

Title (en)

Process and apparatus for the separation of air and the production of highly pure oxygen

Title (de)

Verfahren und Vorrichtung zur Lufttrennung und Herstellung von ultrareinem Sauerstoff

Title (fr)

Procédé et installation de séparation d'air et de production d'oxygène ultra-pur

Publication

EP 0379435 B2 19980520 (FR)

Application

EP 90400145 A 19900119

Priority

FR 8900670 A 19890120

Abstract (en)

[origin: JPH02233984A] PURPOSE: To produce ultra-pure oxygen inexpensively using a main double purification column comprising intermediate pressure purification column and low pressure purification column. CONSTITUTION: The majority of air cooled down to dew point having an intermediate pressure is introduced to the base section of intermediate pressure purification column 3 where it is condensed to produce oxygen rich liquid RL. It is partially expanded through an expansion valve 7 and introduced to an intermediate height of a low pressure purification column 4. 'Pure liquid' LL composed of nitrogen is taken out at the top of the column 3, expanded through an expansion valve 8 and introduced to the top of the column 4. An auxiliary purification column 12 is coupled to the bottom section of the column 4 and a top condenser 15 is fed with a part of rich liquid RL expanded through an expansion valve 16. The column 17 is fed with steam from the top of the column 12 and a vaporizer 19 at the column 17 is heated by intermediate pressure air passed through a pipeline 21 and a condense 20 is cooled by the remaining part of the rich liquid RL expanded through an expansion valve 22. Rich liquid vaporized by the condensers 15, 20 is returned back to the column 4.

IPC 1-7

F25J 3/04

IPC 8 full level

F25J 3/04 (2006.01)

CPC (source: EP US)

F25J 3/04412 (2013.01 - EP US); **F25J 3/04715** (2013.01 - EP US); **F25J 2200/06** (2013.01 - EP US); **F25J 2200/34** (2013.01 - EP US); **F25J 2200/90** (2013.01 - EP US); **F25J 2215/52** (2013.01 - EP US); **F25J 2215/56** (2013.01 - EP US); **F25J 2245/02** (2013.01 - US); **F25J 2245/58** (2013.01 - EP); **Y10S 62/924** (2013.01 - EP US)

Cited by

EP0446004A1

Designated contracting state (EPC)

AT BE CH DE DK ES FR GB GR IT LI LU NL SE

DOCDB simple family (publication)

EP 0379435 A1 19900725; **EP 0379435 B1 19920401**; **EP 0379435 B2 19980520**; AT E74421 T1 19920415; CA 2008187 A1 19900720; CA 2008187 C 19991207; DE 69000047 D1 19920507; ES 2030311 T3 19921016; ES 2030311 T5 19980716; JP H02233984 A 19900917; JP H0672740 B2 19940914; US 4977746 A 19901218

DOCDB simple family (application)

EP 90400145 A 19900119; AT 90400145 T 19900119; CA 2008187 A 19900119; DE 69000047 T 19900119; ES 90400145 T 19900119; JP 726690 A 19900118; US 46776890 A 19900119