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Clean-agent Extinguishing System Units

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Clean-agent Extinguishing System Units

See General Information for Clean-agent Extinguishing System Units

ANSUL - A TYCO FIRE PROTECTION PRODUCTS BRAND EX4510

1 STANTON ST

MARINETTE, WI 54143-2542 USA

ENGINEEREED UNITS

IG-541 (Inergen) Clean Agent Extinguishing System Units, stored pressure type, having nominal storage capacities of 200, 250, 350, 425, 435 cu ft of IG-541 (Inergen). The units are pressurized to 2175 psig (150 Bar) at 70°F with operating temperatures of 32°F to 130°F. The units are designed for total flooding protection against Class A surface burning, Class B flammable liquid and Class C fires occurring within an enclosure.

A description of these extinguishing system units and the design and installation limitations are contained in the Listee's installation manual P/N 416655 issued November 1, 2000, with revisions through July 2014, Bulletin 5849, dated June 8, 2012, Bulletin 2014119, dated December 5, 2014, Bulletin 2015281, dated January 22, 2016, and Bulletin 2015187a, dated December 31, 2015. These installations require the use of the Listee's flow calculation software 150 Bar Inergen Designer Version 2.1.2 for engineered or Inercalc Version 1.3.0 for balanced engineered. Copies are available from the above Listee.

IG-541 (Inergen) Clean Agent Extinguishing System Units, stored pressure type, having nominal storage capacities of 575 cu ft of IG-541 (Inergen). The units are pressurized to 2900 psig (200 Bar) at 70°F with operating temperatures of 32°F to 130°F. The units are designed for total flooding protection against Class A surface burning, Class B flammable liquid and Class C fires occurring within an enclosure.

A description of these extinguishing system units and the design and installation limitations are contained in the Listee's installation manual P/N 430149 issued December 1, 2001, revised February 1, 2012, Bulletin 5849, dated June 8, 2012, Bulletin 5907 dated February 25, 2013, Bulletin 2014118, dated December 5, 2014, Bulletin 2015282, dated January 22, 2016, and Bulletin 2015187a, dated December 31, 2015. These installations require the use of the Listee's flow calculation software 200 Bar Inergen Designer Version 5.1.3 for engineered. Copies are available from the above Listee.

Engineered IFlow Models 441380, 441373, 441419, 441417, 441428 and 441427 Clean Agent Extinguishing System Units, stored pressure type, having nominal charging capacities of 22.3, 22.3, 22.3, 22.3, 39.0 and 39.0 cubic meters (80, 80, 80, 80, 140 and 140 L) of Inergen (IG-541) Clean Agent, respectively. The units are pressurized to 300 bar with operating temperatures of -4°F (-20°C) to 130°F (54°C). The units are designed for total flooding protection against Class A surface burning, Class B flammable liquid and C fires occurring within an enclosure.

These system units are intended to be designed and installed in accordance with the Listee's Engineered System Installation, Recharge and Maintenance Manual, P/N 441435 Rev. 02 dated October 2015, Manual Bulletin - Ansul Inergen 300-Bar Exchange Program, Bulletin No. 2016030, dated April 27, 2016, and the Tyco IFlow 300 Engineered System Flow Calculation Software Version 2.0.0.

Sapphire ® Clean Agent Extinguishing System Units containing 3M™ Novec™ 1230 Fire Protection Fluid (FK-5-1-12), Models 570635, 570633, 570634, 570638, 570639, 570640, 570641 and 570586, stored pressure type, having nominal storage capacities of 20, 50, 90, 140, 280, 390, 450 and 850 lb of Novec™ 1230 Fluid (FK-5-1-12), respectively. The units are pressurized to 360 psig (24.8 bar) at 70°F with operating temperatures of 32°F to 130°F. The units are designed for total flooding protection against Class A surface burning, Class B flammable liquid and Class C fires occurring within an enclosure. A description of these extinguishing system units and the design and installation limitations are contained in the Listee's installation manual P/N 570590-4 issued September 1, 2010 (Rev 3), Bulletin 5849, dated June 8, 2012, Bulletin 2015187a, dated December 31, 2015 and Main/Reserve Actuation Isolator Installation Manual Supplement p/n 437276 dated March 31, 2010. These installations require the use of the Listee's flow calculation software ANSL 3.61b or TYCO4.00. Copies are available from the above Listee.

