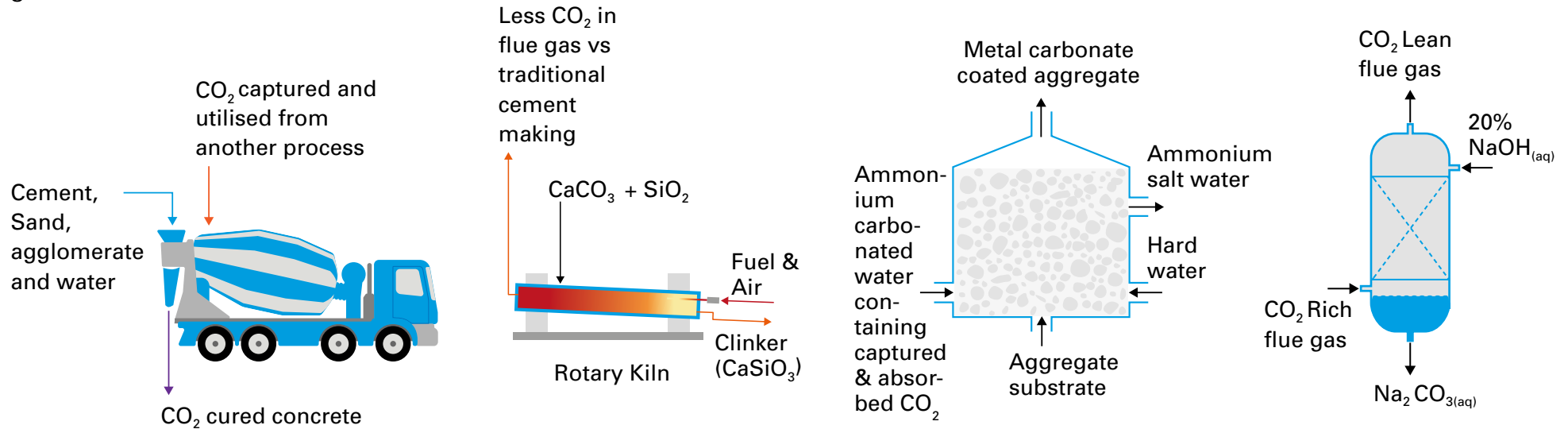


Mineralisation processes for CO₂ emissions reduction in cement making and concrete production



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	CO ₂ cured concrete	New cement type based on calcium silicate instead of tricalcium silicate	Agglomerate recycling	Sodium bicarbonate formation
Mitigation principle	Cement use reduction through increased concrete strength and CO ₂ utilisation	Reduced CO ₂ flue gas emissions from cement clinker kiln and CO ₂ utilisation	CO ₂ mineralisation reaction with recycled or waste cements	CO ₂ mineralisation from cement kiln and / or calciner flue gas
CO ₂ Mitigation potential	CO ₂ utilisation during concrete curing ~5% reduction from cement use reduction	CO ₂ utilisation during concrete curing ~50% reduction from different cement chemistry	~90% reduction from CO ₂ capture & mineralisation	~90% reduction from CO ₂ capture
Carbonate formed	CaCO ₃	CaCO ₃	CaCO ₃ and MgCO ₃	Na ₂ CO ₃
Raw material	Ca(OH) ₂ from fresh concrete	Ca(OH) ₂ from fresh concrete	Ca(OH) ₂ in re-used concrete, CaO and MgO from fly ash and steel slag	NaOH produced from electrolysis of NaCl
Technology maturity level	Commercial, eg CarbonCure	Commercial, eg Solidia	Demonstration, eg Blue Planet	Demonstration, eg SkyMine