

Title (en)

METHOD AND DEVICE FOR RECYCLING METAL PICKLING BATHS

Title (de)

VERFAHREN UND VORRICHTUNG ZUM RECYCELN VON METALL-BEIZBÄDERN

Title (fr)

PROCEDE ET DISPOSITIF POUR RECYCLER DES BAINS DE DECAPAGE DE METAUX

Publication

**EP 1521864 B1 20090916 (DE)**

Application

**EP 03763771 A 20030709**

Priority

- DE 10231308 A 20020710
- EP 0307417 W 20030709

Abstract (en)

[origin: US9139916B2] The invention relates to a method for recycling metal pickling baths, including rinsing baths and air washers. Said method is characterized in that a) before the recycling process, free acids in the liquid waste flows to be treated are converted into a metallic salt form, b) water is separated from the largely acid-free metallic salt solution produced in order to obtain a concentrated metal salt solution, and c) the concentrated metal salt solution is subjected to a thermal method in order to obtain metal oxides and free acids. The invention also relates to a corresponding device. The inventive method and device enable the degree of acid recovery and also the production of metal oxides to be significantly increased, with lower operating costs.

IPC 8 full level

**C23G 1/36** (2006.01); **C02F 9/00** (2006.01)

CPC (source: EP KR US)

**C23G 1/36** (2013.01 - EP KR US)

Cited by

CN112359366A

Designated contracting state (EPC)

AT BE BG CH CY CZ DE DK EE ES FI FR GB GR HU IE IT LI LU MC NL PT RO SE SI SK TR

DOCDB simple family (publication)

**WO 2004007801 A1 20040122**; AT E443168 T1 20091015; AU 2003250016 A1 20040202; BR 0312566 A 20050426; BR 0312566 B1 20130730; CA 2492183 A1 20040122; CA 2492183 C 20110426; CN 100359047 C 20080102; CN 1681969 A 20051012; DE 10231308 A1 20040212; DE 10231308 B4 20070118; DE 10231308 C5 20091015; DE 50311922 D1 20091029; EP 1521864 A1 20050413; EP 1521864 B1 20090916; ES 2334908 T3 20100317; JP 2006512478 A 20060413; JP 4579682 B2 20101110; KR 101021286 B1 20110311; KR 20050044888 A 20050513; MX PA05000475 A 20050722; RU 2005103596 A 20060310; RU 2330902 C2 20080810; US 2006201822 A1 20060914; US 9139916 B2 20150922; ZA 200500206 B 20060830

DOCDB simple family (application)

**EP 0307417 W 20030709**; AT 03763771 T 20030709; AU 2003250016 A 20030709; BR 0312566 A 20030709; CA 2492183 A 20030709; CN 03821519 A 20030709; DE 10231308 A 20020710; DE 50311922 T 20030709; EP 03763771 A 20030709; ES 03763771 T 20030709; JP 2004520551 A 20030709; KR 20057000367 A 20030709; MX PA05000475 A 20030709; RU 2005103596 A 20030709; US 52072303 A 20030709; ZA 200500206 A 20050110