

### Gasification: Upgrading fuel values

Gasification is a process that converts carbon-based organic materials such as coal, petroleum, petcoke (a by-product of oil refining) or biomass into clean-burning synthesis gas, or syngas. The syngas can then be used as a fuel or as a feedstock in the production of synthetic chemicals.

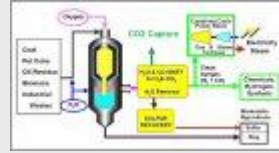
Gasification involves introducing oxygen or air into a reactor that burns the organic material at high temperatures to produce, in a series of chemical reactions, a mix of hydrogen and carbon monoxide, or syngas.

Praxair's longstanding leadership in oxygen-based combustion technologies and in designing and building advanced supply systems position the company as a preferred partner in gasification projects.

In January 2007, Praxair announced that it is building an air separation unit to supply oxygen to a [chemical producer in China](#). Praxair's plant will be integrated with a state-of-the-art, low-cost, coal-gasification process. The plant, with a capacity of 3,000 tons of oxygen per day, will be the largest single-train air separation unit in China.

Concerns about energy security and availability have focused more attention on gasification which would allow countries like the U.S. and China to tap their vast coal reserves while meeting more stringent environmental regulations. In addition, increasing volumes of petcoke are becoming available as refineries expand and process heavy-sulfur crude oils. Gasification can upgrade the fuel value of petcoke. Gasification also will play a key role in extracting oil from Canadian [oil sands](#).

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[View](#) an enlarged diagram of the gasification process.