CLAIMS

1. A method of producing a mineral admixture for concrete, comprising:
a first step of reacting calcined dust with water; and

a second step of reacting a product obtained by the first step with carbon dioxide,

wherein the mineral admixture uses, as a raw material, the calcined dust obtained in a step of calcining using an upright furnace or a horizontal furnace for producing quicklime and collected with a collecting apparatus, and the mineral admixture includes 5% by mass or more and 37% by mass or less of calcium.

2. A method of producing a mineral admixture for concrete, comprising:

a first step of reacting calcined dust with water; and

a second step of reacting a product obtained by the first step with carbon dioxide,

wherein the mineral admixture uses, as a raw material, the calcined dust obtained in a step of calcining using an upright furnace or a horizontal furnace for producing quicklime and collected with a collecting apparatus, and the mineral admixture includes 5% by mass or more and 37% by mass or less of calcium, and

wherein the mineral admixture has a value of a percentage passing by mass of 70% or more at a particle diameter of 600 μm, the value of the percentage passing by mass of 45% or more at a particle diameter of 150 μm, and the value of the percentage passing by mass of 30% or more at a particle diameter of 75 μm.

3. A method of producing concrete comprising:

a step of producing a mineral admixture including 5% by mass or more and 37% by mass or less of calcium by reacting water and carbon dioxide with calcined dust obtained in a step of calcinating by an upright furnace or a horizontal furnace for producing quicklime and collected with a collecting apparatus; and

a step of producing concrete by kneading the produced mineral admixture, aggregate, and water.

4. The method of producing concrete of claim 3, wherein the step of producing the mineral admixture comprises a first step of reacting the calcined dust with water; and a second step of reacting a product obtained by the first step with carbon dioxide.

5. The method of producing concrete of claim 3 or 4, wherein 400 kg or less of the mineral admixture is contained in 1 m^3 of the concrete.

6. The method of producing concrete of claim 3 or 4, wherein the concrete comprises Portland cement, aggregate, water, and the mineral admixture,
wherein the mineral admixture has a mass within the range of five to ten times the mass of the Portland cement.

7. A method of producing a calcium-containing material, comprising:
a first step of reacting a raw material with water; and
a second step of reacting a product obtained by the first step with carbon dioxide,
wherein the calcium-containing material uses, as the raw material, calcined dust obtained in a step of calcining limestone using an upright furnace or a horizontal furnace for producing quicklime and collected with a collecting apparatus, and
wherein the calcium-containing material has a whiteness value of 55 or less, the whiteness value denoting whiteness W (L*a*b*) in the Lab color space defined by the International Commission on Illumination (CIE).

8. A method of producing a calcium-containing material comprising:
a first step of reacting a raw material with water,
wherein the reaction of a material including the raw material with water is not carried out in a solution; and
a second step of reacting a product obtained by the first step with carbon dioxide,
wherein the calcium-containing material uses, as the raw material, calcined dust obtained in a step of calcining limestone using an upright furnace or a horizontal furnace for producing quicklime and collected with a collecting apparatus.

9. A method of producing a calcium-containing material comprising:
a first step of reacting a raw material with water; and
a second step of reacting a product obtained by the first step with carbon dioxide,
wherein the reaction of the product obtained in the first step with carbon dioxide is not carried out in a solution, and

wherein the calcium-containing material uses, as the raw material, calcined dust obtained in a step of calcining limestone using an upright furnace or a horizontal furnace for producing quicklime and collected with a collecting apparatus.

10. The method of producing the calcium-containing material of any one of claims 7 to 9, wherein the upright furnace or the horizontal furnace is a furnace selected from Maerz furnaces, Beckenbach furnaces, and rotary kilns.

11. The method of producing the calcium-containing material of any one of claims 7 to 9, wherein the calcined dust has a cumulative fraction value of 70% or more for particles having a particle diameter of 600 μm or less, a cumulative fraction value of 50% or more for particles having a particle diameter of 150 μm or less, and a cumulative fraction value of 30% or more for particles having a particle diameter of 75 μm or less, on a volume basis as measured by laser diffraction/scattering.

12. The method of producing the calcium-containing material of any one of claims 7 to 9, wherein the calcined dust includes 5% by mass or more and 66% by mass or less of calcium.