

Clean Agent Fire Extinguishing Systems

These systems contain electrically nonconducting, volatile, or gaseous fire extinguishing agents that don't leave a residue upon evaporation (per NFPA 2001 paragraph 1-3.1). They are effective for total flooding protection against hazards involving liquid flammable materials, electrical equipment, and ordinary solid combustibles in occupancy arrangements which produce only surface burning. In general, these agents are not effective or appropriate for hazards which produce deep-seated burning or for those which involve chemicals containing their own oxygen (such as cellulose nitrate), metal hydrides, or reactive metals (such as sodium, magnesium or uranium).

Clean Agent systems are similar in many respects to Halon 1301 and carbon dioxide systems. Discharge of the agent by total flooding or local application may create atmospheric hazards to personnel. Toxic thermal decomposition products can be minimized by fast fire detection coupled with rapid agent discharge. Personnel should not remain in the area following system discharge. Table A-1-5.1.1 of NFPA 2001 provides information on toxicological and physiological effects covered in this equipment classification. The No Observed Adverse Effect Level (NOAEL) is the highest concentration at which no adverse physiological or toxicological effect has been observed. The Lowest Observed Adverse Effect Level (LOAEL) is the lowest concentration at which an adverse physiological or toxicological effect has been observed.

Systems can only be FM Approved under this classification if they use agents having a component Approval. The system Approvals specifically reference the relevant agent Approval. Individual agent listings appear under the category Clean Extinguishing Agents.

Compatible FM Approvals controls must be used. (See AUTOMATIC RELEASES FOR EXTINGUISHING SYSTEMS AND OTHER FIRE PROTECTION EQUIPMENT under ELECTRICAL SIGNALING.)

Application of this equipment should be subject to the limitations specified and subject to FM Global's acceptance of plans prior to installation. Required design concentrations vary from agent to agent and depending upon maximum design parameters, the concentration may vary among system manufacturers. The design concentrations listed by the system manufacturers are generally accepted in electrical/electronic hazards, i.e. computer, telecommunication areas, provided that Class A ordinary combustibles are kept to a minimum, thereby minimizing the potential for a deep seated Class A fire.

System charging and recharging shall be done only by the manufacturer or a FM Approved representative.

The Clean Agent systems FM Approved under this classification have been addressed by NFPA 2001, Standard on Clean Agent Extinguishing Systems, 1994 Edition and must be listed in the United States Environmental Protection Agency (EPA) Significant New Alternatives Policy (SNAP) as an acceptable substitute to Halon 1301.

Jurisdictions **outside** the United States may **not** recognize NFPA and EPA sanction of certain clean agents. Local and national governmental regulations should be consulted **prior** to agent selection.

*Alternative to Halon 1211 and Halon 1301.

SIEX-HC 227 (25 and 42 bar) Engineered Fire Suppression Systems

System Designation:	SIEX-HC 227 (25 and 42 bar) Engineered Fire Suppression Systems
System Type:	Engineered
Agent Identification:	HFC-227ea (1,1,1,2,3,3,3-Heptafluoropropane)
Available Outlet Connections for Valve Type:	RGS-MAM-11-4: 21.8 x 1/14" G, 3/4" BSP RGS-MAM-12-4: 21.8 x 1/14" G, 3/4" BSP RGS-MAM-20: 3/4" BSP RGS-MAM-40: 1" BSP, 1-1/2" BSP RGS-MAM-50: 2" BSP RGS-MAM-80: 3" Grooved
Available Storage Pressures for Valve Type:	RGS-MAM-11-4: 25 bar, 42 bar RGS-MAM-12-4: 25 bar, 42 bar RGS-MAM-20: 25 bar, 42 bar RGS-MAM-40: 25 bar, 42 bar RGS-MAM-50: 25 bar, 42 bar RGS-MAM-80: 25 bar
Available Agent Fill Ranges for Valve Type:	RGS-MAM-11-4: 0.88 kg – 18.76 kg RGS-MAM-12-4: 0.88 kg – 18.76 kg RGS-MAM-20: 2.7 kg – 49.68 kg RGS-MAM-40: 22.88 kg – 138.0 kg RGS-MAM-50: 37.0 kg – 180.0 kg RGS-MAM-80: 79.2 kg – 501.0 kg
Minimum and Maximum Agent Storage Temperatures:	-4°F to 122°F (-20°C to 50°C)
Minimum and Maximum Temperature of Protected Spaces:	-4°F to 122°F (-20°C to 50°C)

Minimum and Maximum Nozzle Heights:	12 in (0.3 m) to 23.3 ft (7.1 m)
Minimum Nozzle Design Pressure:	64.4 psi (4.44 bar)
Types of Nozzles Available:	180°, 360°
Maximum Area of Coverage for Nozzle Type:	180°: 43.3 ft x 43.3 ft (13.2 x 13.2 m), 48.6 ft (14.8 m) maximum radial throw 360°: 43.3 ft x 43.3 ft (13.2 x 13.2 m), 30.5 ft (9.3 m) maximum radial throw
Flow Calculation Software:	HFC227ea Calculation Program, Version 7.3, 20-Mar-2006
Design Manual:	System Design Manual, UF-MD-HC, 19-02-2014
Components Manual:	System Components Manual, UF-MC-HC, 19-02-2014
Installation Manual:	Installation Manual, UF-MI-HC, 19-02-2014
Maintenance Manual:	Maintenance Manual, UF-MC-HC, 19-02-2014
Limitations or Exceptions to the Approval:	Limitations as defined in the software and manuals listed above
Approved Filling Stations:	Siex 2001, S.L. Polígono Industrial Villalonquéjar C/ Merindad de Montija N°6 09001 Burgos Spain

Company Name:	Siex 2001, S.L.
Company Address:	Polígono Industrial Villalonquéjar, C/ Merindad de Montija N° 6, 09001 Burgos, Spain
Company Website:	http://www.siex2001.com
New/Updated Product Listing:	No
Listing Country:	Spain
Agent Type:	Engineered System, HFC-227
Certification Type:	FM Approved