



JAPANESE
INDUSTRIAL
STANDARD

Translated and Published by
Japanese Standards Association

JIS Z 8816 : 2001

**Particulate materials—
General requirements for
methods of sampling**

ICS 19.020

Descriptors : medium-grain material, sampling methods

Reference number : JIS Z 8816 : 2001 (E)

Foreword

This translation has been made based on the original Japanese Industrial Standard established by the Minister of Economy, Trade and Industry through deliberations at the Japanese Industrial Standards Committee in accordance with the Industrial Standardization Law:

Date of Establishment: 2001-04-20

Date of Public Notice in Official Gazette: 2001-04-20

Investigated by: Japanese Industrial Standards Committee
Divisional Council on Basic Items

JIS Z 8816:2001, First English edition published in 2002-03

Translated and published by: Japanese Standards Association
4-1-24, Akasaka, Minato-ku, Tokyo, 107-8440 JAPAN

In the event of any doubts arising as to the contents,
the original JIS is to be the final authority.

© JSA 2002

All rights reserved. Unless otherwise specified, no part of this publication may be reproduced or utilized in any form or by any means, electronic or mechanical, including photocopying and microfilm, without permission in writing from the publisher.

Printed in Japan

Particulate materials— General requirements for methods of sampling

1 Scope This Japanese Industrial Standard specifies the general requirements for methods of sampling carried out for determining, for example, the physical properties and chemical composition of the particulate materials which form an aggregate of solid particles.

- Remarks
- 1 This Standard is for giving the guideline in specifying methods of sampling of various kinds of particulate materials.
 - 2 This Standard is applicable to the particulate materials for which method of sampling is not specified.
 - 3 This Standard is mainly for sampling the test portion used in laboratory.

2 Normative references The following standards contain provisions which, through reference in this Standard, constitute provisions of this Standard. The most recent editions of the standards (including amendments) indicated below shall be applied.

JIS Z 8101-1 *Statistics—Vocabulary and symbols—Part 1 : Probability and general statistical terms*

JIS Z 8101-2 *Statistics—Vocabulary and symbols—Part 2 : Statistical quality control terms*

3 Definitions For the purposes of this Standard the definitions and symbols in JIS Z 8101-1 and JIS Z 8101-2 and the following shall apply.

3.1 Vocabulary

particulate material Generic term of aggregate of solid particles.

reduction Dividing one sample into some smaller size samples of the same physical properties and chemical composition.

partition Dividing the sample into some smaller size samples without regard to physical properties and chemical composition.

maximum particle diameter The size of the largest particle included in the particulate materials to be sampled.

3.2 Symbols

M Total number of the primary sampling units which constitute a lot (for example, if one lot consists of 100 containers containing particulate materials, $M = 100$)

m In two-stage sampling, the number of the primary sampling units taken at the first stage (for example, when 30 containers are taken at random as the primary sample from a lot consisting of 100 containers of particulate materials, $m = 30$)

- n The number of increments taken from the particulate materials to be sampled
- n_w In two-stage sampling, the number of increments sampled as the second stage from the primary sampling units
- $\bar{x}$ Estimated mean of measured values
- σ_{SPM} Accuracy expressed with standard deviation in all procedures of sampling, preparation and measurement
- σ_b Dispersion between layers which is expressed with standard deviation
- σ_i Dispersion between increments within a lot which is expressed with standard deviation
- σ_M Accuracy of analysis or measurements which is expressed with standard deviation
- σ_P Accuracy of sample preparation which is expressed with standard deviation
- σ_S Accuracy of sampling which is expressed with standard deviation
- σ_w Dispersion between increments within a layer which is expressed with standard deviation

4 General matters

4.1 Outline of methods of sampling The outline of particulate material sampling is as follows (Fig. 1);

- Determine particulate material or lot to be sampled.
- According to the conditions of the particulate materials, determine the suitable sampling method (random sampling, systematic sampling, stratified sampling or two-stage sampling).
- Take a specific number of increments of specific size.
- Reduce the increment or gross sample down to the laboratory sample size.

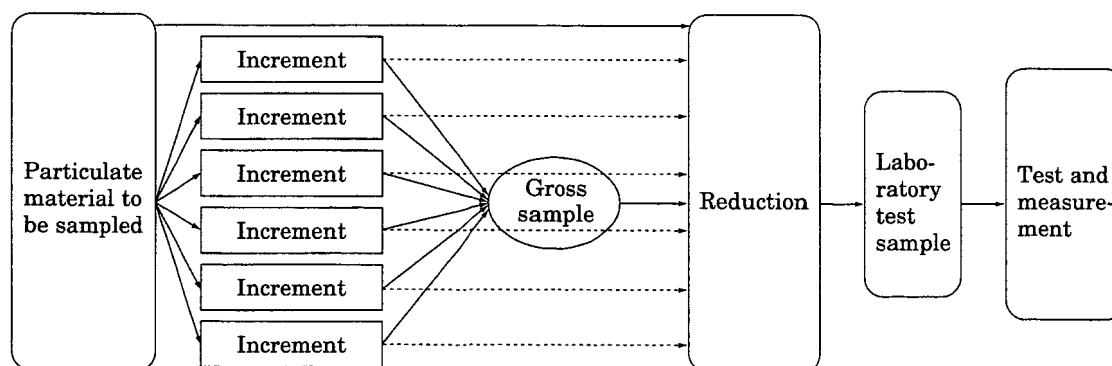


Fig. 1 Outline of sampling method for particulate materials

4.2 Handling of sample Through an overall process from taking the increments to preparing the sample, care shall be taken so as not to lose or damage, or deteriorate the sampled particulate materials or any part of them.

a) **Container of sample**

- 1) The container used for the transportation and storage of the sample shall be able to contain the entire volume of the sample, be clean and strong, and be capable of tight covering or sealing.
- 2) The container for moisture content measurement samples shall be made of airtight and non-hygroscopic material, and shall be selected according to the properties of the particulate materials and the objective of the test, for example, a corrosion resistant container for corrosive materials.

b) **Storage of sample** The sample shall be stored in a place where it is secured not to be deteriorated by temperature, humidity, direct sunshine, etc.

4.3 Calibration of sampling accuracy It shall be confirmed that the sampling accuracy is within a specified range under the following conditions or when necessary.

- when changing the unit of lot;
- when changing the sampling method;
- when changing a part of manufacturing process.

5 Sampling methods

5.1 Size of particulate material or lot to be sampled

- a) When standing still, the whole of particulate material can be considered to be a particulate material to be sampled.
- b) When sampling the particulate material within a process of transportation or continuous production, a lot size can be determined according to an appropriate transportation unit or production unit.

5.2 Increment Sampling method, size and the number of increments shall be as follows;

a) **Sampling method for increment**

- 1) When sampling from the accumulated particulate material or from a large volume of the particulate material contained in a container, random sampling, stratified sampling or two-stage sampling is used.
- 2) When sampling from the particulate material during transportation or moving within a process, random sampling or systematic sampling is used.

b) **Sampling instrument for increment** The sampling of increments is carried out by means either of an appropriate sampling instrument such as sampling scoop or a mechanical sampling instrument.

- 1) The sampling instrument is selected by its dimensions taking into account the maximum diameter of the particulate material to be sampled. Table 1 gives examples of the sampling scoop.