

220 TPD Vacuum Pressure Swing Adsorption Oxygen Plant

Capacity

Design 220 TPD (2 X 110 TPD)
Minimum 154 TPD (2 X 77 TPD)

Product

Oxygen
Purity > 90%
Outlet pressure 58 PSI (or 400 Kpa)

History

Built in 2013
Project cancelled. Unused equipment
never installed, ready for shipment.

Major Equipment

- Feed blower
- Vacuum blowers
- Oxygen compressor
- Instrument air compressor
- Fin fan cooling system
- Drying system
- Air filter
- Silencer
- Molecular sieve
- Adsorption process vessels
- Oxygen surge tank
- Feed air aftercooler
- Glycol expansion tank
- Metering skid



BRIEF PLANT DESCRIPTION

This unused VPSA plant consists of two (2) identical process modules, each of which has designed capacity of 110 TPD. The plant operation is a periodic batch process, in which adsorbent material is alternately fed with pressurized air to produce the required product, and regenerated by vacuum to remove the residual gases from the adsorbent. During the generation of oxygen, a cyclic swing between overpressure and vacuum occurs. To reduce energy consumption, the pressure is equalized between the production and regeneration steps. Each adsorber undergoes a cyclic process consisting of (1) Adsorption (O₂ production); (2) Desorption (evacuation); (3) Re-pressurization (pressure build-up).

VPSA plants provide great energy efficiency and flexibility to applications for furnace enrichment, oxygen fuel burners, glass manufacturing, gold bleaching, water treatment, steel mills, oxygen bleaching at pulp and paper mills, uranium recovery, and ozone generation. They are often the most cost-effective oxygen production choice up to 60 tons per day or more, providing high purity oxygen is not required.

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