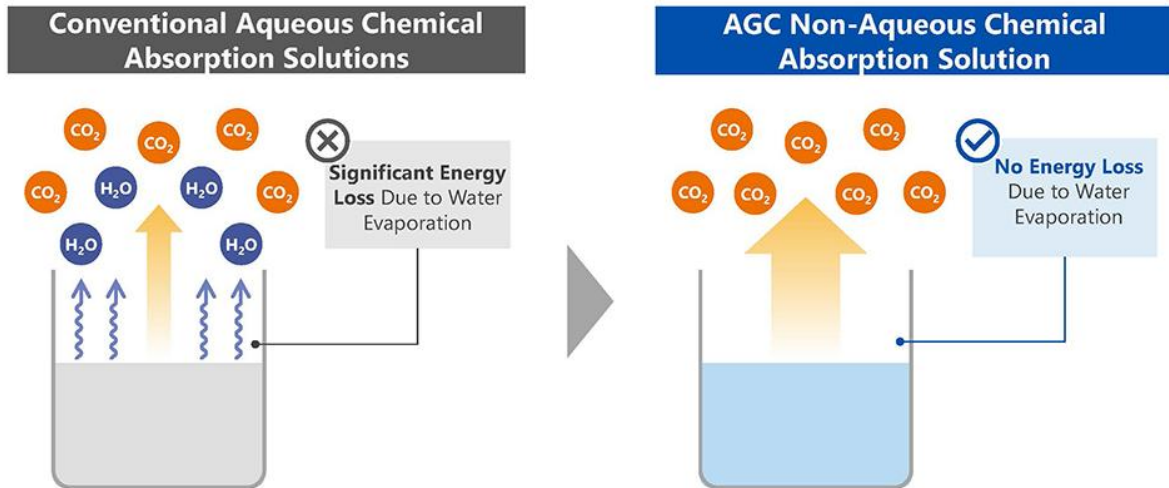


Non-Aqueous Chemical Absorption Solution

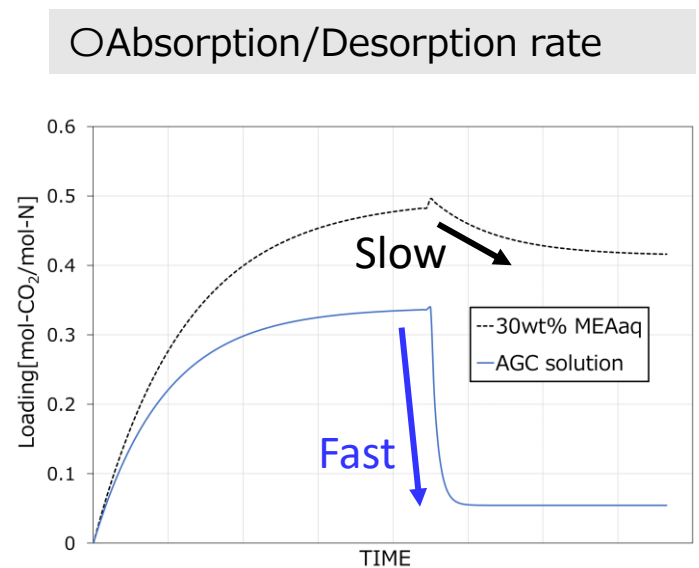
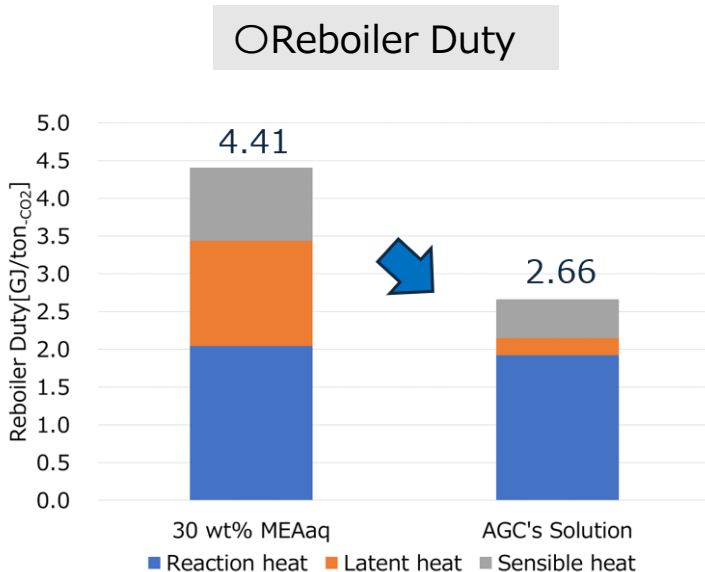
1. Reduce Energy Loss

- In aqueous absorption systems, heat applied also causes water evaporation, leading to increase energy consumption.
- We developed a Non-Aqueous Chemical Absorption Solution which reduces evaporation and energy consumption during CO₂ capture.
- A demonstration experiment using the absorption solution to capture CO₂ was conducted at Expo 2025 Osaka, Kansai.



2. Energy Data and Absorption/Desorption Rate (Lab Studies)

- Compared to conventional solution, Reboiler Duty is estimated reduced by 40% with a 10 times increase in Desorption rate.
- Desorption below 100°C is also possible.



- ✓ Absorption : T=40°C, P_{CO2}=12 kPa
- ✓ Desorption : T=120°C, P_{CO2}=100 kPa
- ✓ Calculated from CO₂-gas-liquid equilibrium

- ✓ Absorption : T=40 °C, P_{CO2}=20 kPa
- ✓ Desorption : T=90 °C