

Title (en)
METHOD AND UNIT FOR LOW-TEMPERATURE AIR SEPARATION

Title (de)
VERFAHREN UND ANLAGE ZUR TIEFTEMPERATURZERLEGUNG VON LUFT

Title (fr)
PROCÉDÉ ET INSTALLATION DE SÉPARATION D'AIR À BASSE TEMPÉRATURE

Publication
EP 3870915 A1 20210901 (DE)

Application
EP 19795456 A 20191022

Priority

- EP 18020543 A 20181023
- EP 18020542 A 20181023
- EP 2019025356 W 20191022

Abstract (en)

[origin: WO2020083528A1] The invention relates to a method for a low-temperature air separation in which an air separation unit (100, 3100) is used comprising a first rectification column (11) and a second rectification column (12). The first rectification column (11) is operated at a first pressure level, and the second rectification column (12) is operated at a second pressure level below the first pressure level. Fluid which is oxygen-enriched compared to atmospheric air is drawn from the first rectification column (11) in the form of one or more first material flows. At least one fraction of the fluid which has been drawn from the first rectification column (11) in the form of the one or more first material flows is heated in a heat exchanger (2); a fraction of the fluid which has been heated in the heat exchanger (2) is compressed using a compressor (5) and is returned to the first rectification column (11); a first fraction of the head gas of the first rectification column (11) is condensed in the heat exchanger (2), and a second fraction is discharged from the air separation unit (100, 3100) in the form of at least one nitrogen-enriched air product; Additional fluid which contains oxygen, nitrogen, and argon is drawn from the first rectification column (11) and is used as a second material flow or to form a second material flow, which is transferred to the second rectification column (12); an oxygen-enriched sump liquid is formed in the sump of the second rectification column (12); and at least one fraction in the form of a third material flow is discharged from the air separation unit (100, 200). According to the invention, a third rectification column (13) is used, said second rectification column (12) and third rectification column (13) being designed as parts of a double column such that the third rectification column (13) is arranged below the second rectification column (12) and such that the third rectification column (14) is supplied with air. The invention likewise relates to a corresponding unit (100-3100).

IPC 8 full level
F25J 3/04 (2006.01)

CPC (source: EP KR US)

F25J 3/04048 (2013.01 - EP KR); **F25J 3/04054** (2013.01 - US); **F25J 3/0406** (2013.01 - EP KR); **F25J 3/04066** (2013.01 - EP KR); **F25J 3/04084** (2013.01 - US); **F25J 3/0409** (2013.01 - EP KR US); **F25J 3/04096** (2013.01 - EP KR US); **F25J 3/04181** (2013.01 - EP KR); **F25J 3/04212** (2013.01 - EP KR US); **F25J 3/0423** (2013.01 - EP KR US); **F25J 3/04236** (2013.01 - EP KR); **F25J 3/0426** (2013.01 - EP KR); **F25J 3/04284** (2013.01 - EP KR); **F25J 3/0429** (2013.01 - EP KR US); **F25J 3/04296** (2013.01 - EP KR); **F25J 3/04321** (2013.01 - EP KR US); **F25J 3/04333** (2013.01 - EP); **F25J 3/04393** (2013.01 - EP KR); **F25J 3/0443** (2013.01 - EP KR); **F25J 3/04442** (2013.01 - EP KR); **F25J 3/04448** (2013.01 - EP KR); **F25J 3/04454** (2013.01 - US); **F25J 3/04496** (2013.01 - EP KR); **F25J 3/04709** (2013.01 - EP KR); **F25J 3/04715** (2013.01 - EP KR US); **F25J 3/04721** (2013.01 - EP KR US); **F25J 3/0486** (2013.01 - EP KR); **F25J 3/04872** (2013.01 - EP KR); **F25J 3/04878** (2013.01 - EP KR); **F25J 3/0489** (2013.01 - EP KR); **F25J 2200/04** (2013.01 - EP KR); **F25J 2200/08** (2013.01 - EP KR US); **F25J 2200/50** (2013.01 - EP KR); **F25J 2200/54** (2013.01 - EP); **F25J 2200/72** (2013.01 - EP KR); **F25J 2200/94** (2013.01 - EP KR); **F25J 2210/06** (2013.01 - EP KR US); **F25J 2210/42** (2013.01 - EP KR US); **F25J 2215/52** (2013.01 - EP KR US); **F25J 2215/56** (2013.01 - EP); **F25J 2230/50** (2013.01 - US); **F25J 2230/52** (2013.01 - EP KR); **F25J 2235/50** (2013.01 - EP KR US); **F25J 2235/52** (2013.01 - EP KR); **F25J 2240/04** (2013.01 - EP KR); **F25J 2240/42** (2013.01 - EP KR); **F25J 2245/02** (2013.01 - EP KR); **F25J 2245/50** (2013.01 - EP KR); **F25J 2250/02** (2013.01 - EP KR); **F25J 2250/20** (2013.01 - EP KR); **F25J 2270/02** (2013.01 - EP KR)

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

Designated extension state (EPC)
BA ME

DOCDB simple family (publication)
WO 2020083528 A1 20200430; CN 112955707 A 20210611; CN 112955707 B 20230124; EP 3870915 A1 20210901; KR 20210077705 A 20210625; US 11846468 B2 20231219; US 2021381761 A1 20211209

DOCDB simple family (application)
EP 2019025356 W 20191022; CN 201980069548 A 20191022; EP 19795456 A 20191022; KR 20217013818 A 20191022; US 201917287854 A 20191022