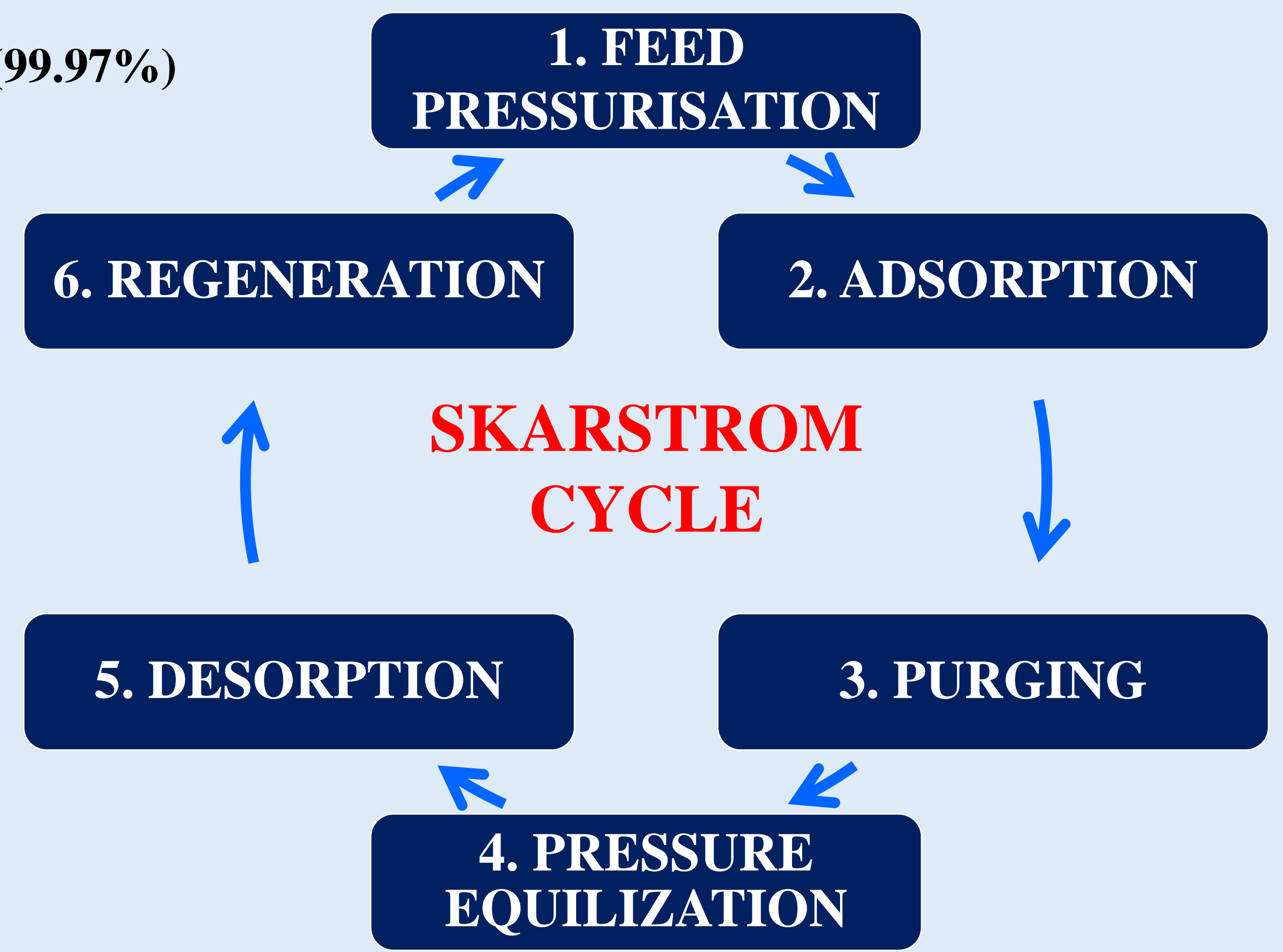
