Profile SFR-80

VAIANA

FRANCE

GENERAL INFORMATION

NAME OF THE FACILITY	VAIANA
ACRONYM	VAIANA
COOLANT(S) OF THE FACILITY	Sodium
LOCATION (address):	CEA Cadarache, 13108 Saint Paul Lez Durance FRANCE
OPERATOR	CEA
CONTACT PERSON (name, address, institute, function, telephone, email):	Olivier GASTALDI CEA Cadarache Building 208, 13108 Saint Paul Lez Durance, FRANCE Sodium Technology and Components Project Manager +33 4 42 25 46 40 Olivier.gastaldi@cea.fr

STATUS OF THE FACILITY In operation
Start of operation (date): 2018

MAIN RESEARCH FIELD(S)

- ☐ Zero power facility for V&V and licensing purposes
- ☐ Design Basis Accidents (DBA) and Design Extended Conditions (DEC)
- ☐ Thermal-hydraulics
- ☐ Coolant chemistry
- ☐ Materials
- ☒ Systems and components
- ☒ Instrumentation & ISI&R

TECHNICAL DESCRIPTION

Description of the facility

VAIANA is a versatile glove box in which two pots of static sodium can be implemented. The sodium pot capacity is about 10 litres each. This glove box has many accesses (10 gloves) to facilitate handling of experimental devices. It does not have any sodium purification unit. Argon is used as cover gas in order to limit sodium pollution and a slight overpressure is maintained (1 to 3 mbar).

A purification argon unit is implemented to control Oxygen rate under 10 ppm and H2O rate under 10 ppm. The glove box is dedicated to run instrumentation and materials short tests in liquid sodium with a temperature not exceeding 500 °C.

