

Title (en)
SEPARATION PROCESS AND DEVICE FOR SYNTHESIS OFF-GAS

Publication
EP 0081849 B1 19870701 (DE)

Application
EP 82111608 A 19821214

Priority
DE 3149846 A 19811216

Abstract (en)
[origin: US4473385A] In a low temperature process for the fractionation of ammonia synthesis waste gas (N₂, H₂, Ar, CH₄) comprising two successive separating stages and a nitrogen refrigeration cycle for supplying reboiler heat to each of the stages and also liquid nitrogen, wherein nitrogen is compressed in a compressor to a final pressure, cooled, expanded, and partially liquefied, gaseous and revaporized liquid nitrogen being recompressed, the improvement comprising compressing the nitrogen to a medium pressure, e.g., 6-20 bar, withdrawing a portion of resultant medium-pressure nitrogen from the compressor, compressing remaining medium-pressure nitrogen to the final pressure, e.g., 30-50 bar, cooling resultant medium-pressure nitrogen in parallel with resultant final-pressure nitrogen, further cooling the medium-pressure nitrogen by supplying reboiler heat to the two separating columns, expanding resultant cooled medium-pressure nitrogen to at least partially liquefy the same, expanding resultant cooled final-pressure nitrogen to at least partially liquefy the same, and combining both resultant at least partially liquefied nitrogen streams in a phase separator.

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