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Research Project ReSoURCE Strives to Reduce Europe's CO2 Emissions Significantly

An international research project, funded by the European Union, targets the recycling process in the refractory industry. The international initiative, which is part of the Horizon program, could help decreasing CO2 emissions in the refractory industry up to 800 thousand tons per year.

It is a challenging endeavor that the eight research partners under the lead of refractory's global giant RHI Magnesita have taken on. With high end technologies and the combined knowledge from geology, laser technology, and hyperspectral imaging - just to name a few - the researchers from five countries are seeking to solve one of the bigger issues in regard to Europe's carbon footprint. And they do so by focusing on recycling of fire-resistant industrial products.

"On average, 60% of all spent refractories, generated by refractory-consuming industries, go to landfill, while only 30% is recycled. With the ReSoURCE project, we aim to increase it up to 75%. This means we can achieve significant savings of CO2 emissions per annum. With this research project, we have the chance to make a difference in the world", explains Stefan Borgas, the CEO of RHI Magnesita. It is the first time for the international company with its 12,000 employees to lead a research project funded by the European Union. "We are very much aware that we cannot reach our goal without our partners in Austria, Germany, England, Ireland and Norway", says Saranya Azhaarudeen, the project manager. The scientist is coordinating the international workflow from RHI Magnesita's headquarter in Vienna. "Currently we are working on preparing samples of the used fire-resistant material from steel and cement production." The process was designed at the Montanuniversität in Leoben by Karl Friedrich, an expert in waste management and recycling. From Leoben the prepared samples will be shipped to Germany and Norway, where specialists at the Innolas Laser GmbH (GER) and the Norsk Elektro Optik AS (NOR) will start their first experiments. Other partners in this groundbreaking project for recycling in the refractory industry are LSA GmbH and the Fraunhofer Institute in Germany as well as SINTEF in Norway, CPI in England and Crowdhelix in Ireland.

"I am confident that we will reach our goal in time and am grateful that we were given the financial support that we needed by the European Health and Digital Executive Agency (HaDEA)." states Saranya Azhaarudeen. In order to create a most transparent access, the public can follow the progress of the endeavors up close through a science weblog, that can be found on the project's website: <https://www.project-resource.eu>.

Visuals

File Name: PR220824_SNeuhold-RHIMagnesita_1.jpg



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Caption: The scientists are currently preparing samples of the used fire-resistant material from steel and cement production to create a basis for the upcoming research activities.

File Name: PR220824_SNeuhold-RHIMagnesita_2



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Caption: Refractory products are not only individually composed for the clients but also usually contaminated with adhering material after they have been used, which makes the recycling process a challenge.

Background Information

The ReSoURCE project goal is the development of a working sensor-based system for refractory waste sorting and powder handling. If the project is successful, it will enable the robust engineering of an automated sorting equipment that will increase the recycling of refractory breakout material from the current estimate of 7–30% (plus 10% of downcycling) to

a total 80%. With approximately 28 million tons of used refractories generated annually, the ecological and societal benefits will be considerable.

The project is funded by the European Health and Digital Executive Agency (HaDEA) in the Horizon Europe Framework program (HORIZON) under the grant agreement number 101058310. The total budget is € 8.5 million. €6 million EU are funded by the EU, €1 million by UK. The project's duration is from 06/2022 - 11/2025 (42 months). The consortium consists of 9 members (4 academia / 5 industry). Partners come from Austria, England, Germany, Ireland and Norway. The project is led by RHI Magnesita. Other partners involved in the project are LSA GmbH (GER), Fraunhofer institute (GER), SINTEF (NOR), Montanuniversitaet Leoben (AT), Innolas Laser GmbH (GER), NEO (NOR), CPI (UK) and Crowdhelix (IRE).

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