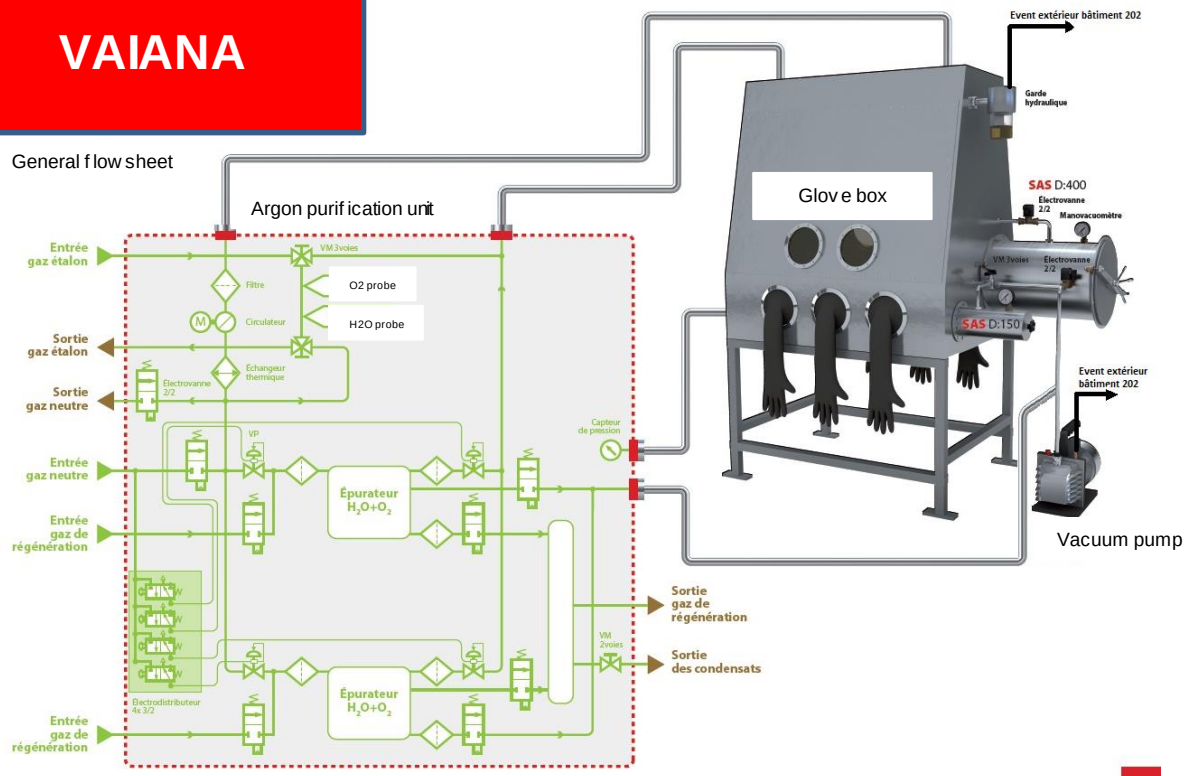
Acceptance of radioactive material

No

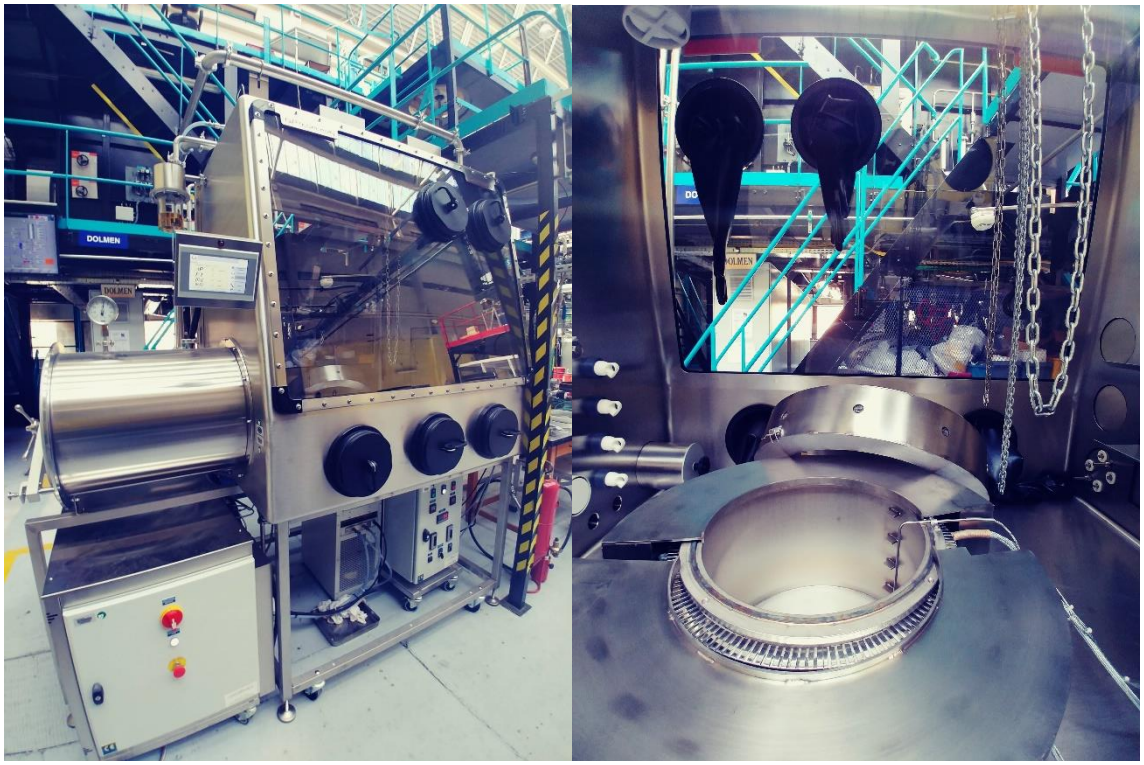
Scheme/diagram

VAIANA

General flow sheet



3D drawing/photo



Parameters table

Coolant inventory	10 kg of liquid sodium
Power	~ 2 kW
Test sections	
TS #1	*Characteristic dimensions* Size of the glove box: 1500 mm x 1500 mm x 1000 mm, volume of 2.25 m^3 2 Sodium pots : - maximum mass of sodium per pot : 10 kg - diameter : 326 mm
	Static/dynamic experiment static
	Temperature range in the test section (Delta T) 110-500°C for experimentation in liquid sodium
	Operating pressure and design pressure Operating pressure: 1-3 mbar Pressure of relief valve: 5 mbar
	Flow range (mass, velocity, etc.) N.A.
Coolant chemistry measurement and control (active or not, measured parameters)	none
Instrumentation	Temperature and pressure measurement

COMPLETED EXPERIMENTAL CAMPAIGNS: MAIN RESULTS AND ACHIEVEMENTS

NA

PLANNED EXPERIMENTS (including time schedule)

In 2019, qualification tests on a magnetic sodium valve prototype are planned.

TRAINING ACTIVITIES

None

REFERENCES (*specification of availability and language*)

NA