

ECOVAR® – Standard on-site solutions

ECOVAR® systems

ADSOSS™-O plants

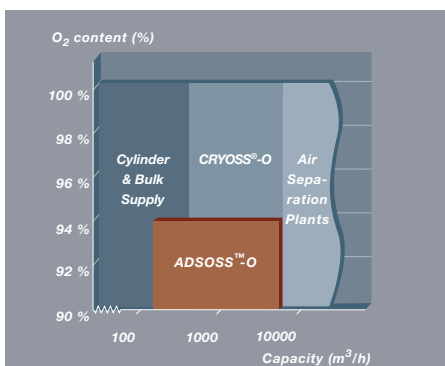
ADSOSS™ - O

Oxygen generation plants based on the adsorption process

ECOVAR® supply systems encompass the supply of industrial gases with on-site plants. The ADSOSS™-O product line is part of the ECOVAR® portfolio. The plants are built around proven, state-of-the-art components providing maximum cost efficiency and reliability. An integrated liquid supply system ensures a continuous gas supply around the clock.

ADSOSS™-O plants are the right solution if a long-term, cost-effective oxygen supply is required. The plants use an adsorption process to separate air and deliver oxygen in volumes ranging from 100 m³/h to 6,000 m³/h at 90-94 % oxygen content. A wide range of product pressures is available, which can be adapted to the actual requirements of the oxygen application.

ADSOSS™-O plants are very compact and modularly constructed. A well-balanced ratio between modularization and customization enables Linde to meet all specific customer needs, such as cost of utilities or space availability. All modules of the plant are fully pre-engineered to accelerate delivery, installation and start-up. Once in operation, the plants are operated fully automatically (unattended). An integrated load-tracking mode saves energy by automatically adjusting plant output to varying gas demands. Immediate peaks are shaved by the liquid supply system, which also delivers oxygen in the event of a plant shut-down.

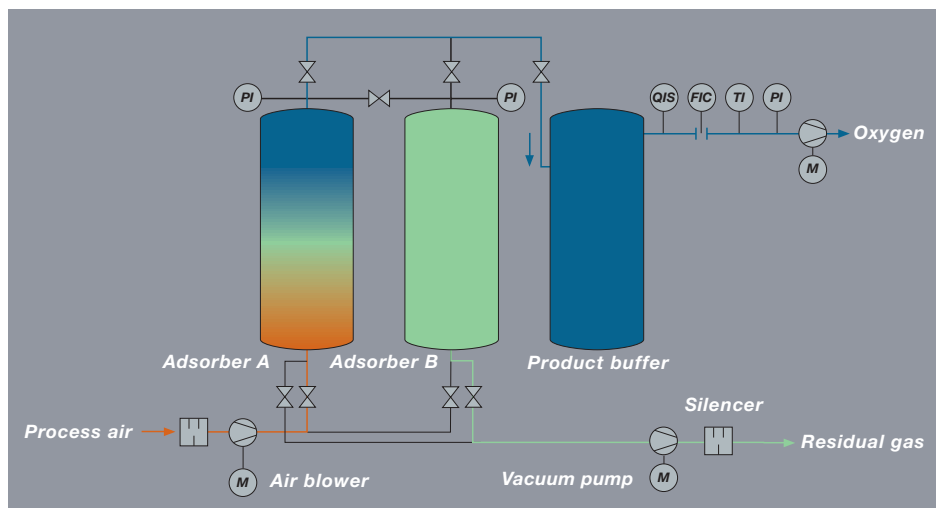


Oxygen supply solutions



ADSOSS™ - O 1300

ADSOSS™, CRYOSS® and ECOVAR® are registered trademarks of the Linde Group.



Typical VPSA process flow diagram

Process and technology

ADSOSS™-O plants utilize the adsorption properties of specific zeolite molecular sieves (ZMS) to separate air into its components. While nitrogen, carbon dioxide and moisture adsorb onto the surface of the adsorbent, oxygen passes on through the ZMS. The plants usually comprise an air blower, two adsorber vessels filled with ZMS, a buffer, a vacuum pump, high-performance switching valves and an oxygen compressor.

Process air is filtered and compressed before it enters the adsorber vessels where the actual separation takes place. When the ZMS is saturated, the air stream is switched to the second adsorber. In the meantime, the loaded adsorber is prepared for the next adsorption cycle. It is depressurized and then evacuated by a vacuum pump to carry out desorption of the adsorbed components. Afterwards the regenerated adsorber is pressurized and prepared again for oxygen production. Installed downstream, a product buffer compensates fluctuations in the oxygen flow during the switching process of the adsorbers. Since the oxygen pressure from the process is low, it usually has to be increased by an oxygen compressor. This process is commonly known as Vacuum Pressure Swing Adsorption (VPSA).

The main advantage of ADSOSS™-O plants is the ease of operation. The plant can be started and stopped locally or remotely; within a few minutes it produces the desired amount of oxygen with the required degree of purity.

Applications

ECOVAR® systems based on ADSOSS™-O plants are typically used for the following applications in the industries described below:

- | | |
|-------------------------------------|------------------------|
| Chemical and petrochemical industry | Pulp and paper |
| ▶ (Non-) Catalytic oxidations | ▶ Delignification |
| ▶ Thermal recycling | ▶ Bleaching |
| | ▶ Ozone generation |
| Metallurgy/metalworking industry | Water treatment |
| ▶ Melting | ▶ Biological treatment |
| ▶ Refining | |
| ▶ Heating | Glass industry |
| | ▶ Melting |
| Pharmaceutical industry | |
| ▶ Oxidation processes | Food industry |
| | ▶ Fish farming |
| Waste treatment | ▶ Fermentation |
| ▶ Incineration | |
| ▶ Wet oxidation | |