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.

Contents

1 Introduction	Ę
2 Industry status	é
3 Process review	8
Air separation technologies	8
Cryogenic distillation	8
Membrane air separation	ç
Adsorption air separation	ç
ASU technology developments	ç
ASU block flow diagram	ç
Equipment used in cryogenic air separation	11
Main heat exchanger	11
Linde double column system	13
Process description	13
Section 100—Air separation process	14
Process discussion	16
Utilities	18
Materials of construction	18
Waste streams	18
Offsite storage	18
Cost estimates	18
Fixed capital costs	19
Production costs	19
Appendix A—Cited references	25
Appendix B—Process flow diagram	27

Tables

Table 1	Air separation unit activity	7
Table 2	Oxygen consumption for coal gasification to produce different downstream products	7
Table 3	Typical feed air composition	10
Table 4	Boiling points (°F) of primary components of air	11
Table 5	Key properties and constants of air and air separation gases	11
Table 6	Cryogenic air separation process—Design bases and assumptions	14
Table 7	Cryogenic air separation process—Stream flows	15
Table 8	Cryogenic air separation process—Summary of waste streams	15
Table 9	Cryogenic air separation process—Major equipment	16
Table 10	Expander flow impacts O ₂ purity, recovery, and power credit	17
Table 11	Summary of power consumption	17
Table 12	Cryogenic air separation process—Total capital investment (case I, O ₂ purity 99.8%)	20
Table 13	Cryogenic air separation process—Production costs (case I, O ₂ purity 99.8%)	21
Table 14	Cryogenic air separation process—Total capital investment (case II, O ₂ purity 95%)	22
Table 15	Cryogenic air separation process—Production costs (case II, O ₂ purity 95%)	22
Table 16	Cryogenic air separation process—Production costs (case I and case II comparison)	24

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Figures

Figure 1	US oxygen consumption by industry	6
Figure 2	Air separation technology selection chart	8
Figure 3	Block flow diagram—Cryogenic air separation	10
Figure 4	Main heat exchanger fins secured by side bars	12
Figure 5	Main heat exchanger countercurrent flow or warming stream and cooling stream	12
Figure 6	Main heat exchanger assembly manifolds housed in a coldbox	13
Figure 7	Process flow diagram—Cryogenic air separation unit	28

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