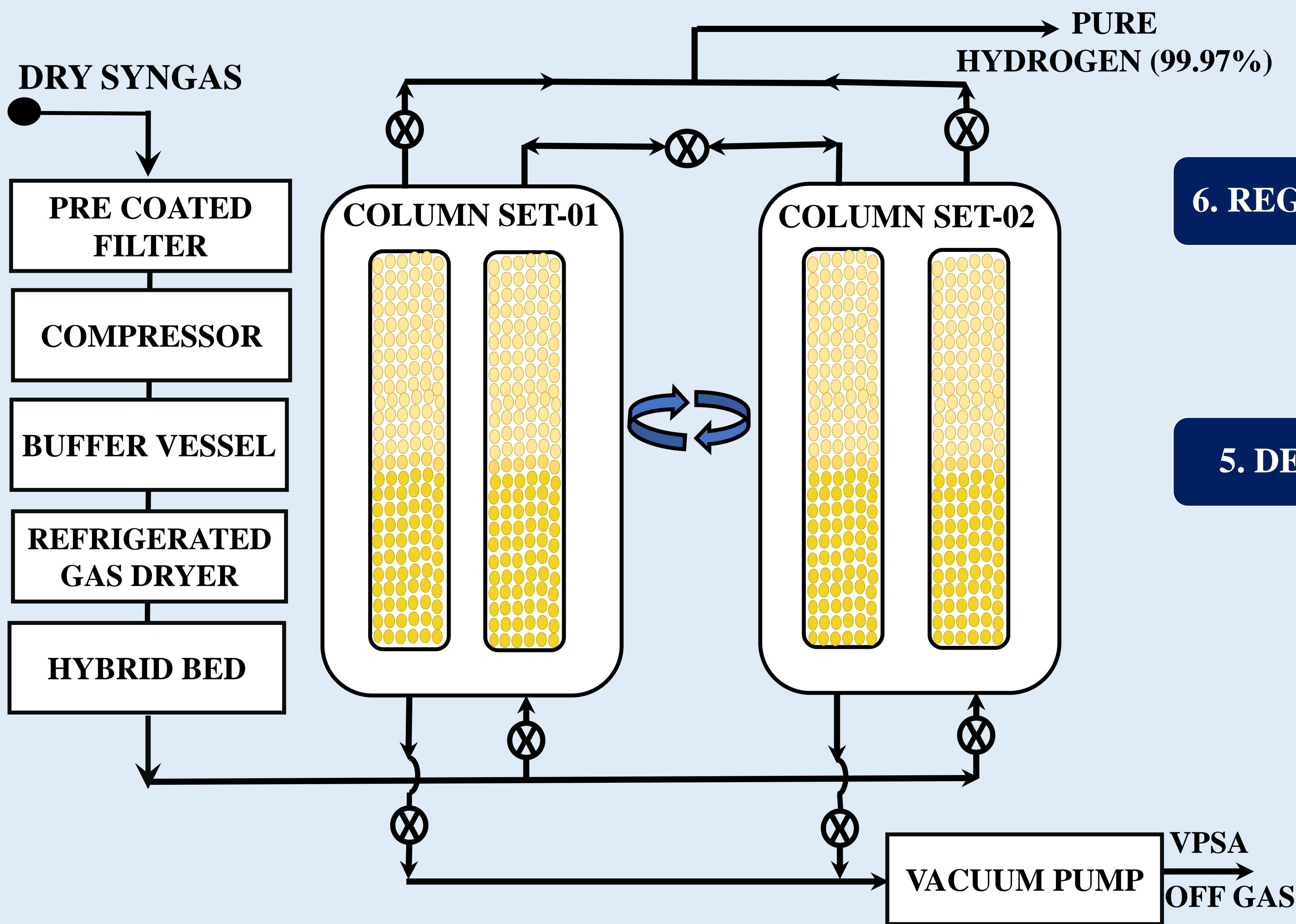


