



**NATIONAL STANDARD OF THE
PEOPLE'S REPUBLIC OF CHINA**

GB/T 25915.1-2021

**Cleanrooms and associated controlled environments - Part 1:
Classification of air cleanliness by particle concentration**

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Foreword

This document was drafted in accordance with the rules provided in GB/T 1.1-2020

Directives for standardization - Part 1.Rules for the structure and drafting of standardizing documents.

This document is Part 1 of GB/T 25915, Cleanrooms and associated controlled environments. The following parts have been issued for GB/T 25915.

- Part 1.Classification of air cleanliness by particle concentration;
- Part 2.Monitoring to provide evidence of cleanroom performance related to air cleanliness by particle concentration;
- Part 3.Test methods;
- Part 4.Design, construction and start-up;
- Part 5.Operations;
- Part 6.Vocabulary;
- Part 7.Separative devices (clean air hoods, gloveboxes, isolators and minienvironments);
- Part 8.Classification of air cleanliness by chemical concentration (ACC);
- Part 9.Classification of surface cleanliness by particle concentration;
- Part 10.Classification of surface cleanliness by chemical concentration;
- Part 12.Specifications for monitoring of air cleanliness by nanoscale particle

concentration.

This document serves as a replacement of GB/T 25915.1-2010 Cleanrooms and associated controlled environments - Part 1. Classification of air cleanliness. In comparison with GB/T 25915.1-2010, apart from structural adjustments and editorial modifications, the main technical changes are as follows.

- a) Add apparatus requirements for particle determination in Clause 1 (see Clause 1);
- b) Add "Normative references" (see Clause 2);
- c) in Clause 3 Terms and definitions.
 - Modify the definitions of cleanroom, clean zone, classification, particle, etc. (see 3.1.1, 3.1.2, 3.1.4, 3.2.1; 2.1.1 of the 2010 edition);
 - Delete terms such as ultrafine particle, fiber, U descriptor, customer and supplier (2.2.5, 2.2.7, 2.3.1, 2.5.1 and 2.5.2 of the 2010 version);
 - Add definitions such as unidirectional airflow, non-unidirectional airflow, resolution, maximum permissible measurement error, light scattering (discrete) airborne particle counter, discrete-macroparticle counter and time-of-flight particle sizing apparatus (see 3.2.7, 3.2.8, 3.4.1, 3.4.2, 3.5.1, 3.5.2, 3.5.3);
- d) Add notes to Table 1 (see Table 1);
- e) Add a clear application particle size range (see 4.2);
- f) Add the intermediate decimal cleanliness classes and particle size thresholds (see 4.5);
- g) Modify the contents of Annex B and Annex C and integrate them into the normative Annex A (see Annex A; Annex B and Annex C of the 2010 version);
- h) Enrich the content of Annex D to Annex B (see Annex B; Annex D of the 2010 edition);
- i) Delete the content of ultrafine particle in Annex E, enrich the technical requirements for counting and sizing of macroparticles, and integrate them into Annex C (see Annex C; Annex E of the 2010 version);
- j) Modify Annex F and integrate it into Annex D (see Annex F; Annex D of the 2010

edition);

k) Add notes on the intermediate decimal cleanliness classes and particle size thresholds (see Annex E);

l) Delete Annex A "Illustration of cleanliness" (see Annex A of the 2010 version).

This document modifies and adopts ISO 14644-1:2015 Cleanrooms and associated controlled environments - Part 1: Classification of air cleanliness by particle concentration.

The technical differences between this document and ISO 14644-1:2015, and the causes for these differences are as follows.

-- Modify Formula (A.1) in the normative Annex A. The reason is that Formula (A.1) is applicable to clean rooms with smaller areas. For large-scale and ultra-large-scale clean rooms above 10 000 m² in our country, it exposes the problems of too many sampling locations and failure to adopt more reasonable sampling statistical principles.

This document also makes the following editorial modifications.

-- Delete B.6 in the informative Annex B.

1 Scope

This document specifies the classification of air cleanliness in terms of concentration of airborne particles in cleanrooms and clean zones; and separative devices as defined in GB/T 25915.7.

2 Normative references

The following documents are referred to in the text in such a way that some or all of their content constitutes requirements of this document. For dated references, only the version corresponding to that date is applicable to this document; for undated references, the latest version (including all amendments) is applicable to this document.

GB/T 25915.2-2021, Cleanrooms and associated controlled environments - Part 2.

Monitoring to provide evidence of cleanroom performance related to air cleanliness by particle concentration (ISO 14644-2:2015, IDT)

3 Terms and definitions

For the purposes of this document, the following terms and definitions apply.

4 Classification

Air cleanliness class by particle concentration shall be designated by an ISO Class number, N. The maximum permitted concentration of particles for each considered particle size is determined from Table 1.

5 Demonstration of compliance

The reference test method for demonstrating compliance is given in Annex A (normative). Alternative methods or instrumentation (or both), having at least comparable performance, may be specified. If no alternative is specified or agreed upon, the reference method shall be used.

Annex A

(Normative)

Reference method for classification of air cleanliness by particle concentration

A discrete-particle-counting instrument is used to determine the concentration of airborne particles, equal to and greater than the specified sizes, at designated sampling locations.

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