

## SISYPHE

The purpose of the SISYPHE (Simulation du Système Phébus Enceinte) facility at Cadarache was to build a 1:1 replica of the Phébus FP experimental containment vessel, assisting the Phébus test interpretation, for all phenomena concerning thermal-hydraulics and fission product behaviour

All systems of the Phébus FP containment vessel are reproduced, except radiation. Instrumentation improved as compared to Phébus, by special optical instruments.

The objective of the testing foreseen in this vessel was manifold:

A: Thermal Hydraulics Studies: these tests are simulating phenomena like: condensation on condensers and walls, convection, humidity up to 100%, presence of hot/cold sump, steam condensation on aerosols, diffusiophoresis, and iodine affinity with water.

B: Aerosol Behaviour Programme: multicomponent aerosols from POLYR generator, soluble or non-soluble. Study on wall deposits or electrophoresis.

B: Iodine Programme: studying the presence of molecular gaseous iodine, transfer to surfaces, interactions with paint, re-emission from sump by radiolysis, iodine aerosol interaction, and interface with hydrogen.

C: Mass Transfer Programme: effect of evaporating or non-evaporating sump on molecular iodine mass transfer (in preparation to FPT2 & FPT3). Oxygen is the simulant for iodine. Ultimate goal: mass-transfer model to predict MT coefficient for oxygen and hence for iodine.

Duration of the programme: post-FPT1, between 1995 and 2003.