

AGC

Fine Silica for Carbon Capture

SOLESPHERE™ microspherical silicas are excellent CO₂ absorbers when coupled with an amine treatment. The combination of particle size and porosity provides a solid base for amine treatments to absorb CO₂.

AGC also offers 3 different silica forms for this CO₂ absorbing solution:

- SOLESPHERE silica for your original customized amine treatment
- Silica Pellets a combination of SOLESPHERE & micro fibrous silica
- Aminated silica pellets

Features

- CO₂ capture & release with lower energy consumption
- Aminated silica effectively absorbs/desorbs CO₂ molecules
- Particle size and porosity range

Applications

SOLESPHERE can work as superior solid sorbents in applications including:

- Point source carbon capture
- Direct air carbon capture (DAC)

SOLESPHERE Silica Grades for Solid Sorbents

Choice of high- or low-surface-area grades, with large pore volume.

	H-53	L-52	L-123	DM-L-303
Mean particle size (µm)	5	5	12	35
Specific surface area (m²/g)	700	300	300	300
Pore volume (ml/g)	1.8	1.6	2.0	2.2
Pore diameter (nm)	20	40	50	65

Benefits

- CO₂ negative emission / Air purification
- Higher absorbing/desorbing properties compared to the conventional technologies (energy saving)





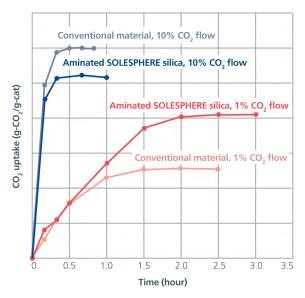




Absorption Performance of CO₂

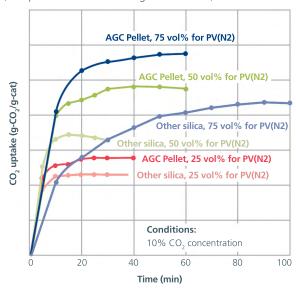
AGC-developed CO_2 absorbent maintains relatively high absorption capacity even at low CO_2 concentrations (eq. 1 vol%).

Conventional material vs. aminated SOLESPHERE silica



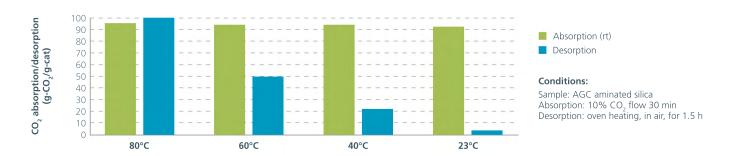
AGC pellet (3 mm) vs other silica powder (3 mm)

(comparison as carrier using same amine)



Desorption Performance

AGC's aminated silica can release high amount of absorbed CO₂. At 80°C in ambient pressure, almost all portion could be desorbed within 1.5~2.0 hours.



AGC's aminated SOLEPHERE silica provides superior performance of CO, absorption/desorption with small energy consumption.

