

Title (en)
Air separation

Title (de)
Lufttrennung

Title (fr)
Séparation d'air

Publication
EP 0660058 B1 20010411 (EN)

Application
EP 94309108 A 19941207

Priority
GB 9326168 A 19931222

Abstract (en)
[origin: EP0660058A2] A stream of air is compressed in compressor 2 and has water vapour and carbon dioxide removed therefrom in purification unit 4. A part of the resulting purified air is cooled by passage through heat exchanger 6 and is employed to heat an intermediate reboiler 24 in a lower pressure rectification column 42. The air flow from the reboiler 24 passes into a higher pressure rectification column 20 which supplies a stream of oxygen-enriched liquid air for separation in the lower pressure rectification column 42. Liquid nitrogen reflux for the higher pressure column 20 is provided by taking nitrogen vapour from this column through outlet 30 and condensing it in another intermediate reboiler 32 located above the reboiler 24 in the rectification column 42. The condensed nitrogen is returned to the top of the column 20. Another air stream is employed to reboil a further reboiler 16 at the bottom of the lower pressure rectification column 42 with the resulting condensed air stream being introduced into the higher pressure rectification column 20 through an inlet 22. An impure oxygen product is withdrawn from the bottom of the lower pressure rectification column 42 through outlet 58 in liquid state and is vaporised in the heat exchanger 6. The arrangement of reboilers 16, 24 and 32 facilitates operation of the apparatus with a relatively low pressure ratio between the operating pressure of the column 20 and that of the column 42.
<IMAGE>

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F25J 3/04

IPC 8 full level
F25J 3/04 (2006.01)

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Cited by
FR2787561A1; EP0722758A3; FR2787559A1; EP1284404A1; EP0770840A3; EP2963371A1; RU2696846C2; US6662595B2; US10995983B2

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EP 94309108 A 19941207; AU 8031594 A 19941208; CA 2138512 A 19941219; CN 94119178 A 19941222; DE 69427072 T 19941207; FI 945993 A 19941221; GB 9326168 A 19931222; JP 32049994 A 19941222; NO 944970 A 19941221; TW 83111619 A 19941213; ZA 949544 A 19941130