AMEREX TECH TIP No. 5

# SELECTION OF FIRE EXTINGUISHERS FOR FIRES INVOLVING OXIDIZERS (SWIMMING POOL CHEMICALS)

Oxidizers, such as those used for treating swimming pools, have specific requirements for storage and fire protection. These requirements can be found in **NFPA 430**, Code for the Storage of Liquid and Solid Oxidizers. **It is important to know that using the wrong type of portable fire extinguisher on certain oxidizers could result in a violent reaction or explosion**. Always review the MSDS (Manufacturer's Safety Data Sheet) for the products being used for fire protection measures and incompatible materials.

**NFPA 430** contains the following:

**Manual Fire Fighting** – manual fire-fighting equipment in the form of portable water extinguishers or water hose reel stations shall be provided in accordance with the requirements of NFPA 10, Standard for Portable Fire Extinguishers, and NFPA 14, Standard for the Installation of Standpipe and Hose Systems.

- The placement and use of dry chemical extinguishers containing ammonium compounds (Class A:B:C) shall be prohibited in areas where oxidizers that can release chlorine are stored.
- Halon extinguishers shall not be used in areas where oxidizers are stored.
- Halocarbon clean agent extinguishers shall not be used in areas where oxidizers are stored unless they have been tested to the satisfaction of the authority have jurisdiction.

The following paragraph from Annex A of **NFPA 430** contains additional information on extinguishing agents that should not be used regarding oxidizers:

- A dry chemical fire extinguishing agent containing ammonium compounds (such as some A:B:C agents) should not be used on oxidizers that contain chlorine. The reaction between the oxidizer and the ammonium salts in the fire extinguishing agent can product an explosive compound ($NCl_3$). Carbon dioxide or other extinguishing agents that function by a smothering action for effective use are of no value in extinguishing fires involving oxidizers.
- Halon extinguishers should not be used on fires involving oxidizers because they can react with the oxidizer.
- Halocarbon clean agent extinguishers as identified in NFPA 2001, Standard on Clean Agent Fire Extinguishing systems, are chemically similar to Halon and unless proven differently should be assumed to react with the oxidizer.

**NFPA 10** contains the following:

- Only water-type extinguishers shall be installed in areas containing oxidizers such as pool chemicals.
- Multipurpose dry chemical fire extinguishers shall not be installed in areas containing oxidizers such as pool chemicals.

It is apparent from the above excerpts that the "agent of choice" for fighting fires involving oxidizers is water. This is certainly a perfect application for the water pressure or water mist extinguishers. Remember that choosing the wrong type of extinguishing agent could be disastrous.

Your customers that use or store oxidizers should consider that the hazards of oxidizers may manifest themselves in one or more of the following hazardous situations:
They increase the burning rate of combustible material.

Your customers that use or store oxidizers should consider that the hazards of oxidizers may manifest themselves in one or more of the following hazardous situations:

- They increase the burning rate of combustible material.
- They may cause spontaneous ignition of combustible materials.
- They may decompose and may liberate hazardous gases.
- They may undergo self-sustained decomposition, which may result in an explosion.

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