WHAT IS CLAIMED IS:

1. A method for producing a secondary battery material from black mass, comprising:

a roasting step S10 of roasting black mass;

a pre-extraction step S20 of leaching a roasted black mass roasted in the roasting step S10 with water to separate a lithium (Li) solution and a cake;

a first evaporation concentration step S30 of producing lithium carbonate (Li_2CO_3) crystals by evaporating and concentrating the lithium (Li) solution produced in the pre-extraction step S20;

a leaching step S40 of leaching the cake separated in the pre-extraction step S20;

a first purification step S50 of removing copper and aluminum from a leaching solution produced in the leaching step S40;

a post-extraction step S60 of neutralizing the solution prepared in the first purification step S50 and separating the solution into a lithium (Li) solution and a cake containing Ni, Co, and Mn (NCM cake);

a feeding step of feeding the lithium carbonate (Li_2CO_3) crystals produced in the first evaporation concentration step S30 and the lithium (Li) solution prepared in the post-extraction step S60 to a lithium hydroxide (LiOH) production step;

a phosphate precipitation step S70 of producing a lithium phosphate (Li_3PO_4) cake by adding phosphoric acid (H_3PO_4) and sodium hydroxide (NaOH) to the lithium (Li) solution prepared in the post-extraction step S60;

a sulfate production step S80 of preparing a lithium sulfate (Li_2SO_4) solution by leaching the lithium carbonate (Li_2CO_3) crystals produced in the first evaporation concentration step S30 and the lithium phosphate (Li_3PO_4) cake produced in the phosphate precipitation step S70 with sulfuric acid;

a carbonate precipitation step S90 of precipitating lithium carbonate (Li_2CO_3) by adding sodium carbonate (Na_2CO_3) to the lithium sulfate (Li_2SO_4) produced in the sulfate production step S80;

a hydroxide production step S100 of preparing a lithium hydroxide (LiOH) solution by adding calcium oxide (CaO) and water to the lithium carbonate (Li_2CO_3); and

a second evaporation concentration step S110 of evaporating and concentrating the lithium hydroxide (LiOH) solution prepared in the hydroxide production stepS100.

2. The method of Claim 1, further comprising:

a weak acid leaching step S120 of preparing a solution containing Ni, Co, and Mn (NCM solution) by leaching the NCM cake produced in the post-extraction step S60 with sulfuric acid;

a second purification step S130 of removing impurities from the NCM solution prepared in the weak acid leaching step S120; and

a step S140 of feeding the NCM solution passed through the second purification step S130 to a factory that produces precursor raw materials.

3. The method of Claim 2, further comprising:

a step of removing residual sodium salt by repulping the NCM cake produced in the post-extraction step S60 twice or more.

4. The method of Claim 1, wherein the first purification step S50 includes a step of removing copper (Cu) by adding sodium hydrogen sulfide (NaHS) and removing aluminum (Al) by adding sodium hydroxide (NaOH).

5. The method of Claim 1, further comprising:

a step of separating the lithium sulfate (Li_2SO_4) solution produced the sulfate production step S80 into lithium sulfate (Li_2SO_4) crystals and a phosphoric acid (H_3PO_4) filtrate by evaporating and concentrating the lithium sulfate (Li_2SO_4) solution.

6. The method of Claim 1, further comprising:

a repulping step of removing residual sodium salt from the cake of lithium carbonate (Li_2CO_3) produced in the carbonate precipitation step S90.

7. The method of Claim 1, further comprising:

a step of removing impurities by adding aluminum sulfate ($Al_2(SO_4)_3$) to the solution prepared in the sulfate production step S80.