Testing of tritium breeding blankets to sustain fusion is one of key ITER objectives.

India is working on LLCB (Lead lithium ceramic breeder) TBM (Test blanket module).

The conceptual design and related analysis of LLCB TBM set has been completed.

Thermal hydraulics and structural analysis of TBM FW, its manifolds and TBM shield has been performed.

Flow distribution using CFD in FW shows uniform flow in all circuits.

Regulation of flow in TBM shield channels using orifices is confirmed by CFD simulation.

Thermal analysis of TBM shield performed based on flow distribution results.

Thermal hydraulic CFD analysis of single FW circuit done and Heat transfer coefficient, pressure drop validated with analytical results.

Temperatures and stresses are found to be acceptable.