

Title (en)

SYSTEM, METHOD AND APPARATUS FOR TREATING MINING BYPRODUCTS

Title (de)

SYSTEM, VERFAHREN UND VORRICHTUNG ZUR BEHANDLUNG VON NEBENPRODUKTEN AUS DEM BERGBAU

Title (fr)

SYSTÈME, PROCÉDÉ ET APPAREIL DE TRAITEMENT DE PRODUITS MINIERS DÉRIVÉS

Publication

**EP 2970778 A4 20160120 (EN)**

Application

**EP 14764029 A 20140315**

Priority

- US 201361787293 P 20130315
- US 2013062941 W 20131001
- US 201414176032 A 20140207
- US 2014030090 W 20140315

Abstract (en)

[origin: WO2014145349A2] The present invention provides various systems, methods and apparatuses for recovering mining fluids, providing enhanced oil recovery and treating produced water. Plasma arc torches and electrolysis cells are used in various combinations. The plasma arc torch includes a cylindrical vessel, a first tangential inlet/outlet connected to or proximate to a first end, a second tangential inlet/outlet connected to or proximate to a second end, an electrode housing connected to the first end such that a first electrode is (a) aligned with a longitudinal axis of the cylindrical vessel, and (b) extends into the cylindrical vessel, and a hollow electrode nozzle is connected to the second end such that the hollow electrode nozzle is aligned with the longitudinal axis, the hollow electrode nozzle is partially disposed within the cylindrical vessel and outside the cylindrical vessel.

IPC 8 full level

**C10G 15/00** (2006.01); **B01D 17/02** (2006.01); **C10G 32/00** (2006.01); **E21B 21/06** (2006.01); **E21B 43/34** (2006.01); **H05H 1/32** (2006.01);  
**H05H 1/42** (2006.01)

CPC (source: EP US)

**E21B 21/066** (2013.01 - EP); **E21B 43/35** (2020.05 - EP US); **H05H 1/34** (2013.01 - EP US); **H05H 1/3431** (2021.05 - EP);  
**H05H 1/42** (2013.01 - EP); **H05H 1/44** (2013.01 - EP); **H05H 1/4697** (2021.05 - EP)

Citation (search report)

- [A] CN 201313927 Y 20090923 - UNIV TAIYUAN TECHNOLOGY [CN]
- [A] CN 201674991 U 20101222 - YONG WU, et al
- See references of WO 2014145349A2

Cited by

CN111424056A; CN111672189A; CN112922743A

Designated contracting state (EPC)

AL AT BE BG CH CY CZ DE DK EE ES FI FR GB GR HR HU IE IS IT LI LT LU LV MC MK MT NL NO PL PT RO RS SE SI SK SM TR

Designated extension state (EPC)

BA ME

DOCDB simple family (publication)

**WO 2014145349 A2 20140918**; **WO 2014145349 A3 20141204**; AU 2014233108 A1 20150910; AU 2014233108 B2 20181220;  
AU 2018274847 A1 20181220; AU 2020227112 A1 20200924; AU 2020227112 B2 20220825; CA 2901496 A1 20140918;  
CA 2901496 C 20170620; CN 105247014 A 20160113; CN 105247014 B 20171201; EP 2970778 A2 20160120; EP 2970778 A4 20160120;  
EP 2970778 B1 20180905; MX 2015012869 A 20160524

DOCDB simple family (application)

**US 2014030090 W 20140315**; AU 2014233108 A 20140315; AU 2018274847 A 20181204; AU 2020227112 A 20200904;  
CA 2901496 A 20140315; CN 201480028310 A 20140315; EP 14764029 A 20140315; MX 2015012869 A 20140315