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**Reinforced nano-porous aerogel products for thermal
insulation**

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Foreword

This standard was drafted in accordance with the rules given in GB/T 1.1-2009. This standard proposed by the China Building Materials Federation. This standard by the National Standardization Technical Committee thermal insulation material (SAC/TC191) centralized. This standard is drafted by: Nanjing Fiberglass Research and Design Institute Co., Ltd., Nano Technology Co., Ltd., Shaanxi Meng Chong new nano Materials Co., Ltd., Guangdong Elisheng Hi-Tech Co., Ltd., Guizhou Aerospace Wujiang Mechanical and Electrical Equipment Co., Ltd., Nanjing Industrial University School of Physics Science and Engineering, Tongji University, National University of Defense Technology, Shanghai Dixin Xixin New Material Co., Ltd., Hebei Jinnai Technology Co., Ltd. Company, Changzhou Suntime Energy Environmental Technology Co., Ltd., Beijing Construction Engineering Co., Ltd. New Building Material Co., Ltd., Shanghai Yuna New Materials Technology Co., Ltd. Division, love each other love and new materials Co., Ltd., Zhuhai Guokang New Materials Co., Ltd., Shenzhen Nernst Technology Co., Ltd., Shanxi Tianyi nanomaterials Materials Technology Co., Ltd., Suzhou City Jun Yue New Material Technology Co., Ltd., Zhejiang Run-hui New Materials Co., Ltd., Xiamen Nami new materials Science and Technology Co., Ltd., Suzhou Institute of Nanotechnology and Nano Bionic Institute of Chinese Academy of Sciences, Aerospace Specialty Materials and Technology Institute, Beijing Bo Tianzi Rui Technology Co., Ltd., Tianjin Longhua Technology Development Co., Ltd., Jiangsu Han micro-nano materials Co., Ltd., Tianjin Morgan Kun Tak High-Tech Technology Development Co., Ltd., Tai'an win-win new material Co., Ltd., Shandong Luyang Energy Materials Co., Ltd., Hebei Shenzhou insulation materials Group Co., Ltd., Shenzhen in condensate Technology Co., Ltd., Zhejiang Pui Lai New Materials Co., Ltd., the National Fiberglass Products Quality Supervision and Inspection center. The main drafters of this standard. Cui Jun, Wang Jiaqing, Zhang Rongyan, Yao Xian Dong, Zhang Jun, but Liang Feng, Song Dawei, Cui Sheng, Shen Jun, Feng Jian, Wang Zhiping, Gao Zhenju, Yu Zhenlin, Ren Fujian, Luan Yucheng, Dong Haibing, Wang Haibo, Xie Qiuxin, Zhao Jianqing, Ma Rujun, Wang Hong, Zou Junfeng, Fan Wentao, Liu Han-dong, Shi Yanzhong, Liu Changlei, Wang Tianyu, Wang Bell, Jiang Fa-xing, Yuan Bing, Chen Guo, Tian Guanyu, Zhang Jianhong, Tang Jian, Cui Chenglin, Hou Peng, Ding Qing, Qu will force. Nanopore airgel composite insulation products

1 Scope

China's national standard for reinforced nanoporous aerogel composite insulation products. It specifies the terms and definitions, the classification and marking, the requirements, the test and inspection methods, the inspection rules and the marking, packaging, transport and storage, and it applies to industrial and building thermal insulation. Aerogel is the best solid insulator known: a silica skeleton so open that the material is more than ninety per cent air, with pores smaller than the mean free path of an air molecule, so the gas inside cannot conduct heat by ordinary collision. Its conductivity is lower than that of still air. What it is not, on its own, is a material anyone can use - a monolithic aerogel is fragile enough to break under its own handling. The products this standard covers are aerogel grown into a fibre blanket or a felt, which gives it something to hold on to. That composite is flexible, cuttable and installable, and it is used where space is the binding constraint: pipework in existing plant, and insulation retrofitted into walls that cannot be made thicker.

This standard specifies the terms and definitions of nanoporous aerogel composite thermal insulation products (referred to as aerogel products), classification and marking, requirements, test inspection methods, inspection rules, marking, packaging, transportation and storage. This standard applies to industrial and architectural nanopore silica-based aerogel composite insulation products. Other types of aerogel products are also available Reference to use.

2 Normative references

The following documents for the application of this document is essential. For dated references, only the dated version applies to this article Pieces. For undated references, the latest edition (including all amendments) applies to this document.

GB/T 191 Packaging - Pictorial signs

GB/T 4132 insulation materials and terminology

GB/T 5480 Methods of test for mineral wool and its products Classification of combustion properties of building materials and products

GB/T 10294 Insulating materials - Determination of steady - state thermal resistance and related characteristics Determination of steady - state thermal resistance of insulation materials and related properties

GB/T 10295 Heat flow meter method

GB/T 10299 insulation hydrophobic test methods Rock wool, slag wool and their products for thermal insulation

GB/T 13480 Determination of compressive properties of building insulation products

GB/T 17393 covered austenitic stainless steel insulation specifications

GB/T 17430 insulation material maximum temperature evaluation method Standard Test Methods for Refractory Ceramic Fiber Products GB/T 17911-2006

3 Terms and definitions

GB/T 4132 and GB/T 5480 defined and the following terms and definitions apply to this document.

3.1 Airgel aerogel A nano-sized porous solid material is formed by a sol-gel method and a gas-phase replacement of the liquid phase in the gel by a certain drying method.

3.2 By the sol-gel method, the reinforcing material is compounded with the sol, and then the gas is displaced by the liquid phase in the gel by a certain drying method Nano-porous composite products.

3.3 Compression rebound resiliencerate The thickness of the airgel mat maintains its resilience after a period of time under a certain pressure. The ratio of the recovered thickness to the initial thickness after unloading Said.