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

**GB/T 30295-2013**

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**Perfluorinated ion-exchange membrane for chlor-alkali industry  
- General technical specifications**

氯碱工业用全氟离子交换膜 通用技术条件

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Quarantine;  
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### Foreword

"Chlor-alkali industry perfluorinated ion-exchange membrane" series of national standards include the following three criteria.

--- GB/T 30296-2013 "chlor-alkali industry perfluorinated ion-exchange membrane testing methods";

--- GB/T 30297-2013 "chlor-alkali industry perfluorinated ion-exchange membrane application specifications." This standard was drafted in accordance with GB/T 1.1-2009 given rules. This standard by the National Standardization Technical Committee membrane (SAC/TC382) and focal points. This standard was drafted. Shandong Dongyue Polymer Material Co., Ltd., Shanghai Jiaotong University, Bluestar (Beijing) Chemical Machinery Co., Ltd., Salt Changzhou Chemical Co., Ltd., Huanghua, Cangzhou Dahua Group Chlor-Alkali Co., Ltd., Shenyang Chemical Industry Group Co., Ltd., Shandong Dongyue Fluorine Silicon Materials Co., Ltd., Qingdao Haijing Chemical Group Co., Ltd., Yingkou three levy new technology Chemical Co., Ltd., Tianjin Motian Membrane Engineering technology Limited. The main drafters of this standard. Francis Cheung, Zhang Heng, Wang Xuejun, Wang Jing, Wang Hong, Yang Zhenwei, Sun Guoqing, Huang Haitao, Zhang Yingmin, Zhang Jiaying, Chen Yue, Chen Qingfen at Haitao. Chlor-alkali industry perfluorinated ion-exchange membrane General technical conditions

### 1 Scope

China's national general technical specification for the perfluorinated ion-exchange membranes used in chlor-alkali production. It specifies the terms and definitions, the classification and designation, the technical requirements, the test methods, the inspection rules and the marking, packaging, transport and storage of these membranes, and it applies to membranes made from perfluorosulfonic acid resin, perfluorocarboxylic acid resin, a reinforcing mesh and a hydrophilic coating. It is the first of a three-part series, completed by GB/T 30296 on test methods and GB/T 30297 on application. The membrane is the single most important consumable in a modern chlor-alkali plant and the component that made the modern process possible. Electrolysis of brine produces chlorine at the anode and hydrogen plus caustic soda at the cathode, and the whole art lies in keeping

those products apart: chlorine and hydrogen together are explosive, and hydroxide that reaches the anode compartment destroys the current efficiency. The perfluorinated membrane solves this by being selectively permeable to sodium ions while blocking the passage of chloride and, critically, of hydroxide, and it does so while sitting in hot concentrated caustic on one side and wet chlorine on the other - an environment in which almost no organic material survives. The construction reflects that: a sulfonic layer facing the anode for conductivity and mechanical strength, a carboxylic layer facing the cathode for hydroxide rejection, a woven reinforcement to carry the load, and a hydrophilic coating to release gas bubbles from the surface. The standard fixes what such a membrane must deliver and how it is verified. Issued on 31 December 2013 and in force since 1 August 2014.

This standard specifies the terms and definitions chlor-alkali industry perfluorinated ion-exchange membrane (hereinafter referred to as ion-exchange membrane chlor-alkali), classification and models, technology Requirements, test methods, inspection rules and signs, packaging, transportation and storage. This standard applies to perfluorinated sulfonic acid resin, perfluorinated carboxylic acid resin, reinforcing mesh and a hydrophilic coating as the main raw material obtained ion-exchange membrane chlor-alkali General technical conditions.

## 2 Normative references

The following documents for the application of this document is essential. For dated references, only the dated version suitable for use herein Member. For undated references, the latest edition (including any amendments) applies to this document.

GB/T 191 Packaging - Pictorial signs GB/T 7284 wooden frame

GB/T 9174 General cargo transport packaging technology

GB/T 20103 membrane separation technology terms

GB/T 30296 Test Method for membrane chlor-alkali industry perfluorinated ion-exchange

## 3 Terms and Definitions

GB/T 20103 and defined by the following terms and definitions apply to this document.

3.1 Chlor-alkali industry chlor-alkaliindustry Using sodium chloride solution (potassium chloride) production of sodium hydroxide (potassium hydroxide), chlorine, hydrogen and related products industries.

3.2 Perfluorinated sulfonic acid resin perfluorosulfonicacidresin Tetrafluoroethylene and perfluoro sulfonyl vinyl ether obtained by copolymerizing dihydric or polyhydric perfluoro polymer as a main monomer.

3.3 Perfluorinated carboxylic acid resin perfluorocarboxylic acid resin Tetrafluoroethylene and perfluoro vinyl ether carboxylic acid esters obtained by copolymerizing dihydric or polyhydric perfluoropolymer as a main monomer.

3.4 Perfluorinated ion exchange membrane perfluorinated ion-exchange membrane A perfluorosulfonic ion exchange resin prepared through the function of the ion selective membrane.

3.5 Hydrophilic coating hydrophilic coating Chloralkali ionic membrane surface coating made of an inorganic compound and a fluorine-containing polymeric binder composition.