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Ordinance for Technical Specifications pertaining to Fire Extinguishing Agents for Fire Extinguishers
(Ordinance of the Ministry of Home Affairs No. 28 of September 17, 1964)

Latest update: Ordinance of the Ministry of Internal Affairs and Communications No. 124 of October 30, 2006

In accordance with the provision of Article 21-2(2) of the Fire Service Act (Act No. 186 of 1948), the Ordinance for Technical Specifications pertaining to Fire Extinguishing Agents for Fire Extinguishers shall be specified as follows.

Purport

Article 1 This Ordinance covers the technical specifications applicable to fire extinguishing agents for fire extinguishers (except for carbon dioxide and carbon tetrachloride; hereinafter referred to as “fire extinguishing agents”).

Common properties of fire extinguishing agents

Article 1-2 Fire extinguishing agents shall not have extreme toxicity or corrosiveness and shall not generate strongly toxic or corrosive gasses.

(2) Fire extinguishing agent aqueous solution and liquid fire extinguishing agent shall be free from deposition of crystalline, separation of solution, generation of suspended matter or precipitation, or other abnormal phenomena.

(3) Powdery fire extinguishing agents shall not cause agglomeration, property alteration, and other abnormal phenomena.

Article 1-3 Fire extinguishing agents shall not be recycled material, collected material without use, or disposed material, or shall be entirely or partially made from any of these materials (referred to as “spent fire extinguishing agents” in this Article). However, this shall not apply to the reused fire extinguishing agents (those agents are treated so that they conform to the requirements prescribed in Articles 1-2 and 2 through 8; the same shall apply in Article 7(3)).

Acid-alkali fire extinguishing agents

Article 2 Acid-alkali fire extinguishing agents shall meet the following items.

- (i) The acid shall be of high-quality inorganic acid or its salt.
- (ii) The alkali shall be a water-soluble, high-quality alkali salt.

Loaded stream fire extinguisher agents

Article 3 Loaded stream fire extinguisher agents (except for those charged into the fire extinguisher in which the gas generated by the chemical reaction inside the cylinder is used as a discharge pressure source) shall be in the form of aqueous solution of alkali metal salt, etc. conforming to the following items.

- (i) The aqueous solution of alkali metal salt, etc. shall exhibit an alkaline reaction.
- (ii) The freezing point shall be -20°C or below.
- (2) Loaded stream fire extinguisher agents that will be charged into the fire extinguisher in which the gas generated by the chemical reaction inside the cylinder is used as a discharge pressure source shall be those conforming to the requirements provided in the items of the preceding paragraph: i.e., aqueous solution of alkali metal salt, etc., and high-quality acid or its salt having freezing point of -20°C or below.
- (3) Powdery alkali metal salt, etc. for loaded stream fire extinguishers shall be water-soluble and the aqueous solution of the material shall meet the requirements provided in the items of Paragraph 1 or Paragraph 2.
- (4) The loaded stream discharged when the fire extinguisher is operated in the normal condition shall offer flame resistance and freezing point of -20°C or below.

Foam concentrates

Article 4 Foam concentrates shall meet the following items.

- (i) Foam concentrates shall be preservative-treated. However, this shall not apply to those agents free from decomposition, property alteration, and the like.
- (ii) Foams discharged from the fire extinguisher shall be capable of keeping the fire resistance.
- (2) Chemical foam fire extinguishing agents (refers to the fire extinguishing agents that generate fire extinguishing foams with the help of chemical reaction; the same shall apply hereinafter) shall meet the following items in addition to those provided in the preceding paragraph.
 - (i) Powdery fire extinguishing agents shall be of dry water-soluble material.
 - (ii) The insoluble contents shall be 1 mass percent or less.
 - (iii) When the fire extinguisher containing the chemical foam fire extinguishing agent at 20°C is operated, the foam discharged shall be not less than 7 times the volume of the fire extinguishing agent for handheld and back-carrying fire extinguishers, or 5.5 times for wheeled extinguishers. In addition, the volume reduction of the foam shall not exceed 25% after the elapse of 15 min from completion of discharge.
- (3) Mechanical foam fire extinguishing agents (refer to other foam concentrates than chemical foam fire extinguishing agents) shall meet the following items in addition to those provided in Paragraph (1).
 - (i) The fire extinguishing agents shall be in the form of aqueous solution, liquid, or powder. In this case, liquid or powdery fire extinguishing agents shall be water-soluble and “Use drinking water” shall be indicated on all containers of the agents (or packages if it is inappropriate to indicate the information on the containers) in accordance with the provision in Article 10(v).
 - (ii) When the fire extinguisher containing the mechanical foam fire extinguishing agent of 20°C is operated, the foam discharged shall be not less than 5 times the volume of the fire extinguishing agent. Further, the time required to change the foam into the aqueous solution of 25% volume of the original pre-foaming solution shall be not less than 1 min.

