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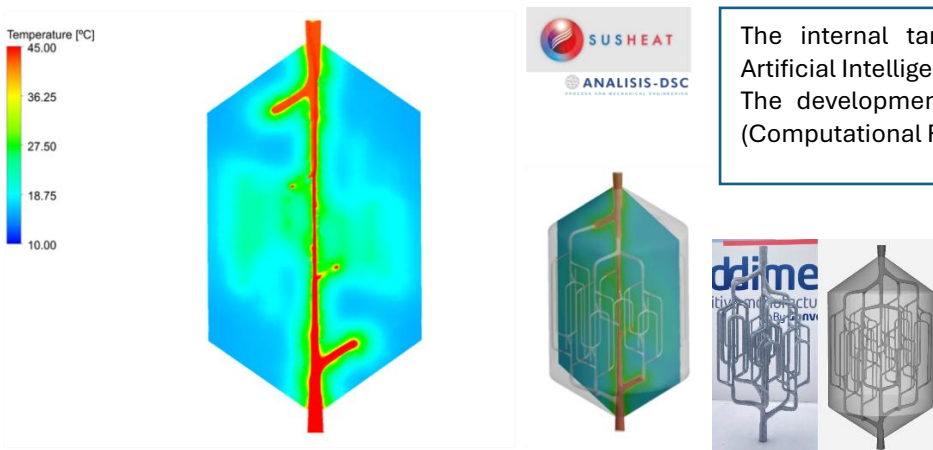
Introduction:

SUSHEAT is a project focused on advancing solutions for the temperature increase of the heat coming from residual or renewable energy for industrial processes. The project aims to eliminate carbon intensive fuels, introducing new technologies and AI-driven systems to obtain efficient heat generation, and heat conversion and storage.

Main goals:

- **Development of 3 key technologies:** High-temperature heat pump (HT-HP), bio-inspired thermal energy storage systems and AI-based control systems.
- **SUSHEAT Concept (TRL 5):** Validate the concept for industrial heat demand up to 250°C in a trustable way, independent of the renewable energy availability.
- **Industrial Decarbonization:** Impact on the emissions reduction and industrial processes costs. The behavior of this concept is emulated in other 4 industries.
- **Dissemination and Communication:** Communicate and disseminate about global-level industrial decarbonization solutions.

Thermal energy storage system modelling



The internal tank geometry has been developed using Artificial Intelligence to represent nature's behavior. The development of this task has been studied by CFD (Computational Fluid Dynamics) modelling methodology.

The selected heat transfer fluid is water at 45°C, and n-octadecane at 15°C as phase change material. At the beginning of the process, the phase change material reaches temperatures close to the melting point in the regions surrounding the pipes.

Courtesy: Universitat de Lleida

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