Title (en)

Process for air separation by cryogenic distillation

Title (de)

Verfahren zur Luftzerlegung durch Tieftemperaturdestillation

Title (fr)

Procédé de séparation d'air par distillation cryogénique

Publication

EP 1106945 A1 20010613 (FR)

Application

EP 00403354 A 20001130

Priority

FR 9915208 A 19991202

Abstract (en)

An amount of product(s) (36, 38, 41, 42) produced by an air separation unit (X) is increased by integrating a single column cryogenic distillation unit (Y) such that the production of the air separation unit is boosted to A+B moles/h. A process for increasing the amount of product(s) produced by the air separation unit (X) comprises integrating the single column cryogenic distillation unit. The product has a different composition, and optionally a different state and/or a different pressure, from the fluid mixture(s). The air separation unit alone, before a single column cryogenic distillation unit is integrated to it, produces an A moles/h of a first product and the amount of the first product withdrawn from the air separation unit and optionally from the distillation unit is increased to C moles/h. C is greater than A, and comprises fluid steam(s) withdrawn from the air separation unit and optionally from the distillation unit. The integration comprises sending energy and/or fluid stream(s) from the air separation unit to the distillation unit and/or from the distillation unit to the air separation unit. The distillation unit treats fluid mixture(s) by process(es) such that the air separation unit produces an amount of first product A+B moles/h. The process(es) is/are pressurization, mixing, expansion, distillation, liquefaction, adsorption, and/or permeation. An Independent claim is also included for an air separation apparatus having an air separation unit comprising a high and/or a low pressure column (25, 27) and possibly an intermediate pressure column and/or mixing column, which are thermally linked; means for producing a stream containing more than 20 mol % oxygen from a single column cryogenic distillation unit; means for sending part(s) of the stream to the high and/or low pressure column and/or intermediate pressure column and/or mixing column; means for sending cooled and purified air to the high pressure and/or to the distillation unit; and means for removing an oxygen enriched product from the unit(s) of the apparatus.

Abstract (fr)

Dans un appareil de séparation d'air par distillation cryogénique, le gaz de tête d'une colonne de mélange (11) est envoyé aux passages de chauffage d'un vaporiseur de cuve (7) de la colonne basse pression (5) d'une double colonne (1) alimentée par de l'air à distiller. Ceci augmente la production d'oxygène en cuve de la colonne basse pression. <IMAGE>

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F25J 3/04

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CPC (source: EP US)

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Citation (search report)

- [Y] US 5551258 A 19960903 - RATHBONE THOMAS [GB]
- [Y] US 5379599 A 19950110 - MOSTELLO ROBERT A [US]
- [A] FR 2169561 A6 19730907 - AIR LIQUIDE [FR]
- [DA] US 4818262 A 19890404 - BRUGEROLLE JEAN-RENAUD [FR]
- [A] EP 0430803 A1 19910605 - AIR LIQUIDE [FR]
- [A] US 5291737 A 19940308 - CAMBERLEIN FRANCOIS [FR], et al
- [A] US 5865041 A 19990202 - AGRAWAL RAKESH [US], et al

Cited by

CN103162512A; CN102620520A

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