

Carbon Capture - CO₂

Description

Inlet stream for capturing CO₂:

- Exhaust engine gas
- Exhaust boiler gas
- Heat & power application (CHP)
- Petrochemical process

Decarbonization is a widely spread industrial target, and many types of industrial flue gas need to be treated.

Ecospray **CO₂ capture technology, based on chemical absorption with amines**, is considered one of the most effective and mature solutions, above all considering the reduction of the system's size while **optimizing energy consumption exploiting the thermal waste** already available.

Ecospray systems provide a viable solution also for diluted gas streams (CO₂<5%) thanks to the low heat required by the system for solution regeneration.

Ecospray's **carbon capture solutions** are tailored and engineered to **address specific industrial applications**, targeting exhaust emission goals - including the 2030 objective of <100 gCO₂/kWh for the 1-8 MW CHP.

Features

- **Compact & modular design** - skid and container (40-45 ft, horizontal or vertical footprint) with a flexible design to adapt to the user's available space, easy to transport, install and relocate.
- **Efficient** - lower energy consumption compared with standard amine capture systems thanks to low temperature regeneration allowing an extended amine lifecycle.
- **Flexible** - possibility of partializing the inlet flow down to 50% of the maximum capacity and at desired CO₂ capture ratio.
- **Safe** - operational with no high temperature dangerous for operators due to the low temperature of regeneration. It can be used in classified or safe areas.
- **Complete** - containers come complete with insulation, lighting, air conditioning, doors and ventilation to facilitate operating activities.
- **Unmanned** - a remote control of process variables is provided, including web based access and proper database storage, allowing remote parameters control and proper maintenance scheduling. Plant data, including alarms, are available via OPC from the operator interface system (HMI).

Process

The capturing process **is an amine solution absorption cycle**, featured by a low pressure, hence lower temperature, regeneration. This approach conserves energy by recovering heat from boiler or engine's cooling system possibly eliminating the need of additional fuel combustion (and associated CO₂ emissions). It also reduces or avoids the use of valuable high temperature thermal vectors in the case of combined Heat and Power (CHP) applications. **The released CO₂ can be used as it is, liquefied and stored in cryogenic tanks, or compressed in supercritical phase.**

