More than 20 different TCM composites of K_2CO_3 have been manufactured on lab-scale by DOW and CALDIC and extensively characterized at the Eindhoven University of Technology. The composite with the highest energy density in particle beds was selected for further upscaling. CALDIC performed a successful production run of 100 kg scale batches, proving that industrial production is within range.

However, industrial-scale production involves new challenges connected to delivery material in the right packing and hydration grade for filling the TCM reactor. The research on industrial upscaling presently revolves around two questions:

- 1 What parts of the production process should be done at the site of the material supplier and what parts could be done in the heat battery itself?
- 2 What economic picture emerges from the chosen production process?

Besides the industrial upscaling questions, lab scale investigations are performed at the TU/e to determine the optimal packing of a granule bed in order to increase the energy density as much as possible. Further, long-term accurate outgassing tests have started at TNO in order to determine how the material will act with the vacuum of the heat battery. Finally, researchers of Dow are investigating coating options for the K_2CO_3 -composite to improve the cyclic stability.



Figure 1: The intermediate form of the composite salt

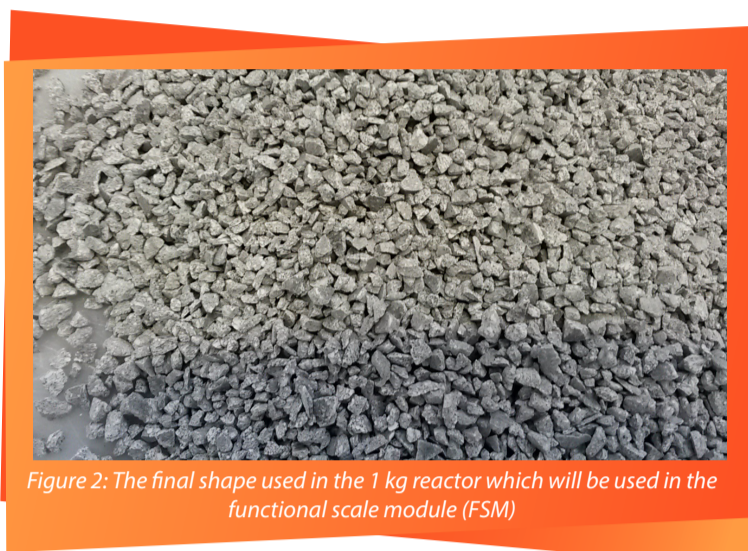


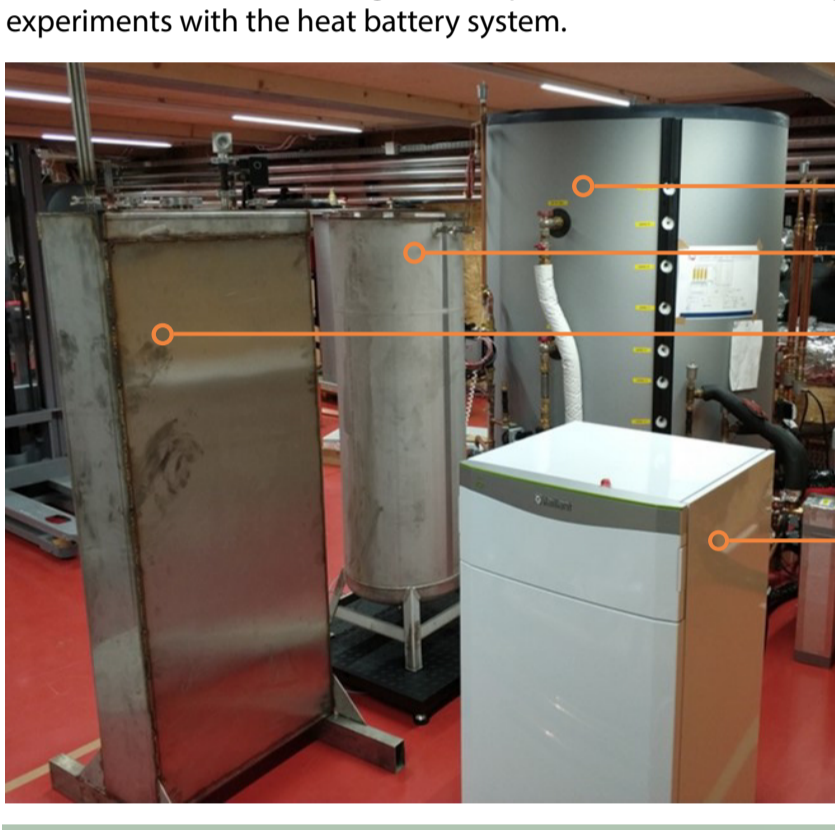
Figure 2: The final shape used in the 1 kg reactor which will be used in the functional scale module (FSM)

TESTING AT AEE



At AEE INTEC, the assembly of a test rig has started in order to perform tests on the storage battery module in original size (Functional Storage Module). The implemented module contains 250 liters of potassium carbonate (K_2CO_3) and the aim is to achieve a power output of 2.5 kW. In the final system of the CREATE project, the storage battery will consist of 4 modules of this kind with a total capacity of 1000 kg of then further optimized storage material.

In addition to the module, the final system components like the 2200l buffer storage tank, a heat pump with a capacity of 5.3 kW and an evaporator/condenser heat exchanger are implemented in the test rig. The setup is connected to an internal supply which enables hardware in the loop experiments with the heat battery system.



- 2200l BUFFER STORAGE TANK
- EVAPORATOR / CONDENSER
- FUNCTIONAL STORAGE MODULE
- HEAT PUMP

The next steps are the completion and commissioning of the test rig, followed by the first experiments with the system. First results of the storage battery are expected at the end of February 2018. We will inform you about all the progress on the [CREATE website](#).

