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SOCRATES



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SOCRATES

liquid source term research:

Novel database

Novel computer code models

Innovative absorbent materials

Innovative radiochemical laboratory

Scientific publications

Educational materials

Researcher mobilities

SOCRATES Project

Objectives

- The SOCRATES project addresses critical gaps in our understanding of the liquid source term during severe nuclear accidents and offers innovative solutions to mitigate and monitor the release of radionuclides into the environment.
- The project contributes to the mid-to-long-term management of nuclear power plants after a severe accident by enhancing safety, environmental protection, safe waste management and public well-being.
- Project duration from October 2024 to September 2028 with a total budget of €5.5 million.
- Involvement of 17 partners in the initiative.

Expected Impact

- **Comprehensive State-of-the-Art Report.** SOCRATES will review the current understanding of the liquid source term in SA, with emphasis on evaluating the capabilities of existing accident analysis codes.
- **Experimental database.** SOCRATES is building a database on water chemistry during nuclear accidents. Experiments will place major emphasis in investigating: specific fission products behavior in water; fuel debris leaching, including tests with real corium samples.
- **New computer code models.** SOCRATES will develop computer code models capable of predicting and managing the potential release of radioactive materials in liquid form during severe nuclear power plant accidents.
- **Innovative Absorbent Materials.** Promising absorbents for mitigating the release of radioactive materials in liquid form are being identified, and performance to demonstrated, including their own synthesis in SOCRATES.
- **Innovative Miniature Size Radiochemical Laboratory.** A novel miniature size radiochemical laboratory is being developed in SOCRATES to allow the early measurement of radionuclides of interest.

Partners

VTT (Finland), ASNR (France), CEA (France), Chalmers (Sweden), CIEMAT (Spain), EDF (France), ETH (Switzerland), Framatome (Germany), GRS (Germany), JRC (EU), KTH (Sweden), KU (Japan), NUVIA (France), PSI (Switzerland), RUB PSS (Germany), SSTC NRS (Ukraine), UL (France)