

Title (en)
METHOD FOR TREATING A NUCLEAR PROCESS OFF-GAS STREAM.

Title (de)
VERFAHREN ZUM BEHANDELN EINES WÄHREND EINES KERNVERFAHRENS ENTSTANDENEN ABGASSTROMES.

Title (fr)
METHODE POUR LE TRAITEMENT DE COURANTS GAZEUX EMIS PENDANT UN PROCEDE NUCLEAIRE.

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EP 0032949 A1 19810805 (EN)

Application
EP 80901636 A 19810224

Priority
US 6397079 A 19790806

Abstract (en)
[origin: WO8100413A1] Method for selectively removing and recovering the noble gas and other gaseous components typically emitted during nuclear process operations. The method is adaptable and useful for treating dissolver off-gas effluents released during reprocessing of spent nuclear fuels whereby to permit radioactive contaminant recovery prior to releasing the remaining off-gases to the atmosphere. Briefly, the method sequentially comprises treating the off-gas stream to preliminarily remove NO_x, hydrogen and carbon-containing organic compounds, and semivolatile fission product metal oxide components therefrom (11 and 16); adsorbing iodine components on silver-exchanged mordenite (17); removing water vapor carried by said stream by means of a molecular sieve (31); selectively removing the carbon dioxide components of said off gas stream by means of a molecular sieve (51); selectively removing xenon in gas phase by passing said stream through a molecular sieve (71) comprising silver-exchanged mordenite; selectively separating krypton from oxygen by means of a molecular sieve (91) comprising silver-exchanged mordenite; selectively separating krypton from the bulk nitrogen stream using a molecular sieve (111) comprising silver-exchanged mordenite cooled to about -140 to -160 C; concentrating the desorbed krypton upon a molecular sieve (131) comprising silver-exchange mordenite cooled to about -140 to -160 C; and further cryogenically concentrating, and then recovering for storage, the desorbed krypton (137).

Abstract (fr)
Methode d'extraction et de recuperation selective des gaz nobles et autres composants gazeux normalement emis pendant des operations de procedes nucleaires. Cette methode est adaptable et utile au traitement d'effluents de gaz de degagement emis pendant la regeneration de combustibles nucleaires epuises de facon a permettre une recuperation de matiere contaminante radioactive avant de liberer les gaz de degagement restants dans l'atmosphere. Brievement, cette methode comprend dans l'ordre le traitement des gaz de degagement pour extraire d'abord des composes organiques contenant du carbone, de l'hydrogene et du NO_x, ainsi que des composes d'oxydes metalliques semi-volatiles produits par fission (11 et 16); l'adsorption des composants iodes sur de la mordenite a echange d'argent (17); l'extraction de la vapeur d'eau transportee par le courant au moyen d'un tamis moleculaire (31); l'extraction selective des composants de dioxyde de carbone dudit courant de gaz de degagement au moyen d'un tamis moleculaire (51); l'extraction selective du xenon en phase gazeuse en faisant passer le courant a travers un tamis moleculaire (71) comprenant de la mordenite a echange d'argent; la separation selective du krypton de l'ensemble du courant d'azote utilisant un tamis moleculaire (111) comprenant de la mordenite a echange d'argent refroidie a environ - 140 a - 160 C; la concentration du krypton desorbe sur un tamis moleculaire (131) comprenant de la mordenite a echange d'argent refroidie a environ - 140 a - 160 C; la concentration cryogenique ulterieur, et ensuite la recuperation pour stockage du krypton desorbe (137).

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