

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

Title (de)
VERFAHREN UND VORRICHTUNG ZUR TIEFTEMPERATUR-LUFTZERLEGUNG

Title (fr)
PROCÉDÉ ET DISPOSITIF DE SÉPARATION DE L'AIR À BASSE TEMPÉRATURE

Publication
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Application
EP 13826561 A 20131220

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Abstract (en)
[origin: WO2014102014A2] The method and the device are used for the low-temperature separation of air in a distillation column system comprising a high-pressure column (11) and a low-pressure column (12). Feed air is compressed in a main air compressor. The compressed feed air is purified in a purification device. The purified feed air is cooled in a main heat exchanger. A first partial stream (1) of the cooled feed air is introduced into the distillation column system in a gaseous state. A second partial flow (2a; 2b) of the cooled feed air is introduced into the liquefying chamber of a secondary condenser (46) which is in the form of a condenser-evaporator that has a condensation chamber and an evaporation chamber. A liquid oxygen fraction from the low-pressure column is introduced into the evaporation chamber of the secondary condenser. An oxygen product fraction is removed from the evaporation chamber of the secondary condenser in a gaseous state, heated in the main heat exchanger and finally obtained as a gaseous oxygen product. A first gaseous nitrogen product fraction is removed from the distillation column system, heated in the main heat exchanger and obtained as a first gaseous nitrogen product. The distillation column system also has a precolumn (10). The first partial stream (1) of the cooled feed air is introduced into the precolumn (10). The first gaseous nitrogen production fraction is removed from the precolumn. The precolumn (10) has a head condenser (14) which is in the form of a condenser-evaporator that has a condensation chamber and an evaporation chamber. A liquefied portion of the second partial stream is removed from the liquefaction chamber of the secondary condenser and introduced into the evaporation chamber of the head condenser (14). A gaseous fraction (31) from the upper region of the precolumn (10) is introduced into the condensation chamber of the head condenser (14). Fluid (6) formed in the condensation chamber is at least partially fed to the precolumn (10) as return flow (7). The secondary condenser (46), the head condenser (14) and the precolumn (10) are arranged above one another.

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