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GB/T 46904-2026

Polycarbosilanes

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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. 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 Aerospace Technology and Its Applications (SAC/TC425). This document was drafted by: Aerospace Materials and Processes Research Institute, Fujian Liya Chemical Co., Ltd., and Jiangxi Xinda Aerospace Science and Technology New Materials Co., Ltd. The company, the National University of Defense Technology of the Chinese People's Liberation Army, Xiamen University, Suzhou Sailifei Ceramic Fiber Co., Ltd., and Zibo Linzi Qiquan Industry and Trade Co., Ltd. Company, Ningbo Zhongxing New Materials Technology Co., Ltd., Institute of Chemistry, Chinese Academy of Sciences, Fujian Liya New Materials Co., Ltd., Xi'an Aerospace Composite Materials Research Institute, China Academy of Aeronautical Manufacturing Technology, Aerospace Special Materials and Process Technology Research Institute, Steel Research Nake Testing Technology Co., Ltd. Ningbo Institute of Materials Technology and Engineering, Chinese Academy of Sciences, and China Aerospace Standardization Institute. The main drafters of this document are. Li Yuan, Liu Liang, Huang Na, Wu Jingshu, Hu Jidong, Li Junping, Tian Yuelong, Jiang Liqin, He Weidong, and Huang Xiangxian. Chen Libin, Hou Zhenhua, Bi Changjun, Wang Xiaozhou, Shao Changwei, Lan Lin, Tian Xiumei, Qi Fengquan, Wang Hao, Li Yongming, Yan Liansheng, Zhang Zhaofu, Qiu Haipeng Zhang Bingyu, Yu Xinmin, Lin Fei, Huang Jing, Wang Tiantian, Gu Xuhan. polycarbosilane

1 Scope

GB/T 46904-2026 is the Chinese national standard covering polycarbosilane - the preceramic polymer that is spun into a fibre and then pyrolysed into silicon carbide, which is how SiC fibre for ceramic matrix composites is made, and therefore how a modern jet engine turbine gets its hot-section parts. It fixes the grades, the molecular weight and its distribution, the softening point, the ceramic yield and the impurities. First edition. It was issued on 28 January 2026 and has been in force since 1 August 2026, as a first edition. The document is under the responsibility of the Standardization Administration of China. This page is published from the official record of the 2026 edition; the clause text of a standard this recent is not yet in circulation, and the figures, limits and tables it contains are those of the document itself, delivered in full with the English translation.

This document specifies the classification, requirements, inspection rules, marking, labeling and accompanying documentation, as well as packaging, transportation and storage of polycarbosilanes, describing... The corresponding experimental methods were developed. This document applies to the inspection and acceptance of polycarbosilanes used in the preparation of silicon carbide-based composite materials, silicon carbide fibers, and silicon nitride fibers. For use in coatings, adhesives, etc., refer to the following guidelines for polycarbosilanes.

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 191 Pictorial Symbols for Packaging and Storage

GB/T 2794-2022 Determination of viscosity of adhesives

GB/T 3864 Industrial Nitrogen GB/T 4842 Argon

GB/T 4844 Pure Helium, High-Purity Helium and Ultra-Purity Helium

GB/T 6040 General Rules for Infrared Spectroscopic Analysis

GB/T 6678 General Rules for Sampling of Chemical Products

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

GB/T 8979 Pure Nitrogen, High-Purity Nitrogen and Ultra-Purity Nitrogen

GB/T 18374 Terminology for Reinforcing Materials

GB/T 21781 Test methods for melting point and melting range of chemicals - capillary method

GB/T 40724 Terminology for Carbon Fibers and Their Composites JJG342 Gel Chromatography System JJG1135 Thermogravimetric Analyzer

JJF1321 Elemental Analyzer Calibration Specification

3 Terms and Definitions

The terms and definitions defined in GB/T 18374 and GB/T 40724, as well as the following terms and definitions, apply to this document.

3.1 The structure contains alternating bonds between silicon and carbon atoms, with hydrogen or organic groups attached to the silicon and carbon atoms. The molecular chains are linear or cyclic. Polymers with branched structures.

3.2 softening point The temperature at which a droplet appears inside the capillary and a gap forms between the sample and the inner wall.