Experimental activities using SOLEAD facility

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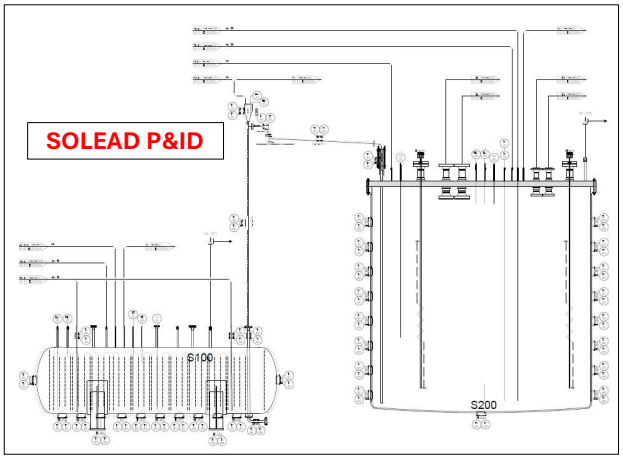
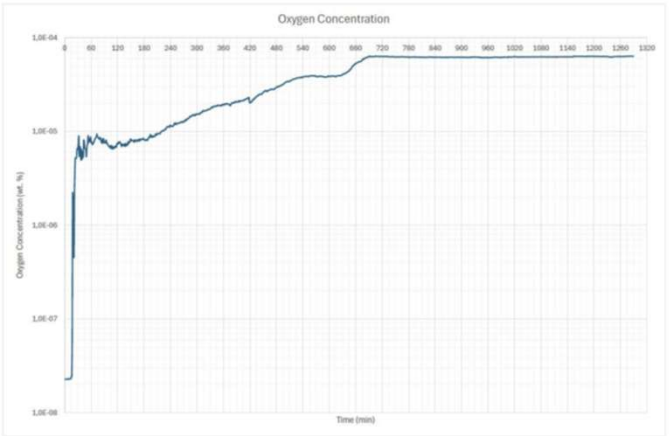
SOLEAD (Solar tOwer LEAd Demo) is an experimental facility initially designed to carry out experiments relevant to Concentrated Solar Power (CSP) air-based tower systems. However, due to its versatility, the facility has been used to carry out tests of interest for fast reactors LFR type. The facility is mainly composed of a **Storage Tank S100**, a **Main Vessel S200** and a **Gas Panel.**

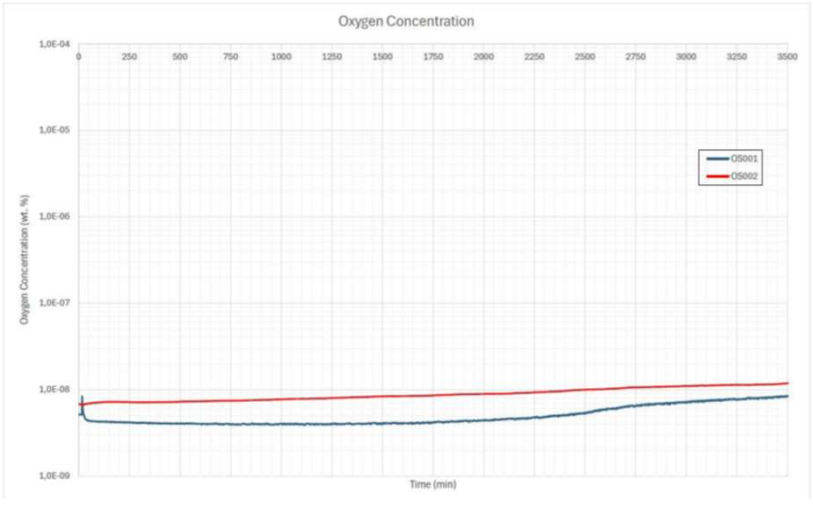


Under a collaboration agreement between **ENEA and newcleo**, the storage tank S100 was used for **corrosion tests**, in static conditions, on structural material specimens.

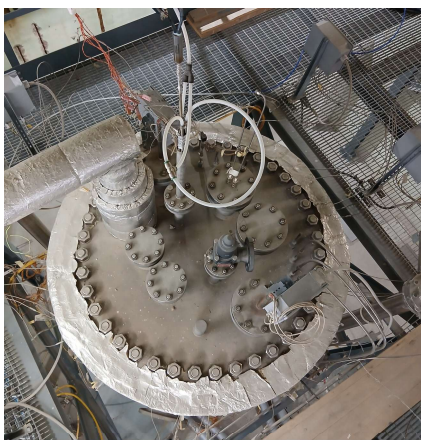
Air injection tests in the cover gas have been carried out with the scope to study **the kinetics of the oxygen diffusion** from the cover gas to the liquid lead (see following figure).



Always within the framework of collaboration agreement ENEA-newcleo, tests have been carried out **to support the safety analysis** (leak-before-break in a steam generator tube); the following figure shows the change of the oxygen concentration following a **steam injection inside the liquid lead**. Some tests have also been carried out to support the safety analysis concerning the **steam inlet in cover gas** during the fuel assembly handling.



In the framework of a collaboration among **ENEA, ANN and SRS,** the main vessel S200 was used to test a prototypical pin of the core simulator installed in **ATHENA**, an experimental facility having the scope to support the design of **ALFRED** reactor.



Tests of **interactions between air and liquid lead** are currently in progress, to study the oxygen diffusion inside the lead. Tests for the characterisation of different types of **oxygen getters** (Zr, Ti, Al) are also foreseen in the frame of the ANSELMUS Project.

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