

JIS

JAPANESE INDUSTRIAL STANDARD

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

JIS M 8100—1992

Translated and Published

by

Japanese Standards Association

In the event of any doubt arising,
the original Standard in Japanese is to be final authority.

Contents

	Page
1. Scope	1
2. Definitions	2
3. Symbols	4
4. General matters	5
4.1 Summary of sampling and sample preparation	5
4.2 Handling of sample	6
4.3 Determination of average quality	7
4.4 Rounding-off of numerical value	7
4.5 Other matters	7
5. Sampling method	8
5.1 Size of lot	8
5.2 Characteristics and precision	8
5.3 Quality variation	9
5.4 Carry-out time of sampling	9
5.5 Classification of sampling	9
5.6 Increments	10
5.6.1 Size of increment	10
5.6.2 Devices and apparatus for taking increments	10
5.6.3 Determining method of number of increments	13
5.6.4 Method of taking increments	15
5.7 Method for constitution of increments and its overall precision ..	15
5.8 Combined use and multiple use of sample	18
5.9 Belt sampling	19
5.10 Freight car sampling	19
5.11 Container sampling	20
5.12 Ship hold sampling	21
5.13 Sampling for particle size	21
5.14 Sampling for moisture content	21
6. Method of sample preparation	22
6.1 Preparation of sample	22
6.2 Precision of preparation	24
6.3 Predrying of samples	24

	Page
6.4 Crushing of sample	25
6.5 Reduction of sample	26
6.5.1 Classification of reduction method	26
6.5.2 Increment reduction method	26
6.5.3 Method by use of riffle sampler	28
6.5.4 Conical quartering method	29
6.5.5 Alternate shovelling method	29
6.5.6 Method by reductors	29
6.5.7 Standard of sample reduction	29
6.6 Preparation of constituent test sample	30
6.7 Preparation of moisture content test sample	30
6.8 Preparation of particle size test sample	31
7. Moisture content determining method	32
8. Method of determining particle size	34
Attached Fig. 1. Examples of dimension of shovels for taking increments	36
Attached Fig. 2. Illustration of manual increment reduction method ...	37
Attached Fig. 3. Forms and dimensions of riffle sampler	39
Attached Fig. 4. Conical quartering	40
Attached Fig. 5. Alternate shovel method	41
Attached Table 1. Class, form of hole and aperture of sieve	42
Annex 1. Items to be specified in each standard of sampling method ..	43
Annex 2. Required conditions and forms of mechanical sampling and preparation apparatus	45
Annex 3. Method of investigation for quality variation in stratified sampling and systematic sampling	62
Annex 4. Method of investigation for quality variation in two-stage sampling	71
Annex 5. Experimental methods for checking the precision of sampling .	77
Annex 6. Experimental methods for checking the bias of sampling	99
Annex 7. Experimental methods for checking the bias and precision of reductor	109

Particulate materials - General rules
for methods of sampling

M 8100-1992

1. Scope This Japanese Industrial Standard specifies the general matters of the following (1) to (4) methods for determining the average values (hereafter referred to as the "average quality") of the chemical constituents, moisture contents, particle size, physical characteristics and other characteristics of a lot of particulate materials.

- (1) Methods of sampling
- (2) Methods of preparing the sample to be tested
- (3) Methods of determining the moisture content
- (4) Methods of determining the particle size

Remarks 1. This Standard gives a guide line in preparing each standard of sampling methods of various kinds of particulate materials (see Annex 1).

2. This Standard is applicable to the case of carrying out the sampling of particulate materials and the like which have not been specified in JIS, as appropriate.
3. The following standards are cited in this Standard.

JIS Z 8401-Rules for rounding off of numerical values

JIS Z 8801-Test sieves

JIS Z 8815-Test sieving

4. Corresponding international standards to this Standard are given as follows:

ISO 3082: 1987 Iron ores - Increment sampling and sample preparation - Mechanical method

ISO 3084: 1986 Iron ores - Experimental methods for evaluation of quality variation

ISO 3085: 1986 Iron ores - Experimental methods for checking the precision of sampling

ISO 3086: 1986 Iron ores - Experimental methods for checking the bias of sampling