[0006]

An object of the present disclosure is to provide at least one of a granulated powder and a simple method for producing the granulated powder; with the granulated powder, a green body can be prepared by press molding without the need to particularly control a composition of an organic component of a slurry including a raw material powder that is to be granulated, the green body having a strength that makes the green body resistant to cracking and edge chipping during handling.

SOLUTION TO PROBLEM

[0007]

In the related art, granulated powders suitable for molding have been prepared with attention being focused on the composition of the slurry, such as the raw material powder, the organic component, and the combination of the raw material powder and the organic component. In contrast, in the present disclosure, studies were conducted with attention being focused on the granulation conditions themselves, to improve the properties of granules without particularly controlling the composition of the slurry. As a result, it was discovered that by controlling the granulation conditions themselves, a granulated powder that provides a green body having higher strength can be prepared, and that consequently, the resulting green body is resistant to defects at an edge thereof.

SUMMARY

[0008]

Specifically, the present invention is as described in the claims, and a summary of the present disclosure is as follows.

[1] A granulated powder of a ceramic, the granulated powder comprising a powder of the ceramic; and a binder, wherein the granulated powder has an infrared spectrum in which an absorbance peak intensity, per mass of the binder, of a peak top at 1730 ± 20 cm^{-1} is 0.023 counts or greater.

[2] The granulated powder according to [1], wherein the ceramic is a zirconia.

[3] The granulated powder according to [2], wherein the zirconia is a zirconia that contains a stabilizing element.

[4] The granulated powder according to [3], wherein the stabilizing element is one or more selected from the group of yttrium, magnesium, calcium, cerium and erbium.

[5] The granulated powder according to any one of [1] to [4], wherein the binder is at least one of a polyvinylpyrrolidone-based resin and an acrylic resin.

[6] The granulated powder according to any one of [1] to [5], wherein a content of the binder is 0.1 mass% or greater and 8 mass% or less.

[7] The granulated powder according to any one of [1] to [6], wherein the granulated powder has a bulk density of 1.10 g/cm^3 or greater.

[8] The granulated powder according to any one of [1] to [7], wherein the granulated powder has a measured density of 2.70 g/cm^3 or greater, where the measured density is a density after the granulated powder is subjected to press molding under a pressure of 49 MPa, and where the press molding is performed on 15 ± 0.5 g of the granulated powder loaded into a cylindrical mold having a diameter of 25 mm.

[9] A method for producing the granulated powder according to any one of [1] to [8], the method comprising the step of spray-drying a slurry including a solvent, the binder and the powder of the ceramic, the spray-drying being performed with a difference between an inlet gas temperature and an outlet gas temperature being 55°C or greater.

[10] The production method according to [9], wherein the inlet gas temperature is 300°C or less.

[11] A method for producing a green body, the method comprising using the granulated powder according to any one of [1] to [8].

[12] A method for producing a calcined body, the method comprising using the green body according to [11].

[13] A method for producing a sintered body, the method comprising using the green body according to [11] or the calcined body according to [12].

[0008a]

In an aspect of the present disclosure, there is provided a granulated powder of a ceramic, the granulated powder comprising:

a powder of the ceramic; and

a binder, wherein

the granulated powder has an infrared spectrum in which an absorbance peak intensity, per mass of the binder, of a peak top at 1730 ± 20 cm^{-1} is 0.023 counts or greater.

[0008b]

In another aspect of the present disclosure, there is provided a method for producing the granulated powder as disclosed herein, the method comprising the step of spray-drying a slurry including a solvent, the binder and the powder of the ceramic, the spray-drying being performed with a difference between an inlet gas temperature and an outlet gas temperature being 55°C or greater.

[0008c]

In a further aspect of the present disclosure, there is provided a method for producing a green body, the method comprising using the granulated powder as disclosed herein.

[0008d]

In another aspect of the present disclosure, there is provided a method for producing a calcined body, the method comprising using the green body as disclosed herein.

[0008e]

In a further aspect of the present disclosure, there is provided a method for producing a sintered body, the method comprising using the green body as disclosed herein or the calcined body as disclosed herein.

ADVANTAGEOUS EFFECTS OF INVENTION

[0009]

The present disclosure can provide at least one of a granulated powder and a