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

GB/T 12334-2001

**Metallic and other inorganic coatings -- Definitions and
conventions concerning the measurement of thickness**

(English Translation)

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1 Scope

This Standard specifies the terms for measuring the thickness of metallic and other non-organic coatings on any substrate, and outlines some general rules for measuring the minimum thickness of coatings.

This Standard applies to the thickness measurement of metallic and other non-organic coatings on any substrate.

2 Normative References

The following standards contain provisions which, through reference in this Standard, constitute provisions of this Standard. At the time of publication, the editions indicated are valid.

All standards are subject to revision. The parties who are using this Standard shall explore the possibility of using the latest version of the following standards.

GB/T 4955-1997 Metallic coatings - Measurement of coating thickness - Coulometric method by anodic dissolution (idt ISO 2177.1985)

GB/T 6462-1986 Metallic and oxide coatings - Measurement of coating thickness - Microscopical method (eqv ISO 1463.1982)

3 Definitions

For the purposes of this Standard, the following definitions apply.

3.1 Significant surface

Certain surfaces of a workpiece that have been painted or are to be painted with a coating, on which the coating is crucial to its performance and/or appearance; the coating on this surface must meet all specified requirements.

3.2 Measuring area

The significant surface area for a single measurement.

The measuring area is defined for various measurement methods as follows.

- a) For analytical methods, the measuring area is the area where the coating has been removed;
- b) For anodic dissolution methods, the measuring area is the area enclosed by the closed ring of the electrolytic cell;
- c) For microscopic methods, the measuring area is the field of view at a specified magnification (see GB/T 6462);
- d) For non-destructive methods, the measuring area is the area in contact with the probe or the area that affects the reading (see Introduction);

3.3 Reference area

The area requiring a specified number of single measurements.

3.4 Local thickness

The average value of a specified number of thickness measurements performed within the reference area (see also the Introduction).

3.5 Minimum local thickness

The minimum value of local thickness measured on the significant surface of a single workpiece (see also the Introduction).

3.6 Maximum local thickness

The maximum value of the local thickness measured on the significant surface of a single workpiece.

3.7 Average thickness

The values obtained by analytical methods (see 5.1) or the average values obtained by performing a specified number of local thickness measurements uniformly distributed

across the significant surface (see 5.2 and the Introduction).

NOTE: Product specifications for large batches of coated parts may require measuring the average thickness of the coating in a tank of products. In this case, the standard deviation must be known in order to estimate the proportion of batches with thicknesses below the average.

4 Measurement of Local Thickness

Average thickness measurements are typically performed on several small parts with a limited total surface area.

4.1 Test piece with a significant surface less than 1 cm²

The normal reference area for measuring local thickness shall be the entire significant surface of the test piece. The number of measurements performed in a single measurement within this reference area shall be agreed upon by both the supplier and the purchaser. In special cases,

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