EURAD WP15 CONCORD: AN OVERVIEW OF 3 YEARS OF JOINTLY COORDINATED CANISTER MATERIALS R&D

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ConCorD (Container Corrosion under Disposal conditions) was a R&D work-package in EURAD lasting for 3 years and involving 19 participating organisations and 3 international partners. Its main aims were to explore the potential of novel container materials for the optimisation of container design and performance, to deepen the understanding of coupled interfacial processes influencing container performance under repository-relevant conditions, and to support implementation and performance assessment by demonstrating mechanistic understanding and developing predictive models. These aims were achieved through coordinated experimental campaigns coupled with modelling activities supporting the interpretation of results and upscaling to repository-relevant time and space. Through an ambitious programme the work-package addressed fundamental scientific questions as well as performed applied research with a focus on the usefulness and applicability of outcomes for repository implementation and supporting current and future safety cases. Scientific-technical highlights include the development of sealing of ceramic canisters using microwave technology, the identification of the critical parameter controlling the interactions between irradiation and corrosion, and the discovery that bentonite can be sterilised after heating at 90 °C for 1 year. At the same time the close collaboration between the partners including the mobility of personnel supported cross-fertilisation and the formation of a European canister materials community.

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