

Fire Safety in the Dive Industry: Part 1

 November 1, 2018  By Francois Burman, Pr. Eng, MSc.



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Among the lessons we've learned from accident and incident reports is that fires can occur almost anywhere, including dive centers, equipment stores, workshops, fill stations, boats and vehicles. To better manage the risk of fire, we need to consider a few basic principles.

First, fire is fast, hot and deadly. When a fire breaks out, there is little time to think or react. We need to know right away what to do and then take all the steps required to contain the fire and manage the situation.

Second, three elements are required to create and sustain fire: flammable material, oxygen and an ignition source. Fire is essentially a chemical reaction between fuel and oxygen triggered by a heat source. Knowing these elements is useful because removing, containing or controlling any one of them can prevent a fire.

The most manageable fire is one that is prevented. Prevention, however, requires us to be aware of many potential ignition sources. Here is a list to help you identify areas of concern.

Electrical concerns

- overloading electrical power outlets
- positioning electrical heaters incorrectly
- leaving appliances on when not in use
- removing plugs from outlets before turning off appliances
- placing power cords under carpets or in traffic areas using damaged wiring and plugs

Machinery and equipment

- providing poor maintenance, which can lead to overheating and excessive power draw
- placing machinery in congested areas, among other equipment or surrounded by flammable materials
- disregarding oil leaks, drips and spills
- using heating tools in a workshop where combustible materials are present
- lacking appropriate electrical grounding and ground fault protection systems

Chemical reactions

- allowing chemicals to mix as a result of poor storage, spills or leaks
- keeping pool chemicals, cleaning solutions, solvents, gasoline or paints in unsafe or uncontrolled areas

Spontaneous combustion

- keeping excessive amounts of oil-soaked rags in one place
- leaving lids off volatile products
- allowing large amounts of decaying organic materials to collect in an uncontrolled space

Human behaviors

- smoking, especially in areas of concern
- disposing hot ash in garbage bins
- packing or storing together combustible materials
- allowing messy and cluttered workspaces
- being ignorant

Gases and volatile fuels

- storing more oxygen or flammable liquids in one location than necessary
- placing oxygen and flammable gas cylinders on hot surfaces or in a hot environment
- servicing, connecting, transferring or using oxygen in areas that contain heat sources or are not oxygen-clean
- using faulty equipment
- allowing smoke, welding, brazing or open flames near flammable gas cylinders or liquids
- providing insufficient ventilation in rooms where oxygen or flammable gases or liquids are used or stored

Be aware that not all fires are the same. Managing different types of burning materials or structures can require entirely different containment and extinguishing actions. Taking inappropriate action or using an improper firefighting product can cause more damage to buildings, equipment or people than the fire itself.

While prevention is key, being aware, prepared, trained and equipped will ensure the best possible outcome in a fire. Do not try to be brave; if you are unsure, untrained or responsible for others, evacuate, and leave the firefighting to the professionals.

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