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Air Separation Unit Update

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Abstract

Oxygen consumption in the United States is roughly 18.8 billion cubic meters per year and is expected to grow at an average annual rate of 1.5% between 2015 and 2020. In this review, we look at the production of gaseous oxygen by the oldest and most highly developed air separation technology for commercial production of atmospheric gases, cryogenic fractional distillation. A cryogenic unit is commonly described as an air separation unit (ASU).

This review updates the work presented in IHS Chemical (formerly SRI Consulting) Process Economics Program Review 89-3-3, *Options for Procuring Oxygen* by Anthony Pavone (SRI International, January 1991). We present a generic cryogenic air separation design for the production of 2,000 metric tons/day (TPD) of 99.8% purity oxygen product.

We include capital and production costs for the 2,000 TPD of 99.8% purity oxygen product, along with a second case for the same capacity, shown as capital and production costs for 95% purity oxygen product. Lastly, an interactive module is included—the iPEP Navigator for air separation unit process tool, which provides a snapshot of the economics for the process and allows the user to select the units and global region of interest.

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