

Humber firm to play key role in major hydrogen research project for heavy industry

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Trent Refractories to work with Swedish technology provider and Materials Processing Institute on fuel-switching impact. A Scunthorpe firm is one of three organisations to join a progressive research partnership to examine the impact of hydrogen use on industrial processes.

Trent Refractories will work with the Materials Processing Institute and Swedish industrial heating technology provider Kanthal to understand what fuel switching could mean in sectors such as iron and steelmaking.

The three year agreement will focus on the heat resistant materials that form the linings for high-temperature furnaces, crucibles, ladles, and kilns. It will also test a range of electrical elements for use in high temperature applications to see what advances are required for operational success under an aggressive hydrogen atmosphere.

It comes as the Humber looks set to be a hydrogen producing cluster with a raft of plants in development in what is the UK's most carbon intensive region. Earlier this month Labour leader Sir Keir Starmer set out plans for green steel manufacturing incentives in the town.

Katy Moss, managing director of Trent Refractories Ltd and president of the Institute of Refractory Engineers, said: "We are very much looking forward to working with such dynamic partners. It means a lot to the team here at Trent Refractories, to be part of the solutions that enable our foundation industries not only to survive but to sustainably thrive."

From Menasha Way, Trent supplies the major players in the steel industry, having been founded in 1989. The initial phase will involve the testing of refractory materials supplied by the company to mitigate any degradation caused by hydrogen. Samples will undergo a complex range of tests at the Teesside-based UK centre for research and innovation in the foundation industries in hydrogen-rich atmospheres.

Chris McDonald, chief executive of the Material Processing Institute, said: "The results of this collaborative research programme could have far-reaching effects given the range of industries that depend on refractory solutions, including iron and steel, aluminium, glass, power generation, petrochemicals and chemicals, and cement.

"Hydrogen is widely used here at the Institute, and it is crucial that we assess how it is used to help deliver long term solutions that shape and support the UK's transition to a low carbon economy."

Bob James, technical collaboration lead at MPI, added: "It's already proven that hydrogen is an alternative clean fuel source capable of powering the majority of industrial processes. However,

research is essential to assess how hydrogen may impact on the processes themselves, including its effect on refractory lining systems, the corrosion of certain compositions, and accelerated wear.”

Kanthal is looking to increase the use of electric furnaces and green steel. Combined with advances in hydrogen production process, their widespread adoption is set to transform the global steel industry over the next two decades.

Jesper Ejenstam, Kanthal's research and development manager, said: “Industry is entering a new age of decarbonisation with a mass shift towards electrification and the use of clean fuels such as hydrogen. Kanthal is proud to be part of the research that will ensure such innovations are industry ready.”