NEW PROMOTIONAL MATERIALS



New promotional materials were created by FENIX TNT in the framework of dissemination process of the CREATE project. Notebooks and hand warmers are shared within the partners and during the events where the CREATE project is presented.



PARTNERS



HORIZON 2020 RESEARCH PROJECT
This project has received funding from the European Union's Horizon 2020 research and innovation programme under grant agreement No 680450.

YOU CAN FIND US ALSO ON:

www.createproject.eu

UPCOMING EVENTS

BUDMA FAIR IN POLAND & E2VENT WORKSHOP

The CREATE project will be presented within **BUDMA** - international construction and architectural fair in **Poznan, Poland** from **30.1. - 2.2. 2018**. BUDMA is the largest construction industry trade fair in Poland and Central and Eastern Europe. It is a great opportunity for more 800 exhibitors to introduce new products and make valuable connections. The project will be introduced by FENIX TNT.



The BUDMA Fair will also offer a great opportunity to visit an interesting E2VENT workshop "Think green, think Smart Façade". The E2VENT project is a European research project under the H2020 programme and one of the **CREATE's cluster projects**. The speakers will speak about the project itself, demo-sites, business opportunity, intellectual property rights, innovative applications of aluminium and trends in ventilated facade systems.



More information at www.e2vent.eu
Registration free within the BUDMA Fair at www.e2vent.eu/budma-workshop

CREATE PROJECT AT BUILDING FAIRS IN BRNO

The CREATE project will be presented by FENIX TNT at the Building Fairs in **Brno, Czech Republic** in **April 2018**. Fairs in Brno are well known for a unique presentation of all aspects of housing and house constructions, building management services, technical solutions and equipment.



GENERAL ASSEMBLY MEETING AFTER 30 MONTHS

The next General Assembly Meeting (after 30 months) will be held at **AEE INTEC** in **Gleisdorf, Austria** on **23rd and 24th May 2018**. The meeting will consist of project overview, an exploitation workshop, and presentations of individual work packages. Results of the test with the full-scale Functional Storage Module will be discussed and a decision made on the storage material and components for the system tests.



PAST EVENTS



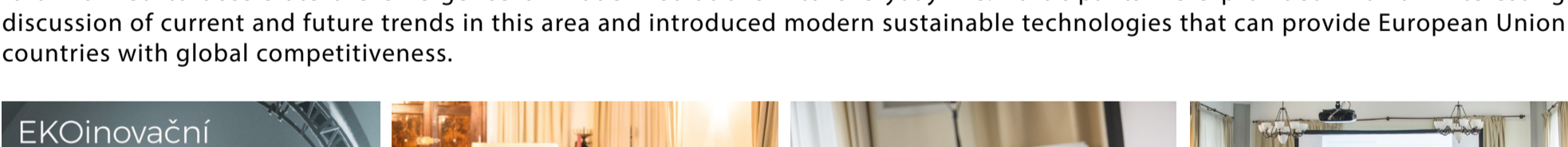
EKOinnovation Forum

The CREATE project was presented by FENIX TNT at the **EKOinnovation Forum** on **30th November 2017** in **Krtiny, Czech Republic**. The forum aimed to accelerate the emergence of modern solutions into everyday life. Participants were provided with an interesting discussion of current and future trends in this area and introduced modern sustainable technologies that can provide European Union countries with global competitiveness.



Info day Horizon 2020

On **22nd November 2017**, the **Technological Center of the Academy of Sciences of the Czech Republic** in **Prague** organized an Info day focused on the **Horizon 2020** programme which is on Nanotechnology, Advanced Materials, Biotechnology and Advanced Manufacturing and Processing (NMBP) in the National Technical Library in Prague. CREATE project was presented by Petra Colantonio from FENIX TNT.



The CREATE project presented at CAE conference

The CREATE project was presented by FENIX TNT team at the **33rd International CAE Conference and Exhibition in Vincenza, Italy** on **6th and 7th November 2017**. The project was presented under **RESEARCH AGORA** which is the area dedicated to the dissemination of the most innovative European Research Projects. The Research Agora is jammed with outstanding European consortia bringing and showing their cutting-edge research results. The whole conference community was interested by the new frontiers envisaged for High Performing Computing especially in the usage of intensive parallel programs for industry. Exascale is now a matter of fact thanks to new designed and tested Interconnection **Networks, Storage, and Cooling systems**.



The conference and exhibition cover the rich landscape of Simulation Based Engineering and Sciences; distinguished speakers, sponsors, exhibitors, training courses and dedicated Research Agora are all there to enrich the experience with their leading insight in the use of simulation to meet the needs of Industry 4.0.

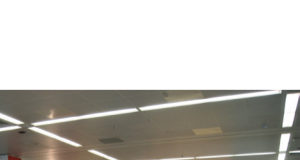
General Assembly Meeting after 24 months

The CREATE consortium met at **General Assembly Meeting after 24 months**. The meeting took place from **18th to 20th October** in **Venice, Italy** and was organized by **LUVATA**. The agenda of the meeting included the project overview and overall project, an exploitation workshop, and presentations of individual work packages. Within these presentations, partners presented the work package update, progress, issues, and achievements and plans for the next 6-months period.



New article about the project progress at BuildUp portal

The latest updates about the CREATE project were shared at **BuildUp portal** which is focused on energy efficiency in buildings in Europe. The article called "CREATE project and its progress" was published on **28th July 2017** and included information about the project itself, CREATE technology, and design and testing of the system components.



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