Halogenated fire extinguishing agents

Article 5 The bromochloromethane fire extinguishing agent (hereinafter referred to as “halon 1011”) and dibromotetrafluoroethane fire extinguishing agent (hereinafter referred to as “halon 2402”) shall meet the following items.

- (i) These agents shall be colorless, transparent, and free from suspended matter.

(ii) The specific gravity at 15°C shall range between 1.93 and 1.96 for halon 1011 and between 2.18 and 2.21 for halon 2402.

(iii) In the distillation test, the distillate volume of halon 1011 shall be not less than 95 volume percent within the temperature range from 66°C to 69°C while the distillate volume of halon 2402 shall be not less than 95 volume percent within the temperature range from 46°C to 49°C.

(iv) The water content shall not exceed 0.02 mass percent for halon 1011 and 0.008 mass percent for halon 2402.

(v) In the test where potassium iodide starch powder solution is added, the halogenated fire extinguishing agents shall not be colored in blue.

(vi) In the test where silver nitrate solution is added, the halogenated fire extinguishing agents shall not be colored in white or yellow.

(vii) In the test where concentrated sulfuric acid is added, the halogenated fire extinguishing agents shall not be discolored by organic matter.

(viii) The evaporation residue shall be not more than 0.004 mass percent.

(ix) When one-half portion of sufficiently polished iron or copper plate is immersed into the halogenated fire extinguishing agent at 20°C for 1 h, the surface of the plate shall be free from discoloration or other abnormal phenomena.

Article 6 The bromochlorodifluoromethane fire extinguishing agent (hereinafter referred to as “halon 1211”) and bromotrifluoromethane fire extinguishing agent (hereinafter referred to as “halon 1301”) shall meet the following items.

(i) These agents shall be colorless, transparent, and free from suspended matter.

(ii) The purity shall be not less than 98.5% for halon 1211 and not less than 99.6% for halon 1301.

(iii) The sum of acid content and free halogen shall be not more than 0.0002 mass percent.

(iv) The evaporation residue shall be not more than 0.01 mass percent.

(v) The water content shall not exceed 0.005 mass percent.

Dry chemical agents

Article 7 Dry chemical agents shall be of moisture-proof sodium or potassium bicarbonate, or other salts; or phosphates, sulfates, or other flame-resisting salts (hereinafter referred to as “phosphates, etc.”). The agents shall meet the following items.

(i) The dry chemical agent shall consist of fine powders that are characterized by nominal size of not more than 180 μm effective for fire extinguishing tasks in accordance with JIS (refers to the Japanese Industrial Standards prescribed in Article 17(1) of the Industrial Standardization Law (Act No. 185 of 1949)) Z 8801.

(ii) The dry chemical agent is placed in the thermo-hygrostat controlled to 30°C temperature and 60% relative humidity for at least 48 h until the constant weight is achieved. Then, the material is placed in the thermo-hygrostat controlled to 30°C temperature and 80% relative humidity for at least 48 h. After the test, the weight increase shall not exceed 2%.

(iii) When the dry chemical agent is uniformly scattered onto the surface of water, the material shall not sink within 1 h.

(2) Phosphates, etc shall be pink.

(3) Reused dry chemical agents shall meet the following items in addition to those provided in the

preceding two paragraphs.

(i) The water content shall not exceed 2%.

(ii) The dry chemical agent shall be uniform and the measures shall have been taken to prevent solidification.

Lubricant, etc.

Article 8 Fire extinguishing agents (including water but excluding the agents specified in Articles 5 and 6; hereinafter the same shall apply in this Article) may be mixed with or added by lubricants, antifreezes, or other agents that improve the performance and properties of the fire extinguishing agents (hereinafter referred to as "lubricant, etc.")

(2) The lubricant, etc. shall not affect the properties and performance of the fire extinguishing agents.

Container

Article 9 Fire extinguishing agents shall be put into sealed containers so that they will be protected from dilution, concentration, solidification, moisture absorption, property alteration, and other abnormal phenomena.

Indication

Article 10 The information specified in the following items shall be clearly indicated on all containers of fire extinguishing agents (packages if it is inappropriate to indicate the information on containers) in a simple manner.

