Publication

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Hollow Fibre-based Adsorption Units: The Key to Low Carbon Transport

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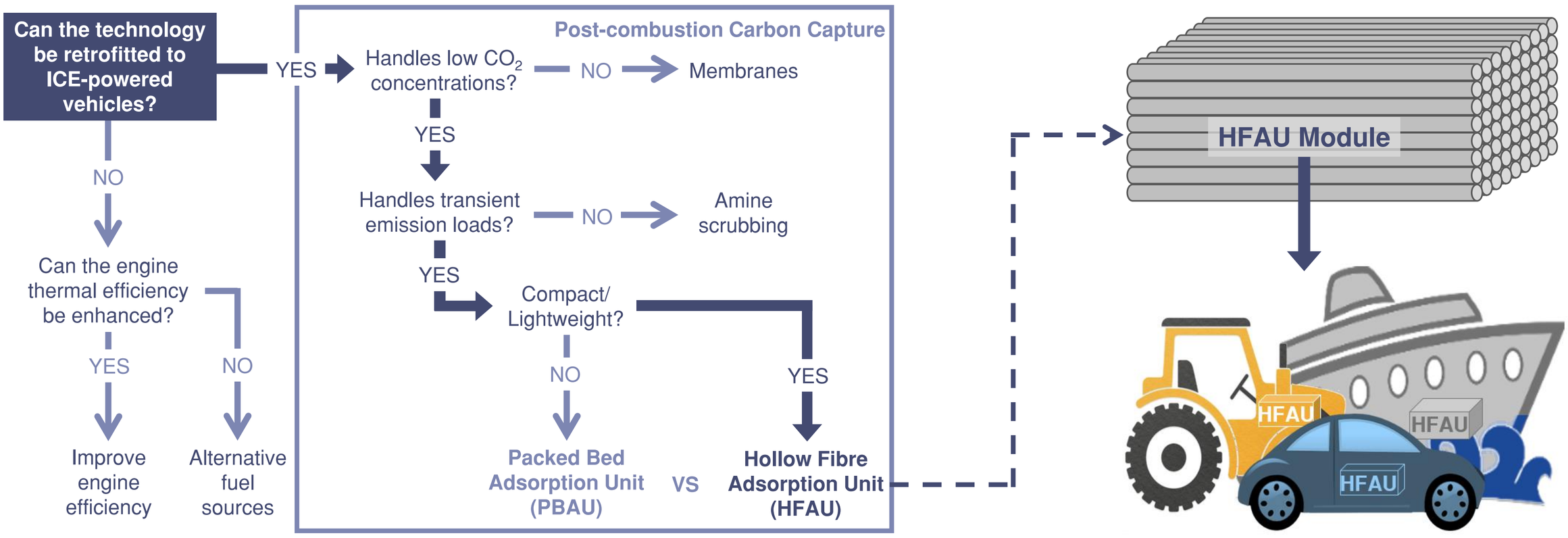
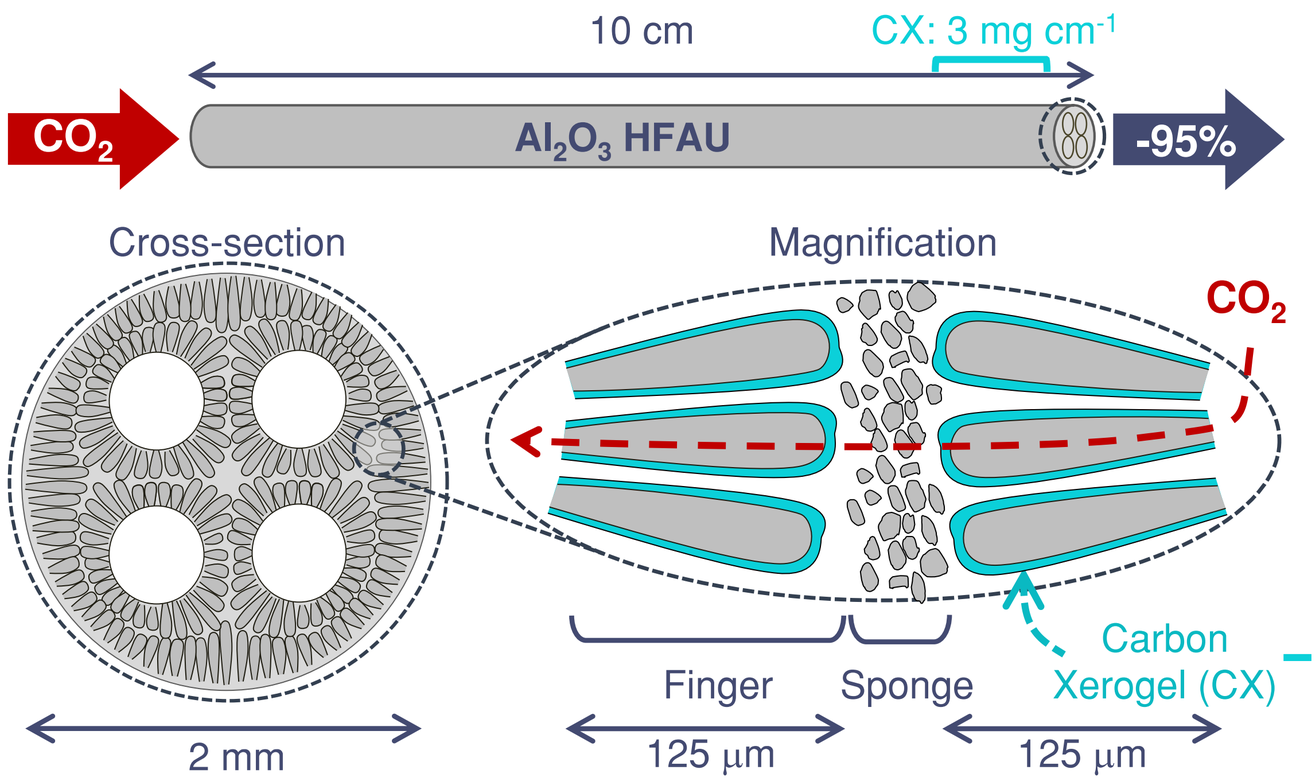
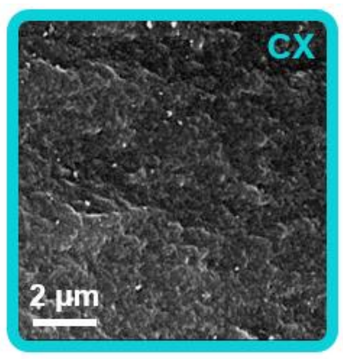
1. Research Objectives

