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PRESS-RELEASE

ACHIEF Kick off – An opportunity for EIIs

Energy Intensive Industries (EII) generates in Europe around 6.3 million of jobs but with the negative repercussion of producing 15% of the European Union CO_2 emissions. In the perspective of reduction by 80/95% of the Green House Gas by 2050 in Europe, the new horizon 2020 funded project ACHIEF (Innovative high performance Alloys and Coatings for HIghly EFficient intensive energy Processes) was launched to participate in the achievement of this objective.

On the 14th of October 2020, ACHIEF kick off meeting was held online, gathering 11 partners from 6 European countries and Turkey. ACHIEF will develop innovative materials to be implemented in EII, where extreme corrosive and fluctuating thermal conditions are met. This industrial sector will be highly impacted by ACHIEF's results with the decrease by 20% of CO_2 emissions, the improvement of energy efficiency by 30% and the increase of equipment lifetime by more than 20%.

Based on specifications and operational parameters, and using an artificial intelligence tool, ACHIEF will propose novel alloy compositions and coatings. The performance and efficiency of the proposed materials solutions and protective layers will be evaluated in three concrete use cases. Assessment of innovative new materials will be possible thanks to high-performance temperature sensors based on Fiber Bragg Grating (FBG) technology and corrosion sensors based on Electrochemical Impedance Spectroscopy (EIS).

In France, Voreppe (Isère), Constellium, designer and manufacturer of innovative and high-value added aluminum products, faces corrosion issues on its aluminum casting lines refractories. ACHIEF will propose a new Polymer Derived Ceramic (PDC) coating and novel HESA (High Entropy Super Alloys) nano-coatings to increase corrosion and wear resistances.

In Turkey, Izmit Refinery (Kocaeli), Tupras, oil-refining company that operates four oil refineries with a total of 30 million tons annual crude oil processing capacity, deals with corrosion and erosion in its plant installations. ACHIEF will provide PDC coatings applied in the interior side of piping components to improve their lifetime. In addition, Tubos Reunidos, from Amurrio in Spain, will help to improve the creep resistance of pipes by providing new developed Cr-steel pipes by collaboration with TUPRAS

The project has received funding from the European Union's Horizon 2020 research and innovation program under Grant Agreement N° 958374.

In Spain, Sestao (Bilbao), ArcelorMittal Sestao produces hot rolled steel coils and hot rolled pickled steel coils in electric arc furnace (EAF) technolog,. The industrial process requires temperatures heating ramps that have effect on the creep resistance of steel slabs. By developing novel high-temperature strength and creep resistance HEAs (High Entropy Alloy), ACHIEF will improve the energy efficiency of the plant and increase the durability of roll shafts.

ACHIEF represents a promising solution for energy savings for energy intensive industries. It will help to find answers to one of the biggest challenge that Europe deals with: reducing CO_2 emissions.

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Commissariat à l'Energie Atomique et aux Energies Alternatives (Coordinator)	France
Asociación de Investigación Metalúrgica del Noroeste	Spain
Teckonologian Tutkimuskeskus VTT Oy	Finland
Fundacion TECNALIA Research & Innovation	Spain
Constellium	France
Arcelor Mittal Sestao	Spain
Tubos Reunidos Industrial SLU	Spain
Seamthesis Srl	Italy
Turkiye Petrol Rafinerileri A.S	Turkey
PNO Innovation	Belgium
Loptek	Germany

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