

Title (en)

METHOD FOR THE PRODUCTION OF COBALT AND ASSOCIATED OXIDES FROM VARIOUS FEED MATERIALS

Title (de)

VERFAHREN ZUR HERSTELLUNG VON KOBALT UND ASSOZIIERTEN OXIDEN AUS VERSCHIEDENEN EINSATZSTOFFEN

Title (fr)

PROCÉDÉ DE PRODUCTION DE COBALT ET D'OXYDES ASSOCIÉS À PARTIR DE DIVERS MATÉRIAUX DE CHARGE

Publication

EP 3638819 A4 20210127 (EN)

Application

EP 18816937 A 20180608

Priority

- US 201762519457 P 20170614
- AU 2018050569 W 20180608

Abstract (en)

[origin: WO2018227237A1] A method is disclosed for the recovery of cobalt, nickel and manganese from ores, concentrates, tailings, scrap alloys and spent batteries in an oxidic form, which is suitable for direct use in the manufacture of lithium-ion batteries, in particular. The process is unique in being able to recover cobalt, in particular, from concentrated solutions wherein the nickel to cobalt ratio is close to unity, rather than the more common 10:1 or 1:100. The process comprises selective oxidative precipitation of each metal under differing conditions of pH and ORP (oxidation-reduction potential). Sodium hypochlorite is the preferred precipitant, since it does not generate any acid, and is therefore self-buffering at the selected pH. A unique aspect of the process is to use Mn(VII) to effect the precipitation of Mn(II).

IPC 8 full level

C22B 3/22 (2006.01); **C22B 3/00** (2006.01); **C22B 3/44** (2006.01); **C22B 7/00** (2006.01); **C22B 23/00** (2006.01); **C22B 47/00** (2006.01)

CPC (source: EP KR US)

C22B 3/22 (2013.01 - EP KR US); **C22B 3/44** (2013.01 - EP KR US); **C22B 7/006** (2013.01 - EP KR); **C22B 23/0415** (2013.01 - EP KR US); **C22B 23/0484** (2013.01 - EP KR US); **C22B 47/00** (2013.01 - EP KR); **C22B 7/006** (2013.01 - US); **Y02P 10/20** (2015.11 - EP)

Citation (search report)

- [Y] US 2014023572 A1 20140123 - VAUGHAN JAMES [AU], et al
- [A] US 2007196725 A1 20070823 - TEDJAR FAROUK [FR], et al
- [A] CA 2396972 A1 20030210 - IP CANADA CO [CA]
- [Y] SOLUTIONS CM: "LITHIUM BATTERY RECYCLING PROCESS", 31 March 2015 (2015-03-31), XP055749814, Retrieved from the Internet <URL:https://www.sagreenfund.org.za/wordpress/wp-content/uploads/2015/07/Lithium-Battery-Recycling-Literature-Review-CM-Solutions.pdf> [retrieved on 20201112]
- See references of WO 2018227237A1

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

DOCDB simple family (publication)

WO 2018227237 A1 20181220; AU 2018286479 A1 20200102; CA 3066938 A1 20181220; CN 111278997 A 20200612; EP 3638819 A1 20200422; EP 3638819 A4 20210127; JP 2020523482 A 20200806; KR 20200059191 A 20200528; US 2020109462 A1 20200409

DOCDB simple family (application)

AU 2018050569 W 20180608; AU 2018286479 A 20180608; CA 3066938 A 20180608; CN 201880048086 A 20180608; EP 18816937 A 20180608; JP 2019569259 A 20180608; KR 20197038887 A 20180608; US 201816621282 A 20180608