Pall Filtration & Separation for Decarbonization



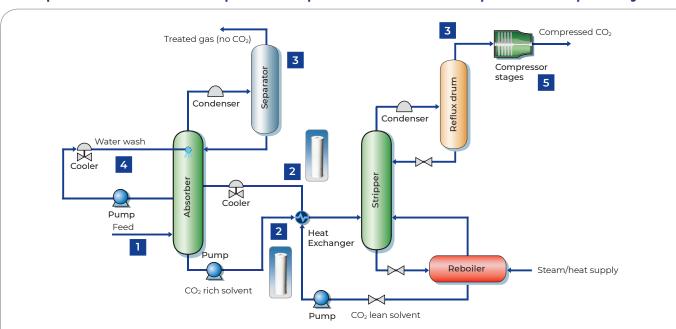
Decarbonization strategies are a key initiative that many industries such as the refinery, petrochemical, & power generation are planning use to in order to address new environmental regulations. Carbon capture, utilization, and storage (CCUS) is an integral part of the solution enabling a direct and rapid method for controlling emissions. Carbon capture can be utilized when the production of CO_2 in a process is unavoidable, or when operational limitations force the continued use of fossil fuels.

Where Filtration Can Help

In many ways, the filtration and separation needs from a carbon capture process can be similar to those in traditional gas processing

- Upstream- feed can contain particles, mercury, heavy metals, and organics which can cause absorption system foaming, blockages, and reduced efficiency
- Downstream the outlet CO₂ stream can contain water which corrodes downstream equipment and remnant particulates which can hinder storage and utilization
- CO₂ separation many different technologies can be utilized, most common are absorption and adsorption processes which have many separation applications

Example of filtration and separation options in a Carbon Capture Absorption system



- 1. Remove contaminants on inlet gas with Particulate Filters, Liquid / Gas Coalescers
- 2. Remove contaminants and organics in solvent loop with Particulate Filters, Activated Carbon filters, Liquid/Liquid coalescers
- 3. Remove contaminants, solvent, water on outlet gas with Particulate Filters, Liquid / Gas Coalescers
- 4. Clean up wash water with Particulate Filters, Liquid / Liquid Coalescers
- 5. Clean up compressor lube oil, Glycol Dehydration systems with Particulate Filters

Case Study - Solvent Filtration

Our customer was using an amine system to separate CO_2 . This system utilized a competitor's nominal 5-micron rated cartridge filter to meet a 10 mg/L solids specification. The customer was experiencing foaming which resulted in a 15% capacity drop. Pall's Solution provided adaptor cages to fit standard absolute rated cartridges which provided for solvent cleanup down to 5 ppm and stopped the foaming. Cleaning the system ultimately resulted in a **less than one month payback.**



Pall Filters

Range of layouts



Ceramic filters



Coreless formats

Activated carbon



High flow formats



Pall high efficiency Liquid/

Gas coalescer Filter



Metallic filters







Available in absolute removal ratings of 0.1 to 100 micons and for a wide range of compatibility with corrosive fluids and varying temperatures.

Speak to one of our regional experts to find out how Pall's wide-range of advanced filtration solutions, technical know-how and industry experience can benefit you.

- Separates outlet liquids down to 0.01 ppmv
- Removal of particles down to 0.1um
- Internal bulk pre-separators are used for high liquid loads >1000 ppmv and can reduce up to 90% of feed aerosols



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