GAS SEPARATION UNIT

(VACUUM PRESSURE SWING ADSORPTION SYSTEM - VPSA)



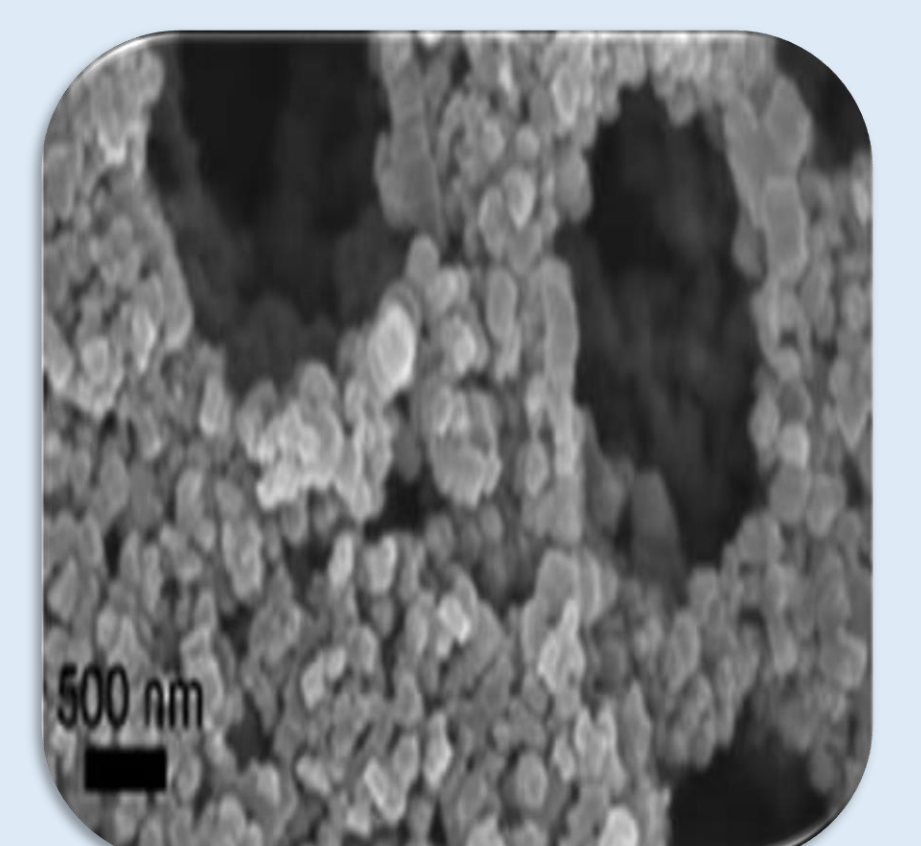
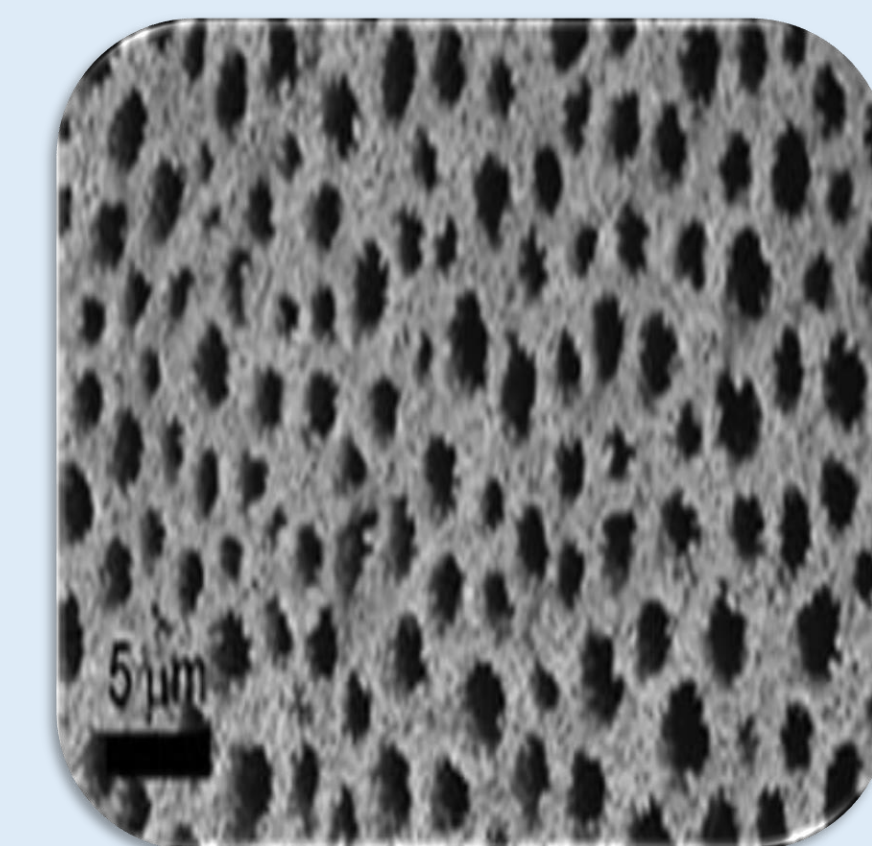
The VPSA is a filtration technique to separate gaseous mixture into individual gases or a mix of required composition, by using the principle of **adsorption** (*a surface phenomenon where molecules are attached to the top layer of material*) and **desorption** (*a physical process where a previously adsorbed substance is released from a surface*).