Sapphire ® Clean Agent Extinguishing System Units containing 3M™ Novec™ 1230 Fire Protection Fluid (FK-5-1-12), Models 442639, 570839, 442640, 442641 and 442642 stored pressure type, utilizing seamless cylinders having nominal storage capacities of 90, 210, 320, 370, and 476 lb of Novec™ 1230 Fluid (FK-5-1-12), respectively. The units are pressurized to 360 psig (24.8 bar) at 70°F with operating temperatures of 32°F to 130°F. The units are designed for total flooding protection against Class A surface burning, Class B flammable liquid and Class C fires occurring within an enclosure. A description of these extinguishing system units and the design and installation limitations are contained in the Listee's installation manual P/N 570805-2 issued September 2015, Bulletin 2015187a, dated December 31, 2015, and the Sapphire Engineered system Flow Calculation Software Version ANSL 3.81b or TYCO4.00. Copies are available from the above Listee.

FM-200® Models 442872, 442873, 442874, 442875, 442876, 442877, 442878, and 442879 Clean Agent Extinguishing System Units utilizing DOT rated cylinders, stored pressure type, having nominal charging capacities of 8, 16, 32, 52, 106, 147, 180, and 343 L (17, 35, 70, 114, 233, 324, 396 and 756 lbs) of FM-200® Clean Agent, respectively. FM-200® Models 442882, 442883, 442884, 442885, 442886, 442887, 442888, and 442889 Clean Agent Extinguishing System Units utilizing TC rated cylinders, stored pressure type, having nominal charging capacities of 8, 16, 32, 52, 106, 147, 180, and 343L (17, 35, 70, 114, 233, 324, 396 and 756 lbs) of FM-200® Clean Agent, respectively. The units are super-pressurized to 360 psig (25 bar) with operating temperatures of 32°F to 130°C (0°C to 54°C). The units are designed for total flooding protection against Class A surface burning, Class B flammable liquid and C fires occurring within an enclosure. These system units are intended to be designed and installed in accordance with the Listee's Engineered System Installation, Recharge and Maintenance Manual, P/N 442940 dated 2015-10-09, Rev. 0, and the FM-200® Engineered System Flow Calculation Software Version TYCO4.00. Copies are available from the above Listee.

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[Extinguishers and Extinguishing System Units] Clean-agent Extinguishing System Units

See General Information for Extinguishers and Extinguishing System Units

USE AND INSTALLATION

This category covers clean-agent extinguishing system units, which are assembled in a system with an agent storage container assembly to discharge an extinguishing agent through fixed piping and nozzles for the extinguishment of fires. These units include actuating assemblies designed for automatic and/or manual operation, container assemblies for storing the extinguishing agent, discharge assemblies, manifold check valves, selector valves, discharge nozzles and other miscellaneous devices.

This category also covers clean-agent extinguishing system unit assemblies comprised of a single enclosure that houses 1) electronic control and signaling equipment and 2) a clean-agent extinguishing system unit, connected and assembled in the enclosure and intended for connection to an electrical power connection, clean-agent-system piping, and heat- or smoke-detection devices.

Clean-agent extinguishing systems are intended to be designed, installed and maintained in accordance with ANSI/NFPA 2001, "Clean Agent Fire Extinguishing Systems," and the manufacturer's installation, operation and maintenance manual. These units are designed for total-flooding applications unless otherwise indicated in the individual certifications. For total-flooding applications, the hazard is surrounded by a fixed enclosure that enables the required concentration to be achieved and maintained for the required period of time, ensuring effective extinguishment of fire in combustible materials.

The total-flooding design concentrations for surface-type Class A and Class B fires are specified in the individual manufacturer's design and/or installation, operation and maintenance manual referenced in the individual certifications.

Fires involving densely packed fibrous materials, such as baled cotton, jute, pressed fiberboard or the like, are special hazards and should be given specific consideration. Extinguishment of materials of this type may require substantially higher concentrations.

For information regarding safeguards for personnel, products of decomposition, and exposure to the agent, refer to ANSI/NFPA 2001.

Authorities Having Jurisdiction should be consulted before installation.

PRODUCT IDENTITY

One of the following product identities appears on the product:

Clean-agent Extinguishing System Unit

Clean-agent Extinguishing System Unit Assembly

ADDITIONAL INFORMATION

For additional information, see Extinguishers and Extinguishing System Units (FWFZ) and Fire Protection Equipment (AAFP).

REQUIREMENTS

The basic standard used to investigate clean-agent extinguishing system units in this category is ANSI/UL 2166, "Halocarbon Clean Agent Extinguishing System Units," or ANSI/UL 2127, "Inert Gas Clean Agent Extinguishing System Units."

