

## MAIN RESULTS AND IMPACT FROM THE WP CORI IN EURAD

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The Work Package (WP) CORI (cement-organics-radionuclide-interactions) in EURAD (2019-2024) has improved the knowledge on the organic release issues which may accelerate the radionuclide migration in the context of the post closure phase of geological repositories for ILW and LLW/VLLW, including surface/shallow disposal. CORI has addressed topics in the context of cement-organic-radionuclide interactions. Organic materials are present in some nuclear waste and as admixtures in cement-based materials and can potentially influence the performance of a geological disposal system, especially in the context of low and intermediate level waste disposal. This potential effect of organic molecules is caused by the formation of complexes in solution with radionuclides of interest (actinides and lanthanides, but also other metal cations like Ni which can (i) increase the radionuclide solubility and/or (ii) decrease the radionuclide sorption. Organic substances require increased attention since a significant quantity exists in the waste and in the cementitious materials, with a large degree of chemical diversity. Cement-based materials will be degraded with time in the context of waste disposal inducing a large range of alkaline pH conditions according to their degradation stage. Alkaline pH and auto-irradiation associated to the presence of radionuclides in the wastes, provides specific conditions under which the organics can degrade, which contributes to increasing their impact on repository performance. The RD&D in CORI was performed in the three technical Tasks, Task 2 - Organics Degradation, Task 3 - Organic-Cement Interactions, and Task 4 Radionuclide-Organic-Cement Interactions. This poster presentation summarizes the main technical achievements in CORI generated in the RD&D Tasks, highlights main impacts and provides references where more detailed information on CORI results can be found.

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