



Safety Brief - 2015 - 7

*Safety Brief Series*

## **SPONTANEOUS IGNITION**



Many people do not believe it can happen. For no apparent reason fire erupts, usually during off hours. It does happen. It's called spontaneous ignition, and preventing it is part of your job.

Spontaneous ignition occurs when a combustible object is heated to its ignition temperature by a chemical reaction involving the oxygen in the air around us. This "oxidation" process creates heat that, if not dissipated, will build up until ignition occurs. Generally, this can happen when the materials are left in piles and the heat being generated in the pile cannot be released into the air.

A number of materials are moderately or highly subject to spontaneous heating and subsequent ignition. Some of those you may find in your work area include oil based paint in contact with rags, cotton, or other fibrous combustible material; rags that are damp with any one of a number of different types of oils, including vegetable oils, oily uniforms or work clothes, and paint scrapings, possibly coming from a paint spray booth cleaning project.

The possibility of spontaneous ignition is greater if the surrounding air is also warm and dry. The added heat, say from nearby machinery or a non-insulated steam line, can either pre-heat the material, which in turn sets off the reaction, or can hasten ignition by adding even more heat to the combustible.

It is simple to prevent spontaneous ignition, since oxygen is needed for it to occur. Materials subject to spontaneous ignition should be stored in covered metal containers such as a rag safety can or trashcan. Admittedly the container will contain oxygen at first. However, the oxidation process will use up the reaction and the reaction will stop- fire prevented.

Another strategy is to spread the combustible material out so the resulting heat can be dissipated rather than allowed to build up- again, fire prevented.

Proper housekeeping is the key to preventing fires.

Remove debris from the building or vessel. Properly store the combustibles in a covered container, preferably one with a self-closing lid. Be sure the lids of containers remain in place- they are there for a purpose.

### **Action Items**

- Make sure combustibles are properly stored (see paragraph above).
- Check your Material Safety Data Sheets (MSDS) under fire and explosion for the material flash points.

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Reference VOSHA/OSHA Standards  
29CFR1910 and 1926 for more information.  
Standards are available at  
<http://www.osha.gov/laws-regs.html>

