

Title (en)

ELECTROCHEMICAL PRODUCTION OF RARE EARTH ALLOYS AND METALS COMPRISING A LIQUID ANODE

Title (de)

ELEKTROCHEMISCHE HERSTELLUNG VON SELTENERDLEGIERUNGEN UND METALLEN MIT EINER FLÜSSIGEN ANODE

Title (fr)

PRODUCTION ÉLECTROCHIMIQUE DE MÉTAUX ET D'ALLIAGES DE TERRES RARES COMPRENANT UNE ANODE LIQUIDE

Publication

**EP 3339480 A1 20180627 (EN)**

Application

**EP 16205757 A 20161221**

Priority

EP 16205757 A 20161221

Abstract (en)

The present invention disclose a method of recycling rare earth elements, rare earth alloys and/or rare earth metals from permanent magnets and/or scrap metals containing iron (Fe) and rare earth elements in a molten salt electrochemical process. The method comprises steps of: arranging an electrolysis cell comprising an anode compartment in communication with an electric lead of a liquid anode, wherein a cathode and/or a cathode product reservoir is collecting refined rare earth alloys, elements and metals in a solid or liquid state separated by a fluoride based liquid electrolyte.

IPC 8 full level

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CPC (source: EP)

**C25C 3/34** (2013.01); **C25C 3/36** (2013.01); **C25C 7/005** (2013.01); **C25C 7/025** (2013.01)

Citation (applicant)

- CN 103409649 B 20150225 - UNIV HARBIN ENG
- R. SASAI; N. SHIMAMURA: "Technique for recovering rare-earth metals from spent sinteredNd-Fe-B magnets without external heating", JOURNAL OF ASIAN CERAMIC SOCIETIES, vol. 4, 2016, pages 155 - 158
- J. LUCAS; P. LUCAS; T. LE MERCIER; A. ROLLAT; W. DAVENPORT: "Rare Earths. Science, Technology, Production and Use", 2015, ELSEVIER
- S. PANG; S. YAN; Z. LI; D. CHEN; L. XU; B. ZHAO: "Development on Molten Salt Electrolytic Methods and Technology for Preparing Rare Earth Metals and Alloys in China", CHINESE JOURNAL OF RARE METALS, vol. 35, no. 3, 2011, pages 440 - 450

Citation (search report)

- [XY] CN 104789991 A 20150722 - UNIV JIANGXI SCI & TECHNOLOGY
- [Y] US 2961387 A 19601122 - SLATIN HARVEY L
- [A] US 5932084 A 19990803 - TAKAMARU KIYOFUMI [JP]
- [A] US 5427657 A 19950627 - SHARMA RAM A [US]
- [A] DATABASE WPI Week 201424, Derwent World Patents Index; AN 2014-E88020, XP002771500

Cited by

CN114590874A

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

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