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Test methods for bulk density of fine ceramic powder

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In the event of any doubts arising as to the contents,
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Test methods for bulk density of fine ceramic powder

1 Scope This Japanese Industrial Standard specifies the measuring methods for obtaining the initial stage bulk density and tapped bulk density of fine ceramic powder.

Remarks 1 The size of the particles of powder to which this Standard is applicable is in an extent from some hundreds μm to $0.1\ \mu\text{m}$, and it does not apply to the super micro particle powder.

2 The following standards are normative references to this Standard :

JIS G 4303 *Stainless steel bars*

JIS M 8100 *Particulate materials-General rules for methods of sampling*

JIS R 3503 *Glass apparatus for chemical analysis*

JIS Z 8401 *Rules for rounding off of numerical values*

JIS Z 8801 *Test sieves*

2 Definitions For the purpose of this Standard the following principal definitions apply:

(1) **bulk density** The mass per unit bulk volume occupied by the powder.

(2) **initial stage bulk density** Such a bulk density that the sample has been dispersed in a vessel.

If it precipitates due to its own weight after it has been filled up, this means the bulk density under such a condition that the precipitation is considered as finished.

(3) **tapped bulk density** The bulk density of sample after subjected to such procedures that the sample is contained in a vessel in dispersed state, and impacts are applied to the vessel by tapping until the sample shows no volume change.

(4) **tapping rate** Number of impacts applied by tapping per unit time.

(5) **constant volume measuring method** The measuring method to be carried out while the volume of sample is kept constant.

(6) **constant mass measuring method** The measuring method to be carried out while the mass of sample is kept constant.

3 Types of measuring methods The measuring methods shall be the following two types.

(1) Constant volume measuring method

(2) Constant mass measuring method

4 Equipments and instruments

4.1 Tapping equipment The tapping equipment shall be an equipment having the mechanical tapping mechanism by a cam and be constructed as stated below. An example of the structure of equipment is given in Attached Fig. 1.