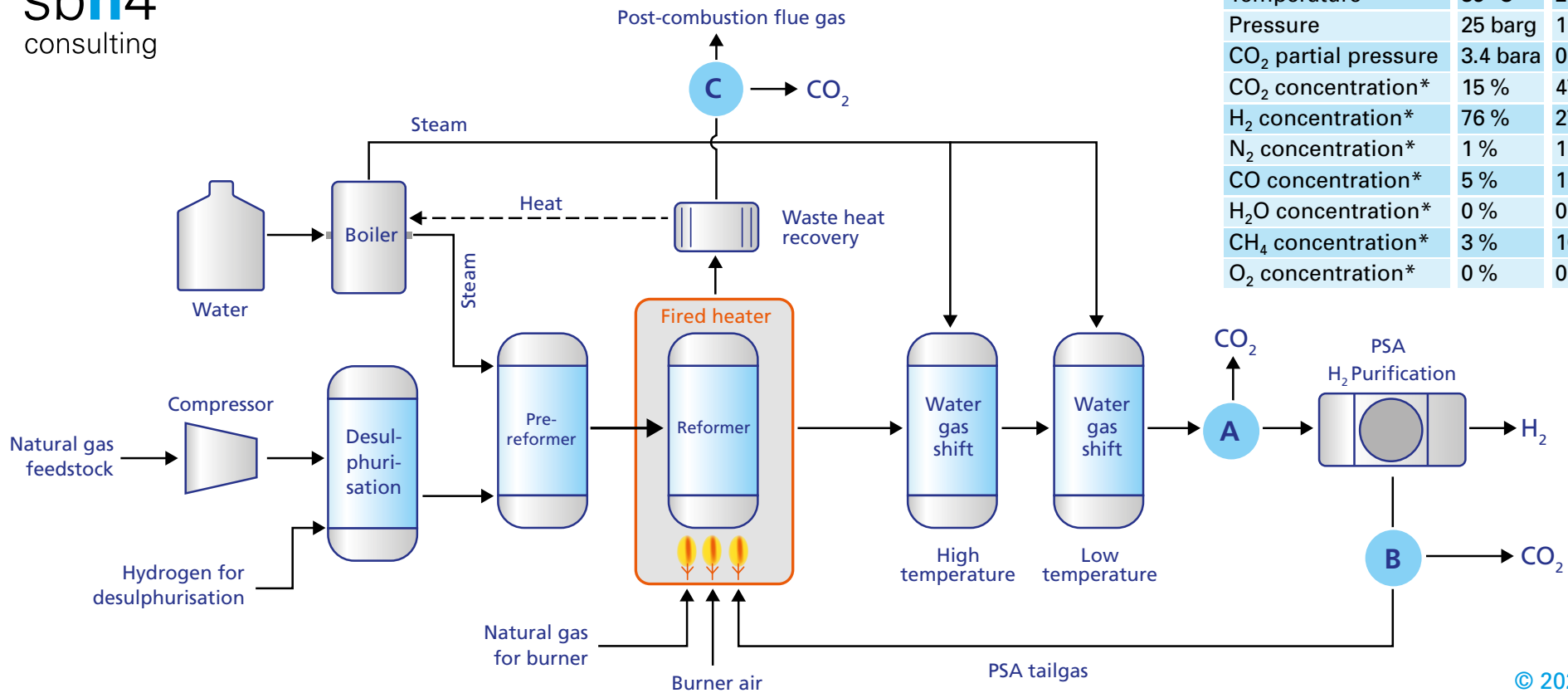


Potential Locations for CO₂ Capture from Steam Methane Reforming



Location	A	B	C
Temperature	35 °C	25 °C	150 °C
Pressure	25 barg	1.4 barg	0.2 barg
CO ₂ partial pressure	3.4 bara	0.6 bara	0.2 bara
CO ₂ concentration*	15 %	47 %	20 %
H ₂ concentration*	76 %	27 %	0 %
N ₂ concentration*	1 %	1 %	62 %
CO concentration*	5 %	15 %	0 %
H ₂ O concentration*	0 %	0 %	17 %
CH ₄ concentration*	3 %	10 %	0 %
O ₂ concentration*	0 %	0 %	1 %

*Molar

© 2023 sbh4 GmbH

	Location A	Location B	Location C
Process stage	Pre-PSA	Post-PSA	Post-combustion
Advantages	High pressure, high CO ₂ concentration, highest CO ₂ partial pressure, lowest unit cost of CO ₂ capture from Amine Solvent or VSA processes	Low flowrate (H ₂ removed), highest CO ₂ concentration	More than 90 % capture rate possible (captures process CO ₂ and burner CO ₂ emissions), low pressure location can be suitable for emerging CO ₂ capture technologies such as TSA and mineralisation
Disadvantages	Max 70 % CO ₂ capture rate possible (burner CO ₂ emissions not captured), high flowrate (H ₂ included)	Max 70 % CO ₂ capture rate possible (burner CO ₂ emissions not captured), low pressure	Low pressure, lowest CO ₂ concentration, high flowrate due to combustion air, highest unit cost of CO ₂ capture from Amine Solvent or VSA processes