

Profile LFR-51

HIGH-TEMPERATURE MATERIAL CORROSION TEST LOOP

JAPAN

GENERAL INFORMATION

NAME OF THE FACILITY	Oxygen-controlled Lbe LOP for material Corrosion in High-temperature
ACRONYM	OLLOCHI
COOLANT(S) OF THE FACILITY	LBE
LOCATION (address):	2-4, Oaza-Shirakata, Tokai, Naka, Ibaraki, Japan
OPERATOR	JAEA
CONTACT PERSON (name, address, institute, function, telephone, email):	Toshinobu SASA 2-4, Oaza-Shirakata, Tokai, Naka, Ibaraki, Japan J-PARC, JAEA, +81-29-282-5364, sasa.toshinobu@jaea.go.jp

STATUS OF THE FACILITY	In operation
Start of operation (date):	2019

MAIN RESEARCH FIELD(S)	<input type="checkbox"/> Zero power facility for V&V and licensing purposes
	<input type="checkbox"/> Design Basis Accidents (DBA) and Design Extended Conditions (DEC)
	<input type="checkbox"/> Thermal-hydraulics
	<input checked="" type="checkbox"/> Coolant chemistry
	<input checked="" type="checkbox"/> Materials
	<input type="checkbox"/> Systems and components
	<input type="checkbox"/> Instrumentation & ISI&R

TECHNICAL DESCRIPTION

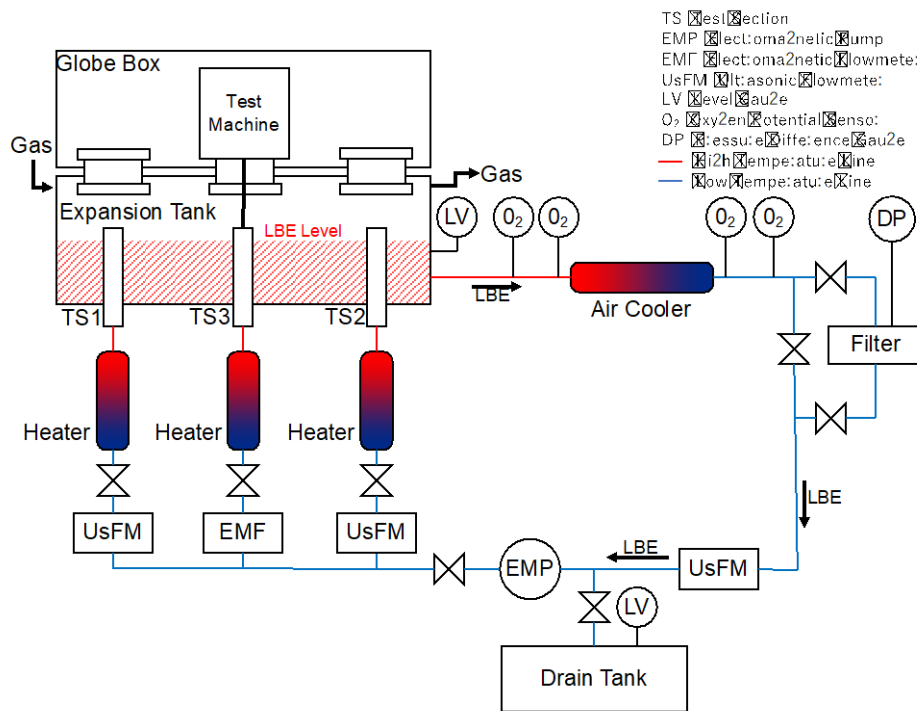
Description of the facility

The purpose of the loop is the material corrosion test in flowing high-temperature LBE with oxygen-controlled environment. The data will be used for fundamental study for future ADS development, corrosion data collection for future proton irradiation. OLLOCHI has three test section, those can set different operation condition such as LBE flow rate, operation temperature and exposure time. One test section has special function to measure the mechanical stress of the steels in flowing LBE condition.

Acceptance of radioactive material

No

Scheme/diagram



3D drawing/photo



Parameters table

Coolant inventory	100 litre
-------------------	-----------

Power	75 kW
Test sections	
TS #1	<u>Characteristic dimensions</u> 27.2 mm in diameter, 300 mm in length
	<u>Static/dynamic experiment</u> Dynamic experiment
	<u>Temperature range in the test section (Delta T)</u> 200-550°C (100°C)
	<u>Operating pressure and design pressure</u> 0.5 MPa
	<u>Flow range (mass, velocity, etc.)</u> 20 L/min.
Coolant chemistry measurement and control (active or not, measured parameters)	Oxygen concentration will be measured and controlled by Ar-H ₂ -O ₂ mixed gases.
Instrumentation	Oxygen sensor, thermocouple, ultrasonic flowmeter, electro-magnetic flowmeter

COMPLETED EXPERIMENTAL CAMPAIGNS: MAIN RESULTS AND ACHIEVEMENTS

No

PLANNED EXPERIMENTS (including time schedule)

- (1) Oxygen concentration control test
- (2) Corrosion test in high temperature (up to 550°C)
- (3) Material mechanical test in flowing LBE condition

TRAINING ACTIVITIES

No

REFERENCES (specification of availability and language)

No