Title (en)

METHOD FOR OBTAINING A LIQUID AND A GASEOUS OXYGEN-RICH AIR PRODUCT IN AN AIR BREAKDOWN APPARATUS AND AIR BREAKDOWN APPARATUS

Title (de)

VERFAHREN ZUR GEWINNUNG EINES FLÜSSIGEN UND EINES GASFÖRMIGEN, SAUERSTOFFREICHEN LUFTPRODUKTS IN EINER LUFTZERLEGUNGSANLAGE UND LUFTZERLEGUNGSANLAGE

Title (fr)

PROCÉDÉ DE PRODUCTION D'UN PRODUIT COMPRIME RICHE EN OXYGÈNE, GAZEUX ET LIQUIDE DANS UNE INSTALLATION DE DÉCOMPOSITION DE L'AIR ET INSTALLATION DE DÉCOMPOSITION DE L'AIR

Publication

EP 3179187 B1 20190130 (DE)

Application

EP 16020460 A 20161123

Priority

EP 15003483 A 20151207

Abstract (en)

[origin: AU2016269434A1] Abstract Process for obtaining a liquid oxygen-rich and a gaseous oxygen-rich air product in an air separation system, and an air separation system A process is proposed for the low-temperature separation of air, in which an air 5 separation system (100) having a main heat exchanger (3) and a distillation column system (6, 7) is used, which distillation column system comprises a high-pressure column (61) operated at a first pressure level, a low-pressure column (62) operated at a second, lower pressure level, and a mixing column (7). A first compressed-air stream (h) is fed in the gaseous state into the mixing column (7), in particular directly above 10 the sump, and, in the mixing column (7), is sent in counterflow to an oxygen-rich stream (n). The first compressed-air stream (h) is formed using air that is compressed to a starting pressure level above the first pressure level and thereafter is cooled to a first temperature level and is expanded in a first turbine (4). A second compressed-air stream (g) is fed into the high-pressure column (62), which second compressed air 15 stream is likewise formed using the air that is compressed to the starting pressure level and thereafter cooled to the first temperature level and expanded in the first turbine (4). In contrast, a third compressed-air stream (f) is fed into the low-pressure column (62), which third compressed-air stream is formed using air which, although it is likewise compressed to the starting pressure level, is thereafter cooled to a second temperature 20 level, expanded in a second turbine (4) and cooled further in the main heat exchanger (3) to a third temperature level. The air in the first turbine (4) is expanded to the first pressure level and the air in the second turbine (5) is expanded to the second pressure level. The air that is expanded in the first and second turbines (4, 5) is fed to the first turbine (4) at the first temperature level and to the second turbine (5) at the second 25 temperature level, wherein the first temperature level is at least 20 K below the second. The mixing column (7) is operated at the first pressure level or a third pressure level that differs from the first pressure level by at most I bar. A liquid oxygen-rich air product is passed in the liquid state out of the air separation system (100). A corresponding air separation system (100) is likewise subject matter of the present 30 invention. (Figure 1) TD C.0lM crn ix) CCu

IPC 8 full level

F25J 3/04 (2006.01)

CPC (source: CN EP RU)

F25J 3/04175 (2013.01 - EP RU); **F25J 3/042** (2013.01 - EP RU); **F25J 3/0429** (2013.01 - EP RU); **F25J 3/04296** (2013.01 - EP RU); **F25J 3/04303** (2013.01 - EP RU); **F25J 3/04393** (2013.01 - EP RU); **F25J 3/04412** (2013.01 - CN RU); **F25J 3/04466** (2013.01 - EP RU); **F25J 3/04787** (2013.01 - CN RU); **F25J 3/04793** (2013.01 - CN RU); **F25J 3/04812** (2013.01 - EP RU); F25J 2200/06 (2013.01 - EP); F25J 2200/94 (2013.01 - EP); F25J 2210/40 (2013.01 - CN); F25J 2215/52 (2013.01 - EP); F25J 2235/50 (2013.01 - EP)

Cited by

WO2020160842A1; WO2019120619A1; WO2019081065A1

Designated contracting state (EPC)

AL AT BE BG CH CY CZ DE DK EE ES FI FR GB GR HR HU IE IS IT LI LT LU LV MC MK MT NL NO PL PT RO RS SE SI SK SM TR

DOCDB simple family (publication)

EP 3179186 A1 20170614; AU 2016269434 A1 20170622; AU 2016269434 B2 20220331; BR 102016028677 A2 20170725; BR 102016028677 B1 20220816; CL 2016003150 A1 20170602; CN 107131718 A 20170905; CN 107131718 B 20201222; EP 3179187 A1 20170614; EP 3179187 B1 20190130; PL 3179187 T3 20190731; RU 2016147701 A 20180607; RU 2016147701 A3 20200414; RU 2722074 C2 20200526

DOCDB simple family (application)

EP 15003483 A 20151207; AU 2016269434 A 20161206; BR 102016028677 A 20161206; CL 2016003150 A 20161206; CN 201611273153 A 20161206; EP 16020460 A 20161123; PL 16020460 T 20161123; RU 2016147701 A 20161206