

# Pall Filtration & Separation for Decarbonization



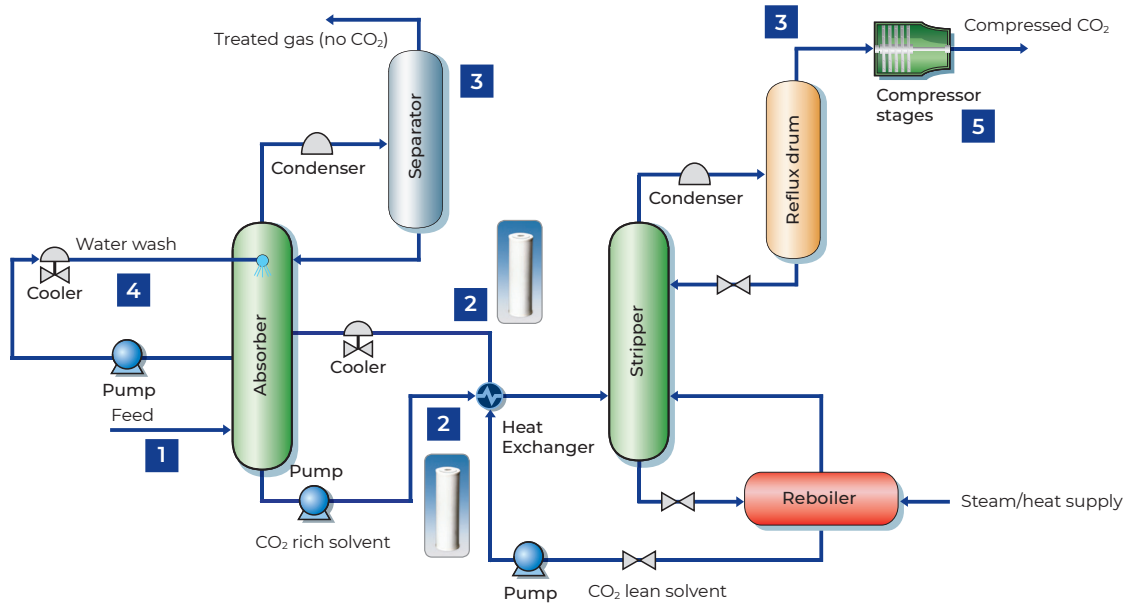
Decarbonization strategies are a key initiative that many industries such as the refinery, petrochemical, & power generation are planning use to in order to address new environmental regulations. Carbon capture, utilization, and storage (CCUS) is an integral part of the solution enabling a direct and rapid method for controlling emissions. Carbon capture can be utilized when the production of CO<sub>2</sub> 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 CO<sub>2</sub> stream can contain water which corrodes downstream equipment and remnant particulates which can hinder storage and utilization
- **CO<sub>2</sub> 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<sub>2</sub>. 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



Coreless formats



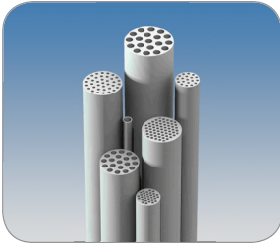
Hollow Fiber filters



Pall high efficiency Liquid/  
Gas coalescer Filter



Ceramic filters



Activated carbon



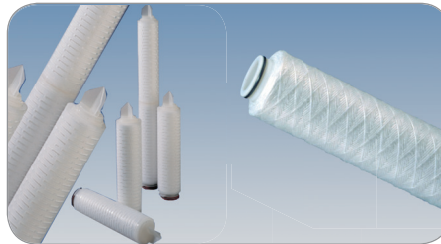
High flow formats



Metallic filters



Polymer and Fluoropolymer filters



Available in absolute removal ratings of 0.1 to 100 microns 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 0.1µm
- 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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