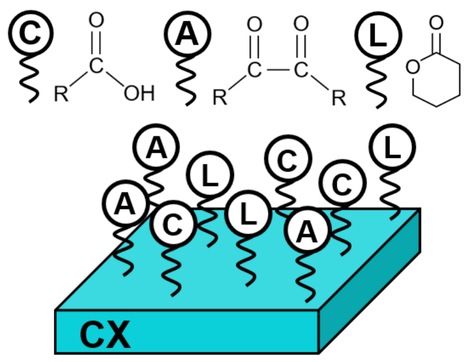
How to Reduce Transport CO_2 Emissions?



2. Hollow Fibre Impregnation and TSA Cyclic Testing







Adsorption (25°C, 1 atm)

Feed: 100 cm^3 min^{-1}

x_{H_2O} = 3 vol%

x_{CO_2} = 14 vol%

x_{Air} = 83 vol%

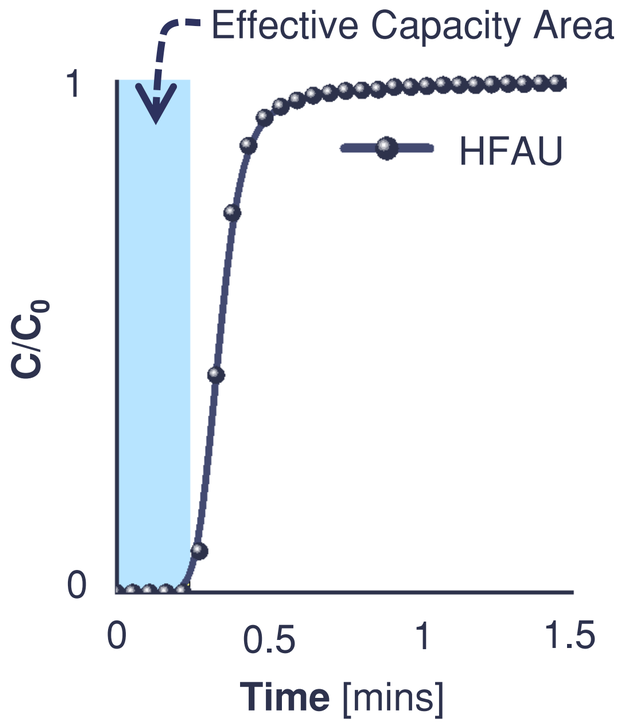
Desorption (125°C, 1 atm)

