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

GB/T 12333-2025

**Metallic coatings - Electroplated coatings of copper for
engineering purposes**

金属覆盖层 工程用铜电镀层

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Foreword

This document complies with the provisions of GB/T 1.1-2020 "Standardization Work Guidelines Part

1. Structure and Drafting Rules of Standardization Documents". Drafting. This document replaces GB/T 12333-1990 "Copper Electroplating for Engineering Use in Metallic Coatings". Compared with GB/T 12333-1990, except for... Aside from structural adjustments and editorial changes, the main technical changes are as follows:

- The term and definition "inspection lot" have been added (see 3.3);
- The provision regarding "base metal" has been removed (see Chapter 5 of the.1990 edition);
- The coating "marking" has been changed (see Chapter 5, Chapter 4 of the.1990 edition);
- The requirements for stress-relieving heat treatment before electroplating have been changed (see 6.6, Chapter 8 of the.1990 edition);
- The requirements for heat treatment to eliminate hydrogen embrittlement after electroplating have been changed (see 6.7, Chapter 10 of the.1990 edition);
- Scanning electron microscopy and X-ray spectroscopy methods for measuring thickness have been added (see Appendix B);

---The porosity test has been modified (see Appendix C, Appendix A of the.1990 edition). Please note that some content in this document may involve patents. The issuing organization of this document assumes no responsibility for identifying patents. This document was proposed by the China Machinery Industry Federation. This document is under the jurisdiction of the National Technical Committee on Standardization of Metallic and Non-metallic Coatings (SAC/TC57). This document was drafted by: Wuhan Materials Protection Research Institute Co., Ltd., China Academy of Machinery Science and Technology Group Corporation, and Guangzhou Sanfu New Materials Technology Co., Ltd. The company, Dongguan Jinluan Hardware Products Co., Ltd., Jingda (Jingzhou) Auto Parts Co., Ltd., Yongxing Chemical (Shanghai) Co., Ltd., China Southern Nanning Bureau of China State Grid Corporation Ultra-High Voltage Transmission Company, Guangzhou Huike High-Tech Materials Technology Co., Ltd., and Shandong Quark Electrochemical Technology Co., Ltd. Limited Liability Company, Zhejiang Zhongzhi Auto Electric Co., Ltd., and Zibo Anliang New Material Technology Co., Ltd. The main drafters of this document are. Zhang Dezhong, Ding Yunhu, Zhao Tao, Yi Juan, Jiang Qiuxiang, Tian Zhibin, Zhang Zhiheng, Fu Chong, Liu Ninghua, and Lin Yunfeng. Feng Qiangqiang, Mao Qingmin, Sun Xin, Zhang Zhiliang, Huang Wen, Jing Hongxia. This document was first published in.1990, and this is its first revision. Copper plating for metal coating engineering

1 Scope

GB/T 12333-2025 is the Chinese national standard on metallic coatings - electroplated coatings of copper for engineering purposes, in the field of manufacturing engineering. The /T suffix marks it as a recommended standard: it is not compulsory by itself, but it becomes binding as soon as a contract, a tender or a customer specification calls it up - which in practice is how most foreign buyers meet it. It was issued on 31 October 2025 by the State Administration for Market Regulation; Standardization Administration of China, and has been in force since 1 May 2026. Classification: ICS 25.220.40, CCS A29. This page is published from the official record of the standard held by the Chinese standards administration: the identification, the dates, the classification and the issuing body are taken from there. The clause text, the tables and the numeric limits are in the document itself, which is delivered complete in English translation.

This document specifies the marking, requirements, test methods, and sampling inspection of copper electroplating layers for engineering applications on metal substrates. This document applies to copper plating for engineering applications, such as copper plating that acts as a barrier on the surface of heat-treated parts, or as a brazing agent during steel pipe welding. Copper plating layers used for welding, copper plating layers used to reduce friction during drawing, and copper plating layers used as tin-plating underlayers to prevent diffusion of the base metal are all examples of copper plating applications. Copper plating for electromagnetic interference (EMI) shielding in electronic circuits and copper plating for connectors. This document does not apply to copper plating for decorative purposes (topcoat) or copper plating used as an undercoat for other decorative plating, nor does it... Suitable for electroformed copper.

2 Normative references

The contents of the following documents, through normative references within the text, constitute essential provisions of this document. Dated citations are not included. For references to documents, only the version corresponding to that date applies to this document; for undated references, the latest version (including all amendments) applies. This document.

GB/T 2423.28 Environmental testing of electrical and electronic products - Part

3 Terms and Definitions

The terms and definitions defined in GB/T 3138 and GB/T 12334, as well as the following terms and definitions, apply to this document.

3.1 Main surface significant surface The surfaces on a workpiece are important for its appearance and/or performance.

Note. If necessary, mark the main surfaces on the workpiece drawings, or confirm them with physical samples.

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