

Explanation of Graphical depiction of the Operation Cycle of Vapour Absorption Heat Pump using Duhring Diagram.

Dilute LiBr leaves Absorber at 54.1°C and a concentration of 58.2% - b

This dilute solution then passes through the Heat Exchanger and gets heated to 100.1°C – c'

Solution of 100.1°C is heated in Generator to 124.4°C – c

LiBr solution boils in the Generator to regenerate the Refrigerant at 136.7°C – d

The solution from the generator at 136.7°C passes through the Heat Exchanger and comes out at 84.3°C and a concentration of 63.7% – a'

Flashing takes place at the entry of absorber and temperature falls from 84.3°C to 64.8°C in Absorber before falling on the tubes – a

Meanwhile, refrigerant vapours generated in Generator get condensed in Condenser (320 mmHg) at 77.8°C – e

Condensed refrigerant enters the Evaporator which is at a lesser pressure (16 mmHg) therefore flashing takes place in Evaporator and Refrigerant temperature falls to 19°C – f

The refrigerant falling on the tubes in the evaporator gets evaporated and are absorbed in the absorber by the falling Concentrated LiBr solution which gets diluted. Diluted LiBr is pumped back to the Generator for regeneration of Refrigerant and the cycle continues.

All point on the entire cycle lies under the 760 mmHg absolute pressure Line.

Hence any liquid, water or LiBr leaving the system will not be above the vapour pressure of its constituents at any point.