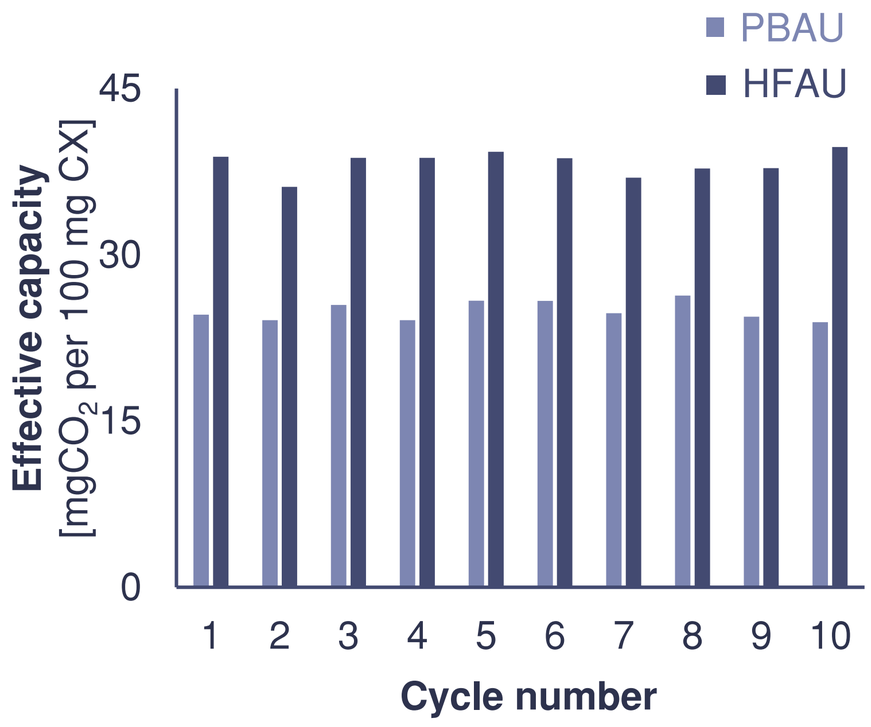
Feed: 100 cm^3 min^{-1}

x_{N_2} = 100 vol%

3. Results

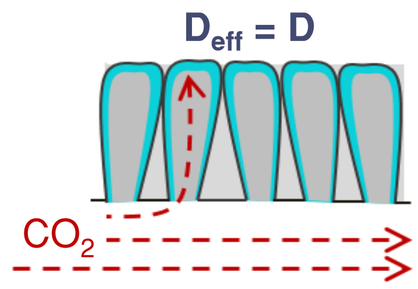
Effective capacity = Capacity when a breakthrough of 5% feed CO_2 concentration observed in outlet.



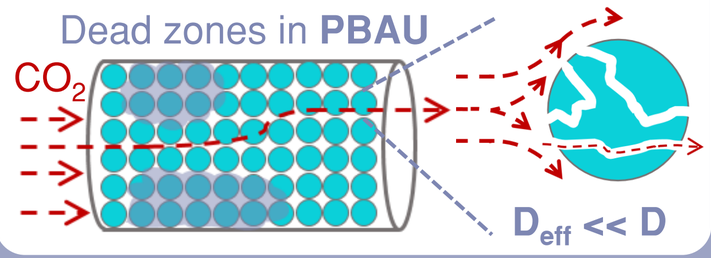


4. Conclusions

HFAU captured **1.5x** more CO_2 than **PBAU**



HFAU morphology = minimised mass transfer resistances and narrow RTD



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