The basic standards used to investigate clean-agent extinguishing system unit assemblies in this category are ANSI/UL 2166, or ANSI/UL 2127 and ANSI/UL 864, "Control Units and Accessories for Fire Alarm Systems."

UL MARK

The Certification Mark of UL on the product is the only method provided by UL to identify products manufactured under its Certification and Follow-Up Service. The Certification Mark for these products includes the UL symbol, the words "CERTIFIED" and "SAFETY," the geographic identifier(s), and a file number.

Alternate UL Mark

The Listing Mark of UL on the product is the only method provided by UL to identify products manufactured under its Listing and Follow-Up Service. The Listing Mark for these products includes the UL symbol (as illustrated in the Introduction of this Directory) together with the word "LISTED," a control number, and the product name "Clean Agent Extinguishing System Unit" or "Clean Agent Extinguishing System Unit Assembly."

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Extinguishers and Extinguishing System Units

Guide Information for Fire Protection Equipment

The following information relates to extinguishers, extinguishing agents and extinguishing system units.

Portable extinguishers are rated according to their fire extinguishing potential which is indicated by NUMERAL and LETTER designations. The LETTER designates the general class of fire for which the extinguisher is suitable, and the NUMERAL indicates the approximate relative extinguishing potential of the device.

Class A fires are defined as fires in ordinary combustible materials such as wood, cloth, and paper where the "quenching-cooling" effect of quantities of water or solutions containing large percentages of water is most effective in reducing the temperature of the burning material below the ignition temperature and is, therefore, of first importance.

Class B fires are defined as fires in flammable liquids, combustible liquids, petroleum greases, tars, oils, oil-based paints, solvents, lacquers, alcohols and flammable gases.

Class C fires are defined as fires involving electrical equipment where the electrical nonconductivity of the extinguishing agent is of first importance.

Class D fires are defined as fires in combustible metals, such as magnesium, titanium, zirconium, sodium, potassium, etc.

Class K fires are defined as fires in cooking appliances that involve combustible cooking media (vegetable or animal oils and fats).

The numerical portion of Class A ratings of hand extinguishers is developed on the basis of comparative fire tests using various sizes of wood crib, wood panel and excelsior fires.

For example, 1-A, 2-A, 3-A and 4-A extinguishers must be capable of consistently extinguishing vertical wood panel fires having areas of 8x8 ft, 10x10 ft, 12x12 ft, and 14x14 ft, respectively. The numerical portion of Class A ratings of wheeled extinguishers is developed on the basis of wood crib fires only. The size of crib is determined by logarithmic plots of enclosed volume and exposed surface area of the lumber used in the test fires versus the Class A rating.

The numerical portion of Class B ratings of extinguishers is developed on the basis of fire tests using square steel pans in specific size increments and a fuel which is essentially equal to ordinary motor fuel (regular gasoline). Indoor test fire sizes are 2-1/2, 5, 12-1/2, 25 and 50 sq ft, and outdoor fire sizes are 100, 200, 300, 400, 600, 800, 1200 and 1600 sq ft. The fire extinguishing classification is equivalent to 40% of the area of fire consistently extinguished by an expert operator. The NUMERAL thus derived is an approximate indication of the relative fire extinguishing potential of the extinguisher.

The fire extinguishing classifications of these extinguishers are developed at normal ambient temperature (approximately 70°F) and may be reduced at lower temperatures.

There are no numerical components for Class C ratings of extinguishers, as only the electrical nonconducting characteristics of the agent are significant, and no effort is made to indicate the amount of electrical fire for which an extinguisher is suitable.

Extinguishers and agents for use on Class D (combustible metals) fires are rated for the amount of agent needed to control a particular quantity and type of metal.

Extinguishers and agents for use on Class K (combustible cooking media) fires are rated for the amount of agent needed to extinguish a particular quantity and surface area of vegetable oil.

Extinguishers classed as "Marine Type" have been investigated in accordance with the applicable sections of the Code of Federal Regulations, Title 46 (shipping), Chapter 1, Subchapter Q, Sub-part 162.028, in addition to the usual tests conducted by UL. Listed "Marine Type" extinguishers are identified by the wording "Marine Type. U.S.C.G. Type (....), Size (....)," in the individual Listings and in the Listing Mark.

Extinguishing system units are investigated for the protection of specific classes or types of fires or for specific hazards as indicated in the individual Listings.

Prospective users should first determine from Authorities Having Jurisdiction which type of extinguishers, extinguishing agents or extinguishing system units are acceptable for protection of the hazards. Extinguishers and extinguishing system units are intended to be installed, inspected, maintained and tested in accordance with the appropriate National Fire Protection Association standard(s).

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