(i) Product name

(ii) Classification of fire extinguisher into which the agent is charged

(iii) Volume or mass of fire extinguishing agent

(iv) Charging method

(v) Handling precautions

(vi) Year and month of manufacture

(vii) Manufacturer's name or trademark

(viii) Model code

Exemption from standards

Article 11 When the Minister of Internal Affairs and Communications recognizes that fire extinguishing agents newly created as a result of technology development activities have the performance equivalent to or higher than those conforming to the provisions prescribed in this Ordinance, judging from their composition and performance, the technical standards specified by the Minister of Internal Affairs and Communications shall apply to these new developments notwithstanding the provisions of this Ordinance.

Supplementary Provisions

This Ordinance shall come into effect as of the day of promulgation.

Supplementary Provisions (Ordinance of the Ministry of Home Affairs No. 30 of October 23, 1969)

(1) This Ordinance shall come into effect as of November 1, 1969.

(2) For tests pertaining to fire extinguishing agents whose application for test has been already made to have the fire extinguishing equipment apparatus tested by the Japan Fire Equipment Inspection Institute at the time of enforcement of this Ordinance, the provisions then in force shall remain applicable.

Supplementary Provisions (Ordinance of the Ministry of Home Affairs No. 29 of October 17, 1973)

This Ordinance shall come into effect as of January 1, 1974.

Supplementary Provisions (Ordinance of the Ministry of Home Affairs No. 7 of March 18, 1987)

This Ordinance shall come into effect as of the day of promulgation.

Supplementary Provisions (Ordinance of the Ministry of Home Affairs No. 39 of December 24, 1996)

(1) This Ordinance shall come into effect as of January 1, 1997.

(2) For tests pertaining to fire extinguishing agents whose application for test has been already made to have the fire equipment tested by the Japan Fire Equipment Inspection Institute at the time of enforcement of this Ordinance, the provisions then in force shall remain applicable.

(3) For fire extinguishing agents that have already got model approvals and fire extinguishing agents that have got model approvals based on the results from the tests identified by the prescription “provisions then in force shall remain applicable” as described in the preceding paragraph at the time of enforcement of this Ordinance, their model approvals shall be deemed as those provided in accordance with the standards prescribed in the amended Ordinance for Technical Specifications of Fire Extinguishing Agents for Fire Extinguishers.

Supplementary Provisions (Ordinance of the Ministry of Home Affairs No. 37 of September 28, 1998)-Excerpt

Effective date

Article 1 This Ordinance shall come into effect as of October 1, 1999.

Transitional measures

Article 2 For tests pertaining to fire extinguishers, fire extinguishing agents, automatic closed sprinkler heads, fire hoses, deluge valves, foam concentrates, detectors and manual call points, water flow detecting devices, plug-in couplings, and screw couplings whose application for test has been already made to have the target equipment tested by the Japan Fire Equipment Inspection Institute at the time of enforcement of this Ordinance, the provisions then in force shall remain applicable.

(2) For fire extinguishers that have already got model approvals and fire extinguishers that have got model approvals based on the results from the tests identified by the prescription “provisions then in force shall remain applicable” as described in the preceding paragraph at the time of enforcement of this Ordinance, their model approvals shall be deemed as those provided in accordance with the standards prescribed in the Ordinance for Technical Specifications pertaining to Fire Extinguishers amended according to the provisions of Article 1.

(3) For fire extinguishing agents that have already got model approvals and fire extinguishing agents that have got model approvals based on the results from the tests identified by the prescription “provisions then

in force shall remain applicable” as described in Paragraph (1) at the time of enforcement of this Ordinance, their model approvals shall be deemed as those provided in accordance with the standards prescribed in the Ordinance for Technical Specifications pertaining to Fire Extinguishing Agents amended according to the provisions of Article 2.

(4) For automatic closed sprinkler heads that have already got model approvals and automatic closed sprinkler heads that have got model approvals based on the results from the tests identified by the prescription “provisions then in force shall remain applicable” as described in Paragraph (1) at the time of enforcement of this Ordinance, their model approvals shall be deemed as those provided in accordance with the standards prescribed in the Ordinance for Technical Specifications pertaining to Automatic Closed Sprinkler Heads amended according to the provisions of Article 3.

(5) For fire hoses that have already got model approvals and fire hoses that have got model approvals based on the results from the tests identified by the prescription “provisions then in force shall remain applicable” as described in Paragraph (1) at the time of enforcement of this Ordinance, their model approvals shall be deemed as those provided in accordance with the standards prescribed in the Ordinance for Technical Specifications pertaining to Fire Hoses amended according to the provisions of Article 4.

