

ICS 31.030
CCS L 90



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

GB/T 46698-2025

Electronic grade titanium tetrachloride

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Issued on: October 31, 2025

Implemented on: May 1, 2026

**Issued by: State Administration for Market Regulation;
Standardization Administration of the PRC**

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Foreword

This document conforms to GB/T 1.1-2020 "Standardization Work Guidelines Part

1. Structure and Drafting Rules of Standardization Documents". Drafting is scheduled. 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 and is under the jurisdiction of the National Technical Committee on Standardization of Semiconductor Equipment and Materials (SAC/TC 203). This document was drafted by: Wuhan Xinsilicon Technology Qianjiang Co., Ltd., Suzhou Laboratory, China Electronics Technology Standardization Institute, and Shanghai Municipality. Metrology and Testing Technology Research Institute, Guangzhou CESI Standards and Testing Research Institute Co., Ltd., Panzhihua Iron and Steel Research Institute Co., Ltd. of Panzhihua Iron and Steel Group, CITIC Titanium Industry Co., Ltd., Luoyang Shuangrui Wanji Titanium Industry Co., Ltd., Xinjiang Xiangrun New Material Technology Co., Ltd., Luoyang Zhonggui High-Tech Co., Ltd. The company, Yunnan Guotai Metal Co., Ltd. The main drafters of this document are. Li Kaidong, Tong Yi, Cao Kewei, Luo Quan'an, Shi Zeyuan, Xu Wentao, Li Chunhua, Ma Rui, Li Kaihua, and Chang Yan. Li Junqiang, Xu Weichun, Zhang Jinbao, Zhao Junsha, Wang Lijuan, Chen Ping, Wu Yiran, Wang Bing, Wan Ye, Li Jianjun, Zhang Baoshuai, Ma Xin, Jiang Shibing, Cao Ke. Electronic grade titanium tetrachloride

1 Scope

GB/T 46698-2025 is the Chinese national standard covering TiCl_4 for semiconductor use - the assay and the metallic impurities in parts per billion, the free chlorine and the iron that colour it, the water content, and the handling of a liquid that fumes violently in moist air. It is the precursor for the titanium nitride barrier layers in every advanced interconnect. First edition, in force from 1 May 2026. Issued on 31 October 2025, it has been in force since 1 May 2026.

JJF 1159 Quadrupole Inductively Coupled Plasma Mass Spectrometer Calibration Specification

2 Normative references

The contents of the following documents, through normative references within the text, constitute essential provisions of this document. Dated citations are listed below. 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 190 Packaging Marks for Dangerous Goods

GB/T 191 Packaging and Storage Graphic Symbols

GB/T 2828.1 Sampling Procedures for Inspection by Attributes - Part

1.Sampling Schemes Retrieved by Acceptable Quality Limit (AQL) for Lot-by-Lot Inspection

GB/T 3723 General Safety Rules for Sampling of Industrial Chemical Products

GB/T 6680 General Rules for Sampling of Liquid Chemical Products

GB/T 8170 Rules for rounding off numerical values and the representation and determination of limiting values

GB/T 9722 General Rules for Gas Chromatography of Chemical Reagents

GB/T 11446.1 Electronic Grade Water

GB 12463 General Technical Requirements for Transport Packaging of Dangerous Goods

GB 15258 Regulations for Writing Safety Labels for Chemicals

GB 15603 General Rules for Storage of Hazardous Chemicals in Warehouses

GB/T 16804 Warning Labels for Gas Cylinders

GB/T 32566 Stainless Steel Welded Gas Cylinders

GB/T 37837 General Rules for Quadrupole Inductively Coupled Plasma Mass Spectrometry

SJ/T 11637 General Rules for Inductively Coupled Plasma Mass Spectrometry of Electronic Chemicals JJG 700 Gas Chromatograph Verification Procedure

3 Terms and Definitions

This document does not contain any terms or definitions that need to be defined.

4.Technical Requirements The technical specifications of electronic-grade titanium tetrachloride should meet the requirements of Table 1.