Enhancing H_2 & CO Combustion Risk Management

ABOUT THE PROJECT

In the event of a severe nuclear accident, combustible gases can be released causing an explosion risk.

These gases — including hydrogen and carbon monoxide — need to be managed to avoid threatening the containment integrity, which can result in the release of radioactive material into the environment.

BACKGROUND

The AMHYCO idea came from discussions held in another project: SAMHYCONET when some partners identified that there were some areas of safety that could be further investigated.

THE TEAM

The consortium is made up of 12 organisations from 6 European countries and one from Canada and is led by the Universidad Politécnica de Madrid (UPM).

AMHYCO will benefit from the worldwide experts in combustion science, accident management and nuclear safety in its Advisory Board.

QUALITY RESEARCH

The AMHYCO project will improve experimental knowledge and simulation capabilities in an area that has not been explored sufficiently in previous EU and OECD projects: **combustion risk management of H_2/CO mixtures in severe accidents in nuclear power plants.**

Cutting-edge tools (i.e., Lumped paramater (LP), 3D and Computational Fluid Dynamic (CFD) codes), experimentation and the best use of engineering judgement will be combined to produce recommendations that accurately reflect those realistic SA scenarios.

The AMHYCO project is supported by the Sustainable Nuclear Energy Technology Platform (SNETP) receving the SNETP label for projects that bring added value to the SNETP association through their R&D and high-quality consortium.

3 SPECIFIC OBJECTIVES

1

To experimentally investigate phenomena that are difficult to predict theoretically

LP, 3D and CFD codes - used for explosion hazard evaluation inside the reactor containment and providing support to SAMG design and development.

2

To improve the predictability of analysis tools

H_2/CO combustion and PARs (Passive Autocatalytic Recombiners) behaviour under realistic accidental conditions, taking into account their interaction with safety systems.

3

To improve the Severe Accident Management Guidelines

For both in-vessel and ex-vessel phases with respect to combustible gases risk management, using theoretical, simulation and experimental results.

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