

Title (en)

PROCESS AND APPARATUS FOR SEPARATION OF HYDROCARBONS AND NITROGEN

Title (de)

VERFAHREN UND VORRICHTUNG ZUR TRENNUNG VON KOHLENWASSERSTOFFEN UND STICKSTOFF

Title (fr)

PROCÉDÉ ET APPAREIL POUR SÉPARER DES HYDROCARBURES ET DE L'AZOTE

Publication

EP 2433075 A2 20120328 (EN)

Application

EP 10755496 A 20100323

Priority

- GB 2010050488 W 20100323
- GB 0905124 A 20090325

Abstract (en)

[origin: GB2455462A] The invention provides a process and apparatus for the separation of nitrogen from a gaseous feed 1 comprising a mixture of hydrocarbons and nitrogen gas. The process includes cooling and at least partially condensing the gaseous feed in a first heat exchanger 2, and feeding the cooled mixture to a first fractionation column 8 to produce a nitrogen rich overhead vapour fraction 19 and a hydrocarbon rich liquid fraction 9. The liquid fraction is subjected to a second fractionation process, which includes reboil in a second fractionation column 15 at a lower pressure than the first fractionation column. The overhead vapour 19 from the high pressure column is partially condensed, and separated to provide a further liquid stream 22 which provides reflux to the first fractionation column, and a separated vapour stream 23 which is condensed to provide reflux to the second fractionation column. The hydrocarbon rich liquid fraction 9 is sub-cooled in a second heat exchanger 10 and divided into at least two streams. The first stream being expanded and fed to the second fractionation column, and a second stream being expanded and in heat exchange with the separated vapour stream 23, and which provides reheat before the second stream is fed to the second fractionation column. A hydrocarbon product stream 31 low in nitrogen, and a nitrogen rich stream 28, can then both be removed from the second fractionation column.

IPC 8 full level

F25J 3/00 (2006.01)

CPC (source: EP GB US)

F25J 3/0209 (2013.01 - EP GB US); **F25J 3/0233** (2013.01 - EP GB US); **F25J 3/0257** (2013.01 - EP GB US); **F25J 3/0635** (2013.01 - GB); **F25J 3/066** (2013.01 - GB); **F25J 2200/04** (2013.01 - EP US); **F25J 2200/06** (2013.01 - EP US); **F25J 2200/74** (2013.01 - EP US); **F25J 2200/78** (2013.01 - EP US); **F25J 2210/06** (2013.01 - EP US); **F25J 2235/60** (2013.01 - EP US); **F25J 2270/02** (2013.01 - EP US)

Citation (examination)

US 4664686 A 19870512 - PAHADE RAVINDRA F [US], et al

Cited by

CN110131964A

Designated contracting state (EPC)

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 SE SI SK SM TR

DOCDB simple family (publication)

GB 0905124 D0 20090506; **GB 2455462 A 20090617**; **GB 2455462 B 20100106**; EP 2433075 A2 20120328; US 2012090355 A1 20120419; WO 2010109228 A2 20100930; WO 2010109228 A3 20130404

DOCDB simple family (application)

GB 0905124 A 20090325; EP 10755496 A 20100323; GB 2010050488 W 20100323; US 201013259355 A 20100323