Title (en)

METHOD AND DEVICE FOR CRYOGENIC AIR SEPARATION

Title (de)

VERFAHREN UND VORRICHTUNG ZUR TIEFTEMPERATURZERLEGUNG VON LUFT

Title (fr)

PROCEDE ET DISPOSITIF DE SEPARATION DE L'OXYGENE A TRES BASSE TEMPERATURE

Publication

EP 1102954 A1 20010530 (DE)

Application

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Priority

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- EP 98123463 A 19981211

Abstract (en)

[origin: EP0978699A1] Removal of nitrous oxides in an air separation plant involves treatment of liquid, from the high-pressure column, in which it is concentrated. It is important to remove nitrous oxide, which has a comparatively high melting point, from the circuit before solid particles block the heat exchangers. This is done by occasionally purging the sump of high pressure column (6) at (16) and passing the liquid, which will contain all of the nitrous oxide, into a cleaning vessel (17) in which the nitrous oxide is removed by physical adsorption. Alternatively the purge liquid is warmed in a heat exchanger to a point where the nitrous oxide can be separated as a solid or liquid fraction. A counterflow material exchange method could also be used. The cleaned fluid then rejoins the process via line (18). The main flow of the oxygen enriched portion is removed at (13), at least one theoretical, or practical, floor (material exchange section (15)) above the air inlet (5), to continue the process in a conventional manner in the low-pressure column (7). Krypton and Xenon, also present in the sump liquid, can be concentrated and separated from the nitrous-oxide-free liquid leaving vessel (17). Methods for recovering cooling energy, involving further compression and conventional expansion through a turbine, are described.

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