

GET OUT THE HOT DOGS AND THE BURGERS COMBUSTIBLES IN THE MACHINERY ROOM

By Bill Lape, SCS Engineers

IIAR2 has long prohibited the storage of combustibles in the machinery room outside of fire rated containers. IIAR2-2021, Section 6.4 states “Combustible materials or flammable liquids shall not be stored in machinery rooms outside of approved fire-rated storage containers.” It goes on to list an exception that states, “This provision shall not apply to spare parts, tools, incidental materials, and the containers for such items, necessary for the operation and maintenance of the refrigeration system.”

The informative appendix adds some clarification by stating that “Combustible materials are any materials that can ignite and burn. Typical combustible solids in refrigerated manufacturing or storage facilities can include spare pallets and packaging. Flammable liquids are those that have a flash point lower than 100 deg F (37.8 deg C), which generate sufficient flammable vapors for ignition under most ambient conditions. Combustible liquids are those that have a flash point of 100 deg F (37.8 deg C) or greater, meaning that additional heat input would be needed under most ambient conditions to generate sufficient vapors for ignition and sustained flame. Most refrigeration oils meet these requirements, but this should be checked on a case by case basis.”

So, let’s look at some of the things that have been found in our machinery rooms.

The picture to the right represents multiple problems. Not only are flammables being stored in the machinery room, but they are not properly secured (despite adhering to the signage requiring that the cylinders be chained). In addition, there is no segregation of flammables and oxidizers, as evidenced by the cylinder labels.

In the picture to the bottom right, the cylinders are better secured, but the inescapable fact is that flammables are still being stored within the machinery room.



IIAR6-2019, Section 5.6.3.2, states that "Portable maintenance tools with open flames are permitted to be used to assist the migration of liquid refrigerant within the closed-circuit system to facilitate isolation of equipment and ancillary piping for maintenance." Section 5.6.3.2.1 goes on to state that "The portable maintenance tool's open flame shall not have characteristics that can cut or reduce the mechanical integrity of the surfaces where the heat is applied."



Diesel fuel tanks are also a no-no.



While an ammonia refrigeration operator is likely to work up an appetite while operating and maintaining a system, a propane grill is not a tool that falls under the IIAR exception for necessary tools.



While the weed burner in the photo above is often used in our industry, and it is allowable under IIAR6, the propane in the tank is still a flammable being stored in the machinery room.



Here we see a group of ubiquitous oil drums. Every refrigeration operator keeps at least two, typically one with new oil and one with waste oil. However, in order to keep them in the machinery room, they must be stored in a fire rated cabinet.



At the end of the day, we want to make sure that our facilities don't end up like the one below.



Lockers and uniform storage are not considered spare parts or tools that are necessary for the operation of the refrigeration system despite the fact that no one wants to see a naked refrigeration operator in the machinery room. Remember, FR means flame resistant, not non-combustible.



Even buckets of oil must be stored in a fire rated cabinet except when they are in use.

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