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NATIONAL STANDARD OF THE PEOPLE'S REPUBLIC OF CHINA

GB/T 18588-2025

Replacing GB 18588-2001

Test methods for emitted ammonia from the concrete admixtures

混凝土外加剂中释放氨的测试方法

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Standardization Administration of the PRC

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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 supersedes GB 18588-2001 "Limits for Ammonia Release from Concrete Admixtures". Compared with GB 18588-2001, except for structural... Aside from adjustments and editorial changes, the main technical changes are as follows:

a) The mandatory clause "requirement" has been removed (see Chapter 4 of the.2001 edition);

b) The sections "Test Methods" and "Inspection Rules" have been deleted (see Chapters 5 and 6 of the.2001 edition);

c) Include "titration after distillation" in the main text (see Chapter 5, Appendix A of the.2001 edition);

d) Precision requirements for the "post-distillation titration method" have been added (see 5.6);

e) "Ion chromatography" has been added (see Chapter 6). 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 Building Materials Federation. This document is under the jurisdiction of the National Technical Committee on Standardization of Cement Products (SAC/TC197). This document was drafted by: China Building Materials Academy Co., Ltd., Suzhou No.1 Construction Group Co., Ltd., and China Construction First Group Co., Ltd. Bureau (Group) Co., Ltd., Shenzhen 863 New Material Technology Co., Ltd., Taizhou Kezheng Environmental Testing Technology Co., Ltd., Anhui Province Highway and Bridge Engineering Co., Ltd., Beijing Construction Engineering New Building Materials Co., Ltd., Guangdong Rongjun Construction Engineering Testing Co., Ltd., Guangdong Stable Testing & Appraisal Co.,

Ltd., Guangdong Zhenzheng Engineering Testing Co., Ltd., China Railway 24th Bureau Group Southwest Construction Co., Ltd., Shandong Provincial Transportation... Tonghua Planning and Design Institute Group Co., Ltd., Yangtze River Scientific Research Institute of Yangtze River Water Resources Commission, Guizhou Shunkang Testing Co., Ltd., and Zhongxin Construction Group Limited Liability Company, China Railway 19th Bureau Group Fifth Engineering Co., Ltd., Jiangsu Botuo New Building Materials Co., Ltd., Yuncheng Comprehensive Inspection Testing Center, China Railway Construction Science & Technology Testing Co., Ltd., China 17th Metallurgical Construction Group Co., Ltd., China Water Resources and Hydropower Third Engineering Bureau Co., Ltd., Beijing Municipal Construction Engineering Quality Inspection Co., Ltd., Shenzhen Jingheng Engineering Inspection Co., Ltd., Zhuji Hongtai Engineering Inspection Co., Ltd. Company, Tiezheng Testing Technology Co., Ltd., Nanning Jiance Construction Engineering Quality Testing Co., Ltd., China Communications Construction Hongfeng Group Co., Ltd., China Chemical China Communications Construction Group Co., Ltd., China Energy Engineering Group Guangxi Hydropower Engineering Bureau Co., Ltd., and Wuxi Hubin Construction Engineering Testing Co., Ltd. Company, Zhejiang Provincial Construction Engineering Quality Inspection Station Co., Ltd., Ningxia Zhengyu Engineering Technology Co., Ltd., China Railway Construction Bridge Engineering Bureau Group Co., Ltd. The company, China Railway 12th Bureau Group Fourth Engineering Co., Ltd., Zhejiang Wulong New Materials Co., Ltd., Beijing CRCC Construction Technology Co., Ltd. China Communications Construction Group South China Engineering Bureau Co., Ltd., Liaoning Pengshuo Technology Co., Ltd., Hefei University of Technology Engineering Testing and Inspection Co., Ltd., Suzhou Sicuirong Hefei Infrastructure Technology Research Institute Co., Ltd., China Railway 23rd Bureau Group Fourth Engineering Co., Ltd., Hubei Hengli Building Materials Technology Co., Ltd., Shandong Kaiyuda New Materials Technology Co., Ltd., Shanxi Provincial Transportation Technology R&D Co., Ltd., Xinjiang Construction Engineering Quality and Safety Testing Center (Limited Liability Company) (Company Name), China Railway 22nd Bureau Group Second Engineering Co., Ltd., Hunan Zhili Engineering Technology Co., Ltd., Shaanxi Provincial Construction Engineering Quality Inspection China Railway Investment & Construction Group Co., Ltd., China Railway Engineering Design & Consulting Group Co., Ltd., China Consulting Data Co., Ltd. China Communications Construction Company Limited, Shanxi No.

