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Special requirements for fire alarm and evacuation in hazardous chemicals workplaces - Part 1: Automatic fire alarm systems

危险化学品作业场所火灾报警与避难逃生特殊要求 第1部分：火灾自动报警系统

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4 Requirements

4.1 Basic Requirements The product quality of automatic fire alarm systems and their constituent equipment (hereinafter referred to as "system equipment") shall meet their national standards. Require.

Note. System equipment includes various equipment for fire detection and alarm systems, fire-fighting linkage control systems, and electrical fire monitoring systems, including fire alarm controllers, fire extinguishers, and other related equipment. Fire alarm control system, electrical fire monitoring equipment, fire electrical control devices, fire telephone, fire emergency broadcast system, fire detector, manual fire alarm. Alarm buttons, fire alarms (audible and/or visual), modules, and electrical fire monitoring detectors.

4.2.1 Fire alarm function

4.2.1.1 Rapid Response When the monitoring area of the fire alarm trigger device meets the alarm conditions, the fire alarm controller should receive the fire alarm trigger within 3 seconds. Fire alarm signals for the device.

4.2.3 Online component replacement function

4.2.3.1 The fire alarm controller shall have fire alarm triggering devices such as online replacement of fire detectors and manual fire alarm buttons, and fire alarm sound. When replacing the functions of the light alarm and/or the module, the normal operation of the non-replaced parts should not be affected.

4.2.3.2 Electrical fire monitoring equipment should have the function of online replacement of electrical fire monitoring detectors. When replacing them, non-replaceable components should not be affected. Normal operation.

4.2.4 Communication Function

4.2.4.1 In the event of an open circuit or short circuit at any point on the alarm bus of the fire detection and alarm system, the fire alarm controller and the fire alarm triggering device should... It can communicate normally.

4.2.4.2 The fire alarm controller and various fire alarm triggering devices shall be connected by wired communication.

4.2.4.3 Fire control room graphic display device and fire alarm controller, electrical fire monitoring equipment, combustible gas alarm controller, emergency... Between lighting controllers, between fire alarm controllers and fire-fighting linkage controllers, and between fire-fighting linkage controllers and electrical control devices, centralized... When communication reliability between a type-type controller and a area-type controller cannot be guaranteed using wires and cables, fiber optic communication is preferable. When using... When the location lacks the conditions for wired communication installation, wireless communication may be used. The communication status indication function of the automatic fire alarm system should... The following requirements must be met.

a) The graphic display device in the fire control room should be able to indicate control equipment with communication malfunctions;

b) The fire alarm controller should be able to indicate fire-fighting linkage controllers with communication abnormalities;

c) The fire alarm control panel should be able to indicate electrical control devices with communication abnormalities;

d) Centralized fire alarm controllers should be able to indicate communication failures in regional fire alarm controllers.

4.2.4.4 When an automatic fire alarm system uses wireless communication, the following requirements shall be met.

a) It should be able to communicate normally under conditions that meet the network signal quality specifications stipulated by the producer;

b) No fault in the system should affect the normal operation of the non-faulty parts.

4.2.4.5 When a combustible gas detector is connected to a combustible gas alarm system or automatic control system for monitoring, the graphic display device in the fire control room should be installed. The device should be able to communicate with combustible gas alarm systems or automatic control systems, receive and display the status information and

gas concentration of combustible gas detectors. information.

4.2.4.6 The fire alarm controller and the graphic display device in the fire control room should be able to communicate with a third-party monitoring platform to integrate the automatic fire alarm system. The information is sent to the third-party regulatory platform, and the communication protocol should meet the requirements of Appendix A.

4.3.1 Redundancy Function

4.3.1.1 General Requirements Fire alarm controllers, fire linkage controllers, electrical fire monitoring equipment, fire electrical control devices, and other control equipment (hereinafter referred to as...) The "control equipment" should adopt a redundant design, and the control equipment should have at least one unit that implements the main control function, power control function, and communication function. Backup unit. The appearance, circuit board, components, and program of the main unit and the backup unit should be consistent. The main unit and the backup unit should have a non-disconnect function. The function of controlling the power supply replacement of the control equipment.

4.3.1.2 Unit Conversion The control equipment should be able to switch between the main unit and the standby unit automatically and manually. When the main unit malfunctions, it should be able to automatically switch to standby mode. When the main unit returns to normal operation, it should automatically or manually switch to the backup unit. Unit switching should not affect the normal operation of the control equipment. After the unit conversion, the control equipment should establish status information within 20 seconds.

4.3.1.3 Status Indication The control equipment should be able to indicate the operating and fault status of the main unit and the standby unit. When a fault occurs in the main unit or the standby unit... When the fault occurs, the main fault indicator light (or device) should illuminate within 60 seconds to indicate the location of the fault and emit an audible fault signal. Indicator lights (or devices) are used for status indication. When displayed, under ambient light conditions not exceeding 500 lx, the status indicator light (device) should be clearly visible at a distance of 3 meters from a 22.5° viewing angle directly in front. See. Under the condition that the ambient sound pressure level (A-weighted) is no greater than 50 dB, the peak sound pressure level (A-weighted) at 1 m directly in front of the audio device is... The value should not be less than 65 dB and should not be greater than 115 dB.

4.3.2 Operation display panel control functions The centralized fire alarm controller can be expanded to include one operation display panel. The operation display panel's display devices and button (button) settings... The method, display method, and function should be the same as those of a centralized fire alarm controller, and the displayed information should be consistent with that of the centralized fire alarm controller. To. When any operation display panel of a centralized fire alarm controller malfunctions, it should not affect the operation of the normal operation display panel. With display.