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**Microbeam analysis - Focused ion beam - Preparation of TEM
specimens**

微束分析 聚焦离子束 透射电镜试样制备方法

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Foreword

This document is in accordance with the provisions of GB/T 1.1-2020 "Guidelines for standardization work Part 1: Structure and drafting rules for standardization documents" Drafting.

Please note that some of the contents of this document may involve patents. The issuing organization of this document does not assume the responsibility for identifying patents.

This document was proposed and coordinated by the National Microbeam Analysis Standardization Technical Committee (SAC/TC38).

This document was drafted by: University of Science and Technology Beijing, Tianjin University, Nanjing University, Shougang Group Co., Ltd., Shanghai Jiaotong University, Harbin Institute of Technology Vocational University.

The main drafters of this document are: Qiao Yi, Xu Zongwei, Deng Yu, Meng Yang, Wang Ying, Wang Rongming, Zou Yongchun, You Li, and Zhu Yuchen.

Microbeam analysis Focused ion beam Transmission Electron Microscope Sample Preparation Method

1 Scope

This document specifies the instrumentation, environment and sample requirements, sample preparation and testing for the preparation of transmission electron microscopy samples by the focused ion beam method. Record.

This document is applicable to transmission electron microscopy specimens of metal materials, semiconductors, minerals and other inorganic non-metallic materials, and polymer materials and other solid materials. preparation.

This document is applicable to various types of focused ion beam field emission scanning electron microscope dual-beam systems, single-beam systems and multi-beam systems for reference.

2 Normative references

The contents of the following documents constitute essential clauses of this document through normative references in this document.

For referenced documents without a date, only the version corresponding to that date applies to this document; for referenced documents without a date, the latest version (including all amendments) applies to This document.

JY/T 0583-2020 General rules for analysis methods of focused ion beam systems

3 Terms and definitions

The terms and definitions defined in JY/T 0583-2020 and the following apply to this document.

3.1 [Source. JY/T 0583-2020, 2.1]

The sample surface is bombarded with a focused ion beam, and the scanning or processing trajectory, step length, and dwell time of the ion beam are controlled by a computer.

The system can reduce the time and cycle number to realize the analytical processing system for material imaging, etching, induced deposition and implantation.

3.2 Precursorgas

Contains target elements, in gaseous, volatile liquid or solid form, with chemical thermal stability and corresponding reactivity or physical properties Organic compounds.

3.3

The process of using a focused electron beam to induce the precursor gas to decompose on the sample surface to form a deposit.

3.4 [Source. JY/T 0583-2020, 2.2, modified]

The process of using a focused ion beam to induce the precursor gas to decompose on the sample surface to form solid matter.

3.5 Ion beam etching

The process of bombarding the sample surface with a high-energy ion beam to sputter the sample's atoms off the surface.