

Title (en)

PROCESS AND PLANT FOR PROVIDING A NITROGEN PRODUCT, AN OXYGEN PRODUCT AND A HYDROGEN PRODUCT

Title (de)

VERFAHREN UND ANLAGE ZUR BEREITSTELLUNG EINES STICKSTOFFPRODUKTS, EINES SAUERSTOFFPRODUKTS UND EINES WASSERSTOFFPRODUKTS

Title (fr)

PROCÉDÉ ET INSTALLATION PERMETTANT DE FOURNIR UN PRODUIT À BASE D'AZOTE, UN PRODUIT À BASE D'OXYGÈNE ET UN PRODUIT À BASE D'HYDROGÈNE

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Abstract (en)

[origin: WO2023274574A1] The invention relates to a process for providing a nitrogen product, an oxygen product and a hydrogen product, wherein an air separation plant (100, 200) is used which is designed for the low-temperature separation of feed air and which has a rectification column system (10), the rectification column system comprising an air-fed rectification column (11) and a main heat exchanger. The provision of the nitrogen product comprises, in particular, subjecting feed air to low-temperature rectification using the air-fed rectification column (11) such that a top gas is obtained, and using part of the top gas as the nitrogen product. The provision of the oxygen product and the hydrogen product comprises subjecting water to water electrolysis in an electrolyzer (20), such that a water-containing oxygen stream and a hydrogen stream are obtained, the water-containing oxygen stream or part thereof being subjected, at least in one operating phase, to drying (21) and thereafter, in an unmixed state, to liquefaction in the air separation plant, such that a liquid oxygen stream is obtained, and the liquid oxygen stream or part thereof being used to provide the oxygen product. The invention also relates to a corresponding plant.

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