(6) For deluge valves that have already got model approvals and deluge valves that have got model approvals based on the results from the tests identified by the prescription “provisions then in force shall remain applicable” as described in Paragraph (1) at the time of enforcement of this Ordinance, their model approvals shall be deemed as those provided in accordance with the standards prescribed in the Ordinance for Technical Specifications pertaining to Deluge Valves amended according to the provisions of Article 5.

(7) For foam concentrates that have already got model approvals and foam concentrates that have got model approvals based on the results from the tests identified by the prescription “provisions then in force shall remain applicable” as described in Paragraph (1) at the time of enforcement of this Ordinance, their model approvals shall be deemed as those provided in accordance with the standards prescribed in the Ordinance for Technical Specifications pertaining to Foam Concentrates amended according to the provisions of Article 6.

(8) For detectors and manual call points that have already got model approvals and detectors and manual call points that have got model approvals based on the results from the tests identified by the prescription “provisions then in force shall remain applicable” as described in Paragraph (1) at the time of enforcement of this Ordinance, their model approvals shall be deemed as those provided in accordance with the standards prescribed in the Ordinance for Technical Specifications pertaining to Detectors and Manual Call Points of Fire Detection and Fire Alarm Systems amended according to the provisions of Article 7.

(9) For water flow detecting devices that have already got model approvals and water flow detecting devices that have got model approvals based on the results from the tests identified by the prescription “provisions then in force shall remain applicable” as described in Paragraph (1) at the time of enforcement of this Ordinance, their model approvals shall be deemed as those provided in accordance with the standards prescribed in the Ordinance for Technical Specifications pertaining to Water Flow Detecting Devices amended according to the provisions of Article 8.

(10) For plug-in couplings that have already got model approvals and plug-in couplings that have got model approvals based on the results from the tests identified by the prescription “provisions then in force shall remain applicable” as described in Paragraph (1) at the time of enforcement of this Ordinance, their model approvals shall be deemed as those provided in accordance with the standards prescribed in the Ordinance

for Technical Specifications pertaining to Plug-in Couplings used for Fire Hoses amended according to the provisions of Article 11.

(11) For screw couplings that have already got model approvals and screw couplings that have got model approvals based on the results from the tests identified by the prescription “provisions then in force shall remain applicable” as described in Paragraph (1) at the time of enforcement of this Ordinance, their model approvals shall be deemed as those provided in accordance with the standards prescribed in the Ordinance for Technical Specifications pertaining to Screw Couplings used for Fire Hoses or Fire Suction Hoses amended according to the provisions of Article 12.

(12) For power driven fire pumps that were notified to the Minister of Home Affairs in accordance with the provision of Article 21-16-4(1) of the Fire Service Act (Act No. 186 of 1948) before the enforcement of this Ordinance, they shall be deemed as those that conform to the standards prescribed in the Ordinance for Technical Specifications pertaining to Power Driven Fire Pumps amended according to the provisions of Article 9.

(13) For fire suction hoses that were notified to the Minister of Home Affairs in accordance with the provision of Article 21-16-4(1) of the Fire Service Act before the enforcement of this Ordinance, they shall be deemed as those that conform to the standards prescribed in the Ordinance for Technical Specifications pertaining to Fire Suction Hoses amended according to the provisions of Article 10.

Supplementary Provisions (Ordinance of the Ministry of Home Affairs No. 44 of September 14, 2000)

This Ordinance shall come into effect as of the effective date (January 6, 2001) of the Act for Partial Revision of Cabinet Law (Act No. 88 of 1999).

Supplementary Provisions (Ordinance of the Ministry of Internal Affairs and Communications No. 124 of October 30, 2006)

(1) This Ordinance shall come into effect as of the day of promulgation.

(2) For tests pertaining to fire extinguishing agents for fire extinguishers whose application for test has been already made to have the fire equipment tested by the Japan Fire Equipment Inspection Institute at the time of enforcement of this Ordinance, the provisions then in force shall remain applicable.

(3) For fire extinguishing agents for fire extinguishers that have already got model approvals and fire extinguishing agents for fire extinguishers that have got model approvals based on the results from the tests identified by the prescription “provisions then in force shall remain applicable” as described in the preceding paragraph at the time of enforcement of this Ordinance, their model approvals shall be deemed as those provided in accordance with the standards prescribed in the amended Ordinance for Technical Specifications of Fire extinguishing agents for Fire Extinguishers.