CLAIMS

[Claim 1]

A method for recovering a valuable substance from a lithium ion secondary battery, the method comprising:

a thermal treatment step of thermally treating a lithium ion secondary battery containing aluminum, carbon, and a copper foil as constituting materials; and

a wet sorting step of applying an external force to a thermally treated product obtained in the thermal treatment step in the presence of a liquid, to sort the thermally treated product into a heavy product and a light product containing copper, characterized in that

the light product obtained by sorting in the wet sorting step has a copper grade of 90% or higher, a carbon grade of 5% 15 or lower, and a fluorine grade of 0.2% or lower.

[Claim 2]

The method for recovering a valuable substance from a lithium ion secondary battery according to claim 1, further comprising:

a classifying step of classifying the thermally treated product obtained in the thermal treatment step at a classification point of from 0.6 mm through 2.4 mm,

wherein a coarse-grained product thus obtained at a coarse side is subjected to the wet sorting step.

[Claim 3]

The method for recovering a valuable substance from a lithium ion secondary battery according to claim 1 or 2,

wherein in the wet sorting step, the thermally treated product or the coarse-grained product is placed on a net-shaped object, and vibration is applied to the net-shaped object or the liquid, to sort materials constituting the thermally treated product or the coarse-grained product into the heavy product and the light product containing copper.

[Claim 4]

The method for recovering a valuable substance from a lithium ion secondary battery according to claim 3,

wherein in the wet sorting step, the vibration applied to the net-shaped object or the liquid is in a vertical direction.

[Claim 5]

The method for recovering a valuable substance from a lithium ion secondary battery according to claim 3 or 4,

wherein in the wet sorting step, a vibration speed at which the vibration is applied to the net-shaped object or the liquid is from 1 mm/s through 1,000 mm/s, and a time needed for the vibration to make one go-and-return is from 0.1 seconds through 5 seconds.

[Claim 6]

The method for recovering a valuable substance from a lithium ion secondary battery according to any one of claim 3 to 5,

wherein a mesh size of the net-shaped object is from 0.1 mm through 50 mm.

[Claim 7]

The method for recovering a valuable substance from a

lithium ion secondary battery according to any one of claim 1 to 6,

wherein the lithium ion secondary battery contains fluorine.

[Claim 8]

The method for recovering a valuable substance from a lithium ion secondary battery according to any one of claims 1 to 7,

wherein the light product obtained by sorting in the wet sorting step has an aluminum grade of 1% or lower.

[Claim 9]

The method for recovering a valuable substance from a lithium ion secondary battery according to any one of claims 2 to 8, further comprising:

a pulverizing step of pulverizing the thermally treated product obtained in the thermal treatment step,

wherein a pulverized product thus obtained is subjected to the classifying step.

[Claim 10]

The method for recovering a valuable substance from a lithium ion secondary battery according to any one of claims 2 to 9, further comprising:

a magnetic force sorting step of sorting the thermally treated product obtained in the thermal treatment step or the coarse-grained product obtained at the coarse side in the classifying step by a magnetic force,

wherein the coarse-grained product from which a

magnetically attractable material is removed is subjected to the wet sorting step.

[Claim 11]

The method for recovering a valuable substance from a lithium ion secondary battery according to any one of claims 1 to 10,

wherein a thermal treatment temperature in the thermal treatment step is 660°C or higher and 1,100°C or lower.

[Claim 12]

The method for recovering a valuable substance from a lithium ion secondary battery according to any one of claims 1 to 11,

wherein the wet sorting step is performed using a jig sorter.