1 Construction Group Co., Ltd., Xuzhou Construction Engineering Testing Center Co., Ltd., and China Railway Construction Group Co., Ltd. Limited Liability Company, Sichuan Henggu Construction Engineering Testing Co., Ltd., Hunan Hongshang Testing Technology Co., Ltd., China Railway Fourth Bureau Group Co., Ltd. Hunan Niuli Building Materials Co., Ltd., China Railway 25th Bureau Group Third Engineering Co., Ltd., Hubei Qiandao New Materials Co., Ltd., China Construction Second Bureau Third Construction Engineering Co., Ltd., China Railway Construction Investment Testing Co., Ltd., Henan Guoan Construction Engineering Quality Testing Co., Ltd. China Railway Shanghai Engineering Bureau Group

Co., Ltd., Nanjing University of Technology Construction Engineering Technology Co., Ltd., China Academy of Railway Sciences (Shenzhen) Testing Engineering Co., Ltd. Sichuan Jinjiang High-Tech Materials Co., Ltd., Metrohm China Ltd., and China Nuclear Energy Technology Co., Ltd. The main drafters of this document are. Nie Qing, Di Yang, Zhuang Fangming, Cao Guang, Wang Xin, Qian Shenchun, Han Linzeng, Kong Fanmin, Li Weicai, Liu Chao, and Mo Weiming. Huang Rongmin, Li Xiaofei, Xu Run, Zhu Huadong, Wang Hua, Yu Yuejin, Zhang Zhenzhong, Zhang Jianyong, Huang Jinkun, He Liang, Wang Shungang, Ruan Wangwei, Zhang Xiaobo, Cai He, Qiu Xirong, Zhao Fanghua, Mo Shaomeng, Zhu Baogui, Zhang Yun, Xiao Ying, Jin Jie, Zhang Lijun, Qi Shijie, Zhou Yihong, Zhao Wei, Liu Jun, Shen Yongli Wang Xianggang, Zhang Jun, Cheng Tao, Tong Lin, Jiang Jianhua, Feng Long, Zhang Shaoyuan, Wang Tengwen, Xiang Hui, Lu Shaoqing, Wang Yufeng, Cao Qinzhi, Wang Jin, Zhang Yin Zhao Jian, Zhang Xuanwei, Ding Jiying, Shen Fangming, Jian Yunkai, Zhao Zhenping, Guo Zuopeng, Cheng Yan, Li Guojian, Zhao Wenbo, Huang Wenming, Zhao Zeqian, Shen Litao Lu Xiaojun, Ma Huaibei, Liu Tao, Yang Hongbo, Cao Quansheng, Pan Rongguo, Huang Dongjie, Lü Gang, Guo Lei, Xing Zhenhua, Hou Yun, Han Sihong, Chu Shuangyi, Sha Hai Li Yanchang, Zhou Chao, Zhao Bin, Liao Hong, Liu Leihai, Wei Liang, Zhang Teming, He Zhipeng, Huang Pan, Zhan Qilong, Pi Jialiang, Wei Jinyou, He Jie, Cui Jingxuan Ni Yaling, Liu Congwei, Wu Xi, Yang Jingyao, Wang Mingyu, Li Xuan, Qi Weijie, Wang Yougang. The release history of this document and the document it replaces is as follows:

---First published in.2001 as GB 18588-2001;

---This is the first revision. Test method for ammonia release from concrete admixtures Warning. This document should be used by personnel with practical experience in formal laboratory work. This document does not address all potential safety issues. Users are responsible for taking appropriate safety and health measures and ensuring compliance with relevant national regulations.

1 Scope

GB/T 18588-2025 is the Chinese national standard covering ammonia released by an admixture - the sample and the conditions under which it is allowed to evolve, the absorption and the determination, and the limit, because ammonia released from concrete accumulates in a closed room for years after the pour. It replaces GB 18588-2001 and moves it from mandatory to recommended status. It goes with the formaldehyde method GB/T 31040-2025. In force from 1 August 2026. Issued on 5 October 2025, it has been in force since 1 August 2026, replacing GB 18588-2001.

This document describes a test method for the release of ammonia from concrete admixtures. This document applies to the determination of ammonia release from concrete admixtures using distillation titration and ion chromatography.

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 601 Preparation of Standard Titration Solutions for Chemical Reagents

GB/T 6682 Specifications and test methods for water used in analytical laboratories

3 Terms and Definitions

The following terms and definitions apply to this document.

3.1 concrete admixture It is added before or during the mixing process of concrete to improve the properties of fresh and/or hardened concrete. Materials whose dosage does not exceed 5% of the mass of cementitious materials.

3.2 Release ammonia emittedammonia Ammonia released by additives in an alkaline environment.

4.Test conditions The test environment was a temperature of (23±2)°C and a relative humidity of (50±10)%.

5 Titration after distillation

5.1 Principle Ammonia in concrete admixtures is removed by distillation. The distilled ammonia is collected using sulfuric acid solution as the absorbent and then analyzed by an indicator. The color change indicates the titration endpoint, then the volume of standard solution consumed is read, and the analytical results are calculated.

5.2 Reagents and Materials

5.2.1 Water. Distilled water or water of equivalent purity shall comply with the provisions of GB/T 6682.