PS180 Zeolite



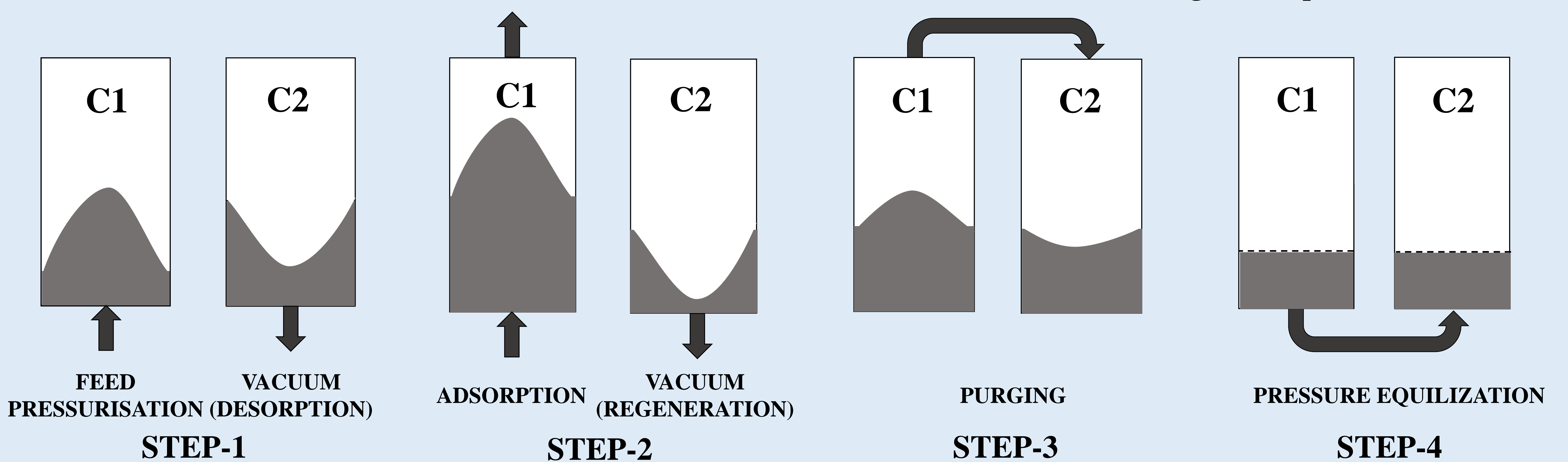
Alumina



SEM investigation of porous Zeolite

Schematic representation of the Vacuum Pressure Swing Adsorption System

GAS COMPOSITION	H ₂	CO	CH ₄	CO ₂	N ₂
DRY GAS (%)	42	16	7	24	11
OFF GAS (%)	18	23	10	34	16



Movement of gas during Vacuum Pressure Swing Adsorption System cycle steps

KEY RESULT

The VPSA system produces 99.97% high-purity hydrogen at a recovery of 75%, which can be used for downstream applications. The pure hydrogen obtained from the current VPSA qualifies with **ISO 14687:2019 Type I, Grade D**

