

Title (en)
METHOD FOR PRODUCING A MOLTEN MATERIAL

Title (de)
VERFAHREN ZUR HERSTELLUNG EINES GESCHMOLZENEN MATERIALS

Title (fr)
PROCÉDÉ DE FABRICATION D ' UN PRODUIT FONDU

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Application
EP 12758618 A 20120716

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Abstract (en)
[origin: WO2013011452A1] The present invention relates to a method for manufacturing a molten material, the crystallised portion of which consists, for more than 99.3 wt %, of a single crystalline phase having the formula $(Li1-aAa)1+x(G1-bJb) y[(XO4)1-dDd]zEe$, where: Li is the element lithium; A is a lithium substituent selected from among the elements Na, K, H, and the mixtures thereof, wherein a is no higher than 0.2; G is selected from among the elements Fe, Mn, Ni, Co, V, and the mixtures thereof; J is a substituent of G selected from among Nb, Y, Mg, B, Ti, Cu, Cr and the mixtures thereof, wherein b is no higher than 0.5; XO4 is an oxyanion in which O designates the element oxygen and X is selected from among the elements P, S, V, Si, Nb, Mo, Al, and the mixtures thereof; D is selected from among the anions F-, OH-, Cl-, and the mixtures thereof, wherein d is no higher than 0.35; E being selected from among the element F, the element Cl, the element O, the OH group, or the mixtures thereof; $0 = e = 2$; $-0.2 = x = 2$; $0.9 = y = 2$; and $1 = z = 3$, said method including the following steps: a) mixing raw materials so as to form a feedstock; b) melting the feedstock until a liquid mass at a temperature T_m , which is higher than the melting temperature T_f of the molten material obtained at the end of step e), is obtained; c) cooling until said liquid mass is completely solidified, so as to obtain a molten material, the amorphous phase of which constitutes less than 80 wt % thereof; d) optionally crushing and/or grinding and/or performing selection by particle size on said molten material; e) optionally, heat-treating the molten material at a temperature which is an increment lower than the melting temperature T_f of said molten material and which is between $T_f-800^{\circ}C$ (or $500^{\circ}C$ if $T_f-800^{\circ}C$ is less than $500^{\circ}C$) and $T_f-50^{\circ}C$, for a period of time during which the temperature is maintained at said increment and which is more than 90 minutes, in a reducing environment; and f) optionally, crushing and/or grinding and/or performing selection by particle size on said molten material.

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