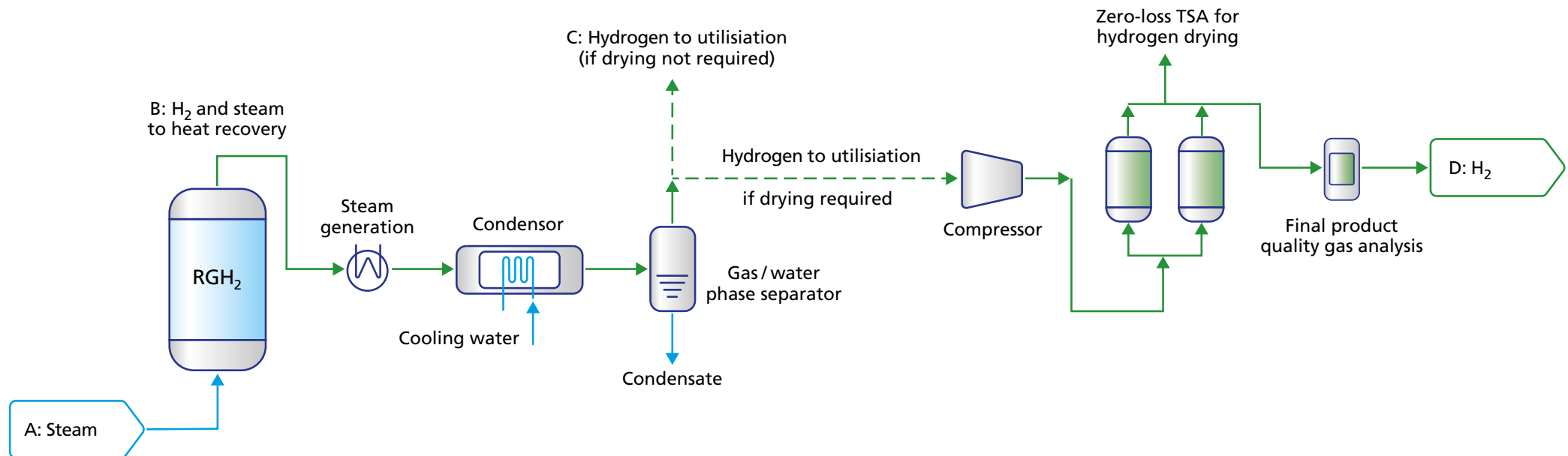


Stage 2: Steam oxidation and hydrogen production.

Oxidation of the RGH_2 oxygen-carrier with steam generated from heat produced by the RGH_2 process.



Biogas / Landfill gas feed Stream	H ₂ Mol%	H ₂ O Mol%	Temp °C	Key reactions in the RGH_2 plug-flow, iron-oxide chemical looping reactor $6\text{Fe} + 6\text{H}_2\text{O} \leftrightarrow 6\text{FeO} + 6\text{H}_2$ $6\text{FeO} + 6\text{H}_2\text{O} \leftrightarrow 6\text{Fe}_3\text{O}_4 + 2\text{H}_2$	BFG / BOFG Feed Stream	H ₂ Mol%	H ₂ O Mol%	Temp °C
A: Steam to RGH_2	0	100	185		A: Steam to RGH_2	0	100	150
B: H ₂ and steam to heat recovery	44	56	806		B: H ₂ and steam to heat recovery	43	57	737
C: H ₂ to utilisation or dryer	96	4	Ambient		C: H ₂ to utilisation or dryer	96	4	Ambient
D: High purity, dry H ₂ product	99.99	Trace	Ambient		D: High purity, dry H ₂ product	99.99	Trace	Ambient