CLAIMS

[Claim 1]

A method for recovering a valuable substance, the method comprising:

a thermal treatment step of thermally treating a target containing a valuable substance while supporting a target storing unit, in which the target is stored, by a supporting unit that can support the target storing unit, wherein the thermally treating includes heating a gas present in a region, in which the supporting unit is positioned, by a flame for thermally treating the target such that the target storing unit is not contacted by the flame; and

a valuable substance recovering step of recovering the valuable substance from a thermally treated product obtained by thermally treating the target,

wherein, in the thermally treating, by directing the flame in an approximately horizontal direction by using a burner below the target storing unit, the target is heated by causing a heated gas to rise while preventing the flame from contacting the target storing unit.

[Claim 2]

The method for recovering a valuable substance according to claim 1,

wherein the flame radiating unit has a tubular member that is configured to radiate the flame and at least one end of which is open, and

the flame radiating unit radiates the flame such that the

flame does not go outside the tubular member.

[Claim 3]

The method for recovering a valuable substance according to claim1,

wherein in the thermal treatment step, a plurality of flame radiating units, each of which is the flame radiating unit, thermally treat the target by heating the gas.

[Claim 4]

The method for recovering a valuable substance according to any one of claims 1 to 3,

wherein the target storing unit is placeable on the supporting unit, and

the thermally treating is performed while the target storing unit is placed on the supporting unit.

[Claim 5]

The method for recovering a valuable substance according to any one of claims 1 to 4,

wherein the target storing unit is formed of iron or stainless steel.

[Claim 6]

The method for recovering a valuable substance according to any one of claims 1 to 5,

wherein in the thermal treatment step, the target is thermally treated at 750°C or higher and lower than 1,085°C.

[Claim 7]

The method for recovering a valuable substance according to any one of claims 1 to 6,

wherein the target is a lithium ion secondary battery.

[Claim 8]

The method for recovering a valuable substance according to claim 7,

wherein the lithium ion secondary battery has a housing containing aluminum, and

in the thermal treatment step, the aluminum of the housing of the lithium ion secondary battery is melted and a melted product is separated.

[Claim 9]

The method for recovering a valuable substance according to claim 7 or 8,

wherein the valuable substance contains copper.

[Claim 10]

The method for recovering a valuable substance according to any one of claims 7 to 9,

wherein in the thermal treatment step, a combustion state of the lithium ion secondary battery is observed to judge whether combustion of the lithium ion secondary battery has finished or not, and

when it is judged that combustion of the lithium ion secondary battery has finished, the thermally treating is terminated.

[Claim 11]

The method for recovering a valuable substance according to any one of claims 1 to 10,

wherein the valuable substance recovering step includes:

a pulverizing step of pulverizing the thermally treated product, to obtain a pulverized product;

a classifying step of classifying the pulverized product at a classification point of 0.6 mm or greater and 2.4 mm or less, to obtain a coarse-grained product and a fine-grained product; and

a magnetic force sorting step of sorting the coarse-grained product using a magnet having a magnetic flux density of 0.03 tesla or higher.