

Title (en)
LITHIUM-ION-CONDUCTING MATERIALS

Title (de)
LITHIUMIONENLEITENDE MATERIALIEN

Title (fr)
MATÉRIAUX CONDUCTEURS AU LITHIUM-ION

Publication
EP 2804845 A4 20150819 (EN)

Application
EP 13738426 A 20130116

Priority
• US 201261587039 P 20120116
• US 2013021730 W 20130116

Abstract (en)
[origin: WO2013109622A1] Lithium-ion-conducting ceramic materials are disclosed having characteristics of high lithium-ion conductivity at low temperatures, good current efficiency, and stability in water and corrosive media under static and electrochemical conditions. Some general formulas for the lithium-ion-conducting materials include $MI_{1+x+z-\delta}M_{III}xM_{IVa}yM_{IVb}2-x-yMVzP3-zO_{12}$ and $MI_{1+x+4z-\delta}M_{III}xM_{IVa}yM_{IVb}2-x-y-zP3O_{12}$, wherein MI comprises Li, Na, or mixtures thereof; $0.05 < x < 0.5$, $0.05 < y < 2$, $0 < z < 3$, and $0 < \delta < 0.5$; Mm comprises Al, Hf, Sc, Y, La, or mixtures thereof; MIVa comprises Zr, Ge, Sn, or mixtures thereof; MIVb comprises Ti; and MV comprises Si, Ge, Sn, or mixtures thereof. In some cases, the lithium-ion conducting materials are formed through a process in which the materials' powdered precursors are milled after being calcined and before being sintered. The milling process may include using milling media of multiple sizes.

IPC 8 full level
C04B 35/46 (2006.01); **C04B 35/64** (2006.01); **H01M 10/052** (2010.01)

CPC (source: EP)
C01B 25/45 (2013.01); **C04B 35/16** (2013.01); **C04B 35/447** (2013.01); **C04B 35/6262** (2013.01); **C04B 35/64** (2013.01); **H01M 10/0562** (2013.01); **C04B 2235/3201** (2013.01); **C04B 2235/3203** (2013.01); **C04B 2235/3217** (2013.01); **C04B 2235/3224** (2013.01); **C04B 2235/3225** (2013.01); **C04B 2235/3227** (2013.01); **C04B 2235/3244** (2013.01); **C04B 2235/3287** (2013.01); **C04B 2235/3293** (2013.01); **C04B 2235/3418** (2013.01); **C04B 2235/6567** (2013.01); **H01M 10/052** (2013.01); **H01M 10/0566** (2013.01); **H01M 2300/0068** (2013.01); **H01M 2300/0088** (2013.01); **Y02E 60/10** (2013.01)

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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 2013109622 A1 20130725; EP 2804845 A1 20141126; EP 2804845 A4 20150819

DOCDB simple family (application)
US 2013021730 W 20130116; EP 13738426 A 20130116