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发明专利证书

发明名称：一种用镁渣还原氢气的方法

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专利权人：光钰科技（临沂）有限公司

授权公告日：2015 年 11 月 18 日

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中華民國專利證書

發明第 I 747148 號

發明名稱：工業廢酸及爐渣處理方法

專利權人：光鈺科技股份有限公司、大陸商光鈺科技（臨沂）有限公司

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專利權期間：自 2021 年 11 月 21 日至 2040 年 1 月 30 日止

上開發明業經專利權人依專利法之規定取得專利權

經濟部智慧財產局局長

洪淑敏

中華民國 110 年 11 月 21 日



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The Director

of the United States Patent and Trademark Office has received an application for a patent for a new and useful invention. The title and description of the invention are enclosed. The requirements of law have been complied with, and it has been determined that a patent on the invention shall be granted under the law.

Therefore, this United States

Patent

grants to the person(s) having title to this patent the right to exclude others from making, using, offering for sale, or selling the invention throughout the United States of America or importing the invention into the United States of America, and if the invention is a process, of the right to exclude others from using, offering for sale or selling throughout the United States of America, products made by that process, for the term set forth in 35 U.S.C. 154(a)(2) or (c)(1), subject to the payment of maintenance fees as provided by 35 U.S.C. 41(b). See the Maintenance Fee Notice on the inside of the cover.

Katherine Kelly Vidal

DIRECTOR OF THE UNITED STATES PATENT AND TRADEMARK OFFICE



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(12) **United States Patent**
Chang

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(54) **METHOD FOR PROCESSING METALLURGICAL WASTE ACID**

(58) **Field of Classification Search**
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C02F 2101/103; C02F 2305/14;
(Continued)

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(56) **References Cited**

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FOREIGN PATENT DOCUMENTS

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OTHER PUBLICATIONS

(*) Notice: Subject to any disclaimer, the term of this patent is extended or adjusted under 35 U.S.C. 154(b) by 224 days.

Schouwenaars, R., Montoya-Bautista, C.V., Isaacs-Páez, E.D. et al. Removal of arsenic III and V from laboratory solutions and contaminated groundwater by metallurgical slag through anion-induced precipitation . . . Environ Sci Pollut Res 24, 25034-25046 (2017). <https://doi.org/10.1007/s11356-017-0120-1> (Year: 2017).*

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(51) **Int. Cl.**
C02F 1/28 (2006.01)
C01F 5/40 (2006.01)

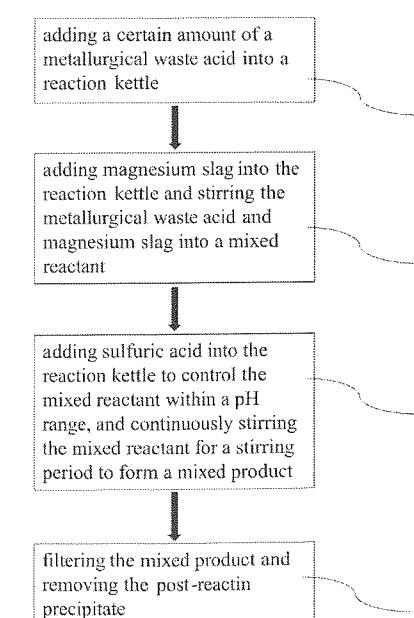
(Continued)

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CPC **C02F 1/281** (2013.01); **C01F 5/40**
(2013.01); **C02F 2101/103** (2013.01); **C02F**
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(57) **ABSTRACT**

A method for processing a metallurgical waste acid, includes the following steps. First, a certain amount of a metallurgical waste acid is added into a reaction kettle. Then, the metallurgical waste acid and magnesium slag are added into the reaction kettle in a weight ratio ranging from 5:1 to 15:1 and are stirred into a mixed waste water. The reaction temperature is the room temperature. Then, a certain amount of sulfuric acid is added into the reaction kettle to control the mixed waste water within a pH range. At last, the mixed waste water is filtered.

13 Claims, 9 Drawing Sheets



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If the application for this patent was filed on or after December 12, 1980, maintenance fees are due three years and six months, seven years and six months, and eleven years and six months after the date of this grant, or within a grace period of six months thereafter upon payment of a surcharge as provided by law. The amount, number and timing of the maintenance fees required may be changed by law or regulation. Unless payment of the applicable maintenance fee is received in the United States Patent and Trademark Office on or before the date the fee is due or within a grace period of six months thereafter, the patent will expire as of the end of such grace period.

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If this application was filed prior to June 8, 1995, the term of this patent begins on the date on which this patent issues and ends on the later of seventeen years from the date of the grant of this patent or the twenty-year term set forth above for patents resulting from applications filed on or after June 8, 1995, subject to the payment of maintenance fees as provided by 35 U.S.C. 41(b) and any extension as provided by 35 U.S.C. 156 or any disclaimer under 35 U.S.C. 253.