

Title (en)
METHOD OF REMOVING IONS

Publication
EP 0483286 A4 19920701 (EN)

Application
EP 90914288 A 19900720

Priority
• US 38304589 A 19890721
• US 55083190 A 19900711

Abstract (en)
[origin: WO9101392A1] Remediation of soil and groundwater-bearing aquifers by the use of an ion immobilizing matrix introduced into a bulk liquid or soil either as a membrane covering or as a canister or similar suitable configuration. The ion immobilizing or host receptor matrix is associated with, and may envelop, at least one electrode. An oppositely charged electrode is located at a distance from the enveloped electrode, with the contaminated bulk therebetween. An electropotential is established which causes the ionic species to migrate through the water or soil and ultimately to become immobilized in the host receptor matrix. Once the host receptor matrix is fully loaded, it can be withdrawn and disposed of as a solid waste form. In one configuration, the electrode is imbedded within the host receptor matrix. In another configuration, the electrode is positioned inside an ion reservoir confinement chamber which has as one surface an ion permeable membrane optionally in contact with an immobilizing ion exchange polymer. The host receptor matrix can be an ion-conductive organic polymer membrane composite which may incorporate ion exchange media or selective absorbent materials as fillers, or optionally a medium that can facilitate both ion transmission and complexation which can insolubilize the mobile ionic media thereby yielding a stable repository for the ions being captured. This apparatus and method provides a solid wasteform which can be easily and safely removed for disposal and which is practical for volume reduction by incineration. Alternatively, a host receptor matrix is provided which permits rapid discharge of ions from the matrix when the electropotential is reversed.

IPC 1-7
C25C 1/22; **B09B 1/00**

IPC 8 full level
B01J 47/08 (2006.01); **B09B 3/00** (2006.01); **B09C 1/02** (2006.01); **B09C 1/08** (2006.01); **C02F 1/469** (2006.01); **C04B 41/53** (2006.01); **C04B 41/72** (2006.01); **G21F 9/06** (2006.01); **G21F 9/30** (2006.01)

CPC (source: EP)
B01J 47/08 (2013.01); **B09B 3/00** (2013.01); **B09C 1/02** (2013.01); **B09C 1/085** (2013.01); **C02F 1/4691** (2013.01); **C04B 41/5376** (2013.01); **C04B 41/72** (2013.01); **G21F 9/06** (2013.01); **G21F 9/30** (2013.01); **C02F 2101/006** (2013.01); **C02F 2103/06** (2013.01)

Citation (search report)
• [X] EP 0087663 A1 19830907 - NOGLER & DAUM ELTAC [AT]
• [A] US 3956087 A 19760511 - DRINKARD JR WILLIAM F
• [A] EP 0312714 A1 19890426 - THYSSEN AG [DE]
• [X] FR 1081919 A 19541223
• [X] GB 2150598 A 19850703 - ATOMIC ENERGY AUTHORITY UK
• See references of WO 9101392A1

Designated contracting state (EPC)
AT BE CH DE DK ES FR GB IT LI LU NL SE

DOCDB simple family (publication)
WO 9101392 A1 19910207; AU 6425190 A 19910222; CA 2064224 A1 19910122; EP 0483286 A1 19920506; EP 0483286 A4 19920701

DOCDB simple family (application)
US 9003997 W 19900720; AU 6425190 A 19900720; CA 2064224 A 19900720; EP 90914288 A 19900720