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**Code for design of gas fire extinguishing systems
(English Translation)**

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Foreword

According to the requirement of "Notice on Promulgation of "Plan for Preparation and Modification of National Standards for Project Construction 2001 ~2002" Document JB [2002] no.26 the Ministry of Construction of PRC, this Standard is prepared by Tianjin Fire Research Institute of Ministry of Public Security, jointly by other relevant units.

During the preparation, the editorial group carried out thorough and in-depth investigation and research, carefully summarized achievements of scientific research in the researching,

production, design and application and the practical experience of the engineering about the gas fire extinguishing systems in our country, referred to the relevant international standards and the ones of developed countries such as America, Japan and Germany, and employed the fundamental experiments and the experimental research on engineering applications. After extensive opinions have been obtained from departments and units of design, scientific research, manufacturing, construction, universities and colleges, and supervision on fire fighting, the Standard is finalized by relevant departments, under the review of experts.

This Standard consists of 6 chapters and 7 appendixes, in which the main contents are: general, terms and symbols, design requirements, system components, operation and control and safety requirements.

Those clauses in block are mandatory clauses, which must be forced strictly.

The Ministry of Construction will be responsible for the management and explanation on the mandatory clauses. The Ministry of Public Security will be responsible for the specific management. Tianjin Fire Research Institute of Ministry of Public Security will be responsible for the explanation on the detailed technical contents. During the implementation, the users of this Standard are kindly required to summarize experience and collect materials, and send any suggestion or comment in this regard to Tianjin Fire Research Institute of Ministry of Public Security (Address: 110 South Road of Weijin of Nankai District Tianjin. Post Code: 300381) at any time for reference in future revision.

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1 General

1.0.1 This Standard has been worked out for the purpose of designing gas fire extinguishing systems reasonably, reducing fire damage, and protecting the safety of human body and properties.

1.0.2 This code applies to the design on total flooding extinguishing of hepta-fluoropropane, mixed gas IG541, and condensed fire extinguishing aerosol.

1.0.3 Design of gas fire extinguishing systems shall comply with the national guiding principles and policies, and be safe, technologically advanced, economic and reasonable.

1.0.4 Products and components of the system applied according to the design must be in accordance with national standards and regulations.

1.0.5 Besides complying with this standard, the design of gas fire extinguishing systems shall also comply with other relevant current national standards.

2 Terms and Symbols

2.1 Terms

2.1.1 Protected area the restricted enclosure space satisfying the demands of total flooding extinguishing system

2.1.2 Total flooding extinguishing system the fire extinguishing system in which during the

regulated time the fire agent with the designed standard use level is ble\l towa1·cls the protected area w hi ch is filled with the agent evenly.

2.1.3 Piping extinguishing system the fire extinguishing system in which the fire agent transported from storage device to blowing components via main and branch pipes is blew based on the design and calculation according to cetta in appl ication conditions.

2.1.4 Pre-engineered system the fire extinguishing system in which the storage device and blowing components of fire agent are pre-designed and assembled to be a whole set with functions of gang control

2.1.5 Combined distribution systems the fire extinguishing system in which a set of storage devices of gas extinguishing agent is applied through the selection distribution of pipe network to protect two or more than two protected areas.

2.1.6 Flame extinguishing concentration the mi nimum volume percent of the gas extinguishing agent in the air needed fo r putting out ce1tain fire under circumstances of 1 0 1 kPa air pressure and regulated temperature.

2.1. 7 Flame extinguishing density the mass of solid condensed-fire -extinguishing-aerosol generate needed for putting out certain fire in the unit volume, under circumstances of 101 kPa air pressure and regu lated temperature.

2.1.8 Inerting concentration the minimum volume percent of the gas extinguishing agent in the air needed fo r restraining the occurrence of burning rising from the f1ammable and combustible gas or liquid steam with any concentration in the air, under circumstances of 1 01 kPa air pressure and regulated temperature, in case of the fire source.

2.1.9 Soaking time

The time that the designed concentration of fire agent is maintained in the protected areas to put out the fire completely

2.1.10 Pressure re lief opening the opening where the pressure is released to prevent the internal pressure of protected areas fro m ex~eeding the allowable pressure, in case of the blowing of fire agent.