



Coffee Break Training - Fire Protection Series

Water Mist Extinguishers for MRI Applications

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Learning Objective: The student shall be able to understand which extinguishing agents and what extinguisher materials are appropriate for MRI equipment rooms.

Magnetic Resonance Imaging (MRI) equipment and the medical facilities that use these special machines also require a special fire protection plan. There are a number of special considerations to consider when choosing what extinguisher to use. First, a “non-magnetic” extinguisher is needed to assure there is no adverse reaction to the strong magnetic fields that are produced when the MRI machine is being used. This will help to assure no damage is done to the equipment, but also no danger to any patient or staff in close proximity to the MRI equipment. It is important to choose an extinguisher that has been certified by an independent testing agency as suitable for use in an MRI environment, and labeled as such.



The electronics involved with MRI equipment definitely requires the use of a clean agent, where the extinguishing agent leaves no residue and is neither harmful nor corrosive to delicate electronic components and circuitry. In this type environment, it is also mandatory to choose an extinguishing agent that is not only clean and effective; it must also provide the utmost safety to medical staff and to patients. This means that traditional clean agents such as halons and halogenated agents may not be the best choice. Most halons and halogenated agents are cardiac sensitizers which can cause unnecessary complications with staff and patients who may already be stressed due to the MRI procedure itself or being in the confined spaces of an MRI machine. Carbon dioxide extinguishers also have serious limitations. The discharge from a CO₂ extinguisher is extremely cold which can shock delicate electronics and also frostbite human tissues. They can also reduce the amount of respirable oxygen in a small confined space.

All of these factors are important and must be considered. They also significantly limit the choices for properly protecting this special hazard. The best choice is a non-magnetic water mist extinguisher, which uses plain water or de-ionized water as the extinguishing agent. The agent is clean, easy to clean up, and poses no undue dangers to staff or patients. The extinguishers usually have a UL class A rating as well as a class C rating. The extinguishers cylinders are made of a special grade of stainless steel that is inherently non-magnetic. Also the valve and operating mechanism of the extinguishers are made of nonferrous materials and stainless steel such that they too are non-magnetic. Service and maintenance are available from most fire extinguisher distributors and no special equipment is needed to perform routine maintenance.

Regardless of the extinguisher choice for MRI environments, the end user should make sure the extinguisher is tested and labeled for use around MRI equipment.



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