



General Features

ST has developed HP cells made of synthetic sapphire (Al_2O_3) to be used up to 500 bar in a wide range of temperature ($-40^{\circ}C$ to $+200^{\circ}C$). These cells are necessary for the study of physico-chemical phenomena requiring an integral visual observation and/or the use of optical phenomena using coherent or non-coherent light for measuring or characterization.

The sapphire cell are made of 1, 2 or 3 piled up hollow sapphire cylinders with all ports and accessories required for experiments: piston(s), valve(s), stirrer with torque measurement, probes, sensors, sampler, optical fibers... The space(s) between two sapphire cylinders can also be equipped to have some of the above accessories.

The mechanical cohesiveness of the whole cell is given by bracing the 2 cell ends with assembly principle restraining the stress on sapphire cylinder(s). Such cells and their surroundings (mechanical, thermal, measure, control,...) are built according to the needs of end-users widely out of Petroleum Industry (any physico-chemical observation or measurement about phase behaviors, supercritical field...).

The sapphire cell is delivered with CCD high resolution camera full visualization and software for volume phase determination.

Types of measurements: hydrates, asphaltens, wax

Other studies: CME, CVD, Flash, Process study, Differential vaporization study

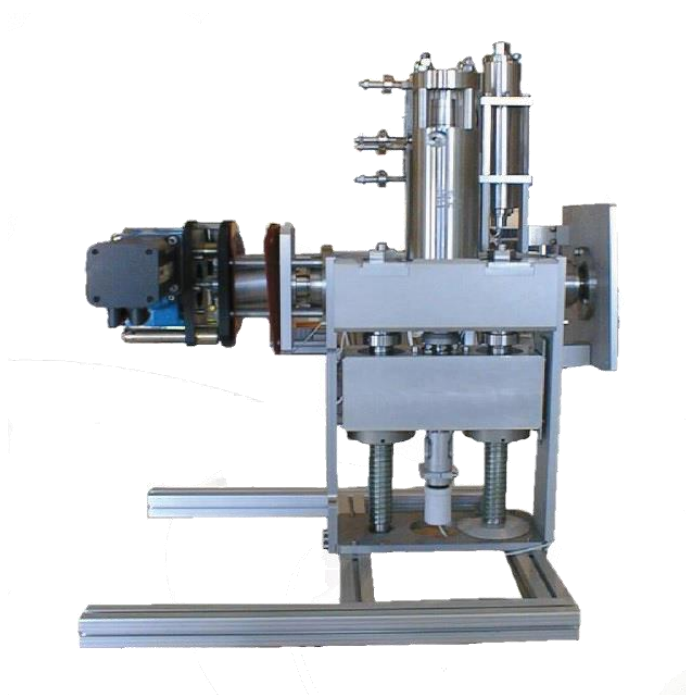
For purpose, we recommend a PVT mercury-free sapphire cell with following specifications:

Specifications	
Working Pressure	500 bar (7500 psi)
Temperature Range	-40 to 200°C (according to options)
Volume	100 ml
Volume Accuracy	10 ⁻⁴ ml
Visual Length	65 mm or 40 ml
Option	Larger visual length (130 mm or 80 ml)

The visualization of all phases under pressure is possible. The cell can be turned over.

This product, which we are the only one manufacturer to know the technology, is interested for PVT studies and united phenomenon, as hydrates formation, asphaltens, wax.

Integrated PVT Free Mercury Pump with upside down rotation



PVT Top Head with 360° Viewing Sapphire

