

Your guide to...

Spontaneous combustion

You work hard to build and maintain your business. That's why it's important to ensure you're protected from all potential losses, especially when they're avoidable.

Each year, many businesses are destroyed by a common cause of fires – spontaneous combustion. You can protect your business from these fires by having the proper safety and preventative measures in place.

Spontaneous combustion explained:

Spontaneous combustion occurs when materials generate heat due to oxidation or bacterial processes.

Materials prone to spontaneous combustion include:

- ✓ oils (flaxseed, pine tar, tung and vegetable)
- ✓ solvents (turpentine)
- ✓ hay or straw
- ✓ peat, charcoal and coal
- ✓ woodchips and sawdust
- ✓ plastic and latex dusts
- ✓ synthetic fabrics

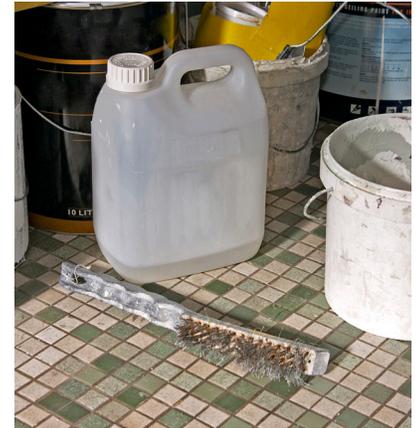
Storing combustible materials in a confined space (like a bucket, clothes dryer or silo) prevents heat from escaping. The heat then builds up until the temperature is high enough to 'self-ignite' the materials.

In large structures like barns, silos, or sawmills, hotspots can develop in the materials being stored (for example, hay, grains and sawdust). These hotspots slowly grow, going undetected until they burst into flames and burn rapidly.

Similar things happen with rags soaked in oils or solvents. If a rag is soaked with flaxseed oil or motor oil, and is piled in a plastic container, oxidation occurs and heat slowly builds up until a fire starts.

Organic materials, combined with bacterial action and the right amount of moisture, are a perfect recipe for disaster. Bacteria can metabolize the cellulose materials in a pile of hay, wood chips, or grains, which produces heat. The heat has nowhere to disperse, so it builds up until it ignites.

These situations can be prevented if the right precautions are taken when handling or storing these types of materials.



Preventing spontaneous combustion

The following simple steps can be taken to prevent spontaneous combustion from happening at your business:

- ✓ Hang oil-soaked rags outdoors to dry, away from direct sunlight. Then, dispose of them in a non-combustible container with tight fitting lid, or in an Underwriters' Laboratories of Canada (ULC) listed oil waste can.
- ✓ Laundry operations (mainly those that use dryers) require adequate maintenance and removal of lint, or multiple washes on clothing that is heavily soaked in oil or grease.
- ✓ Only run a clothes dryer when someone is onsite to monitor it.
- ✓ Thermocouples, moisture technology, and infrared scanning are all technologies that can be used to monitor organic material storage such as hay, or grains.
- ✓ Ensure adequate monitoring of sensors for organic storage with audible alarms.
- ✓ Ensure adequate airflow around piles or reduce the sizes of organic materials when possible.
- ✓ When discarding materials, ensure products that don't get along with each other are discarded separately and appropriately.
- ✓ Spontaneous combustion fires can occur in vehicles too. Look at what's in your trunk and ensure any containers carrying fluids are not leaking and housekeeping is a priority.
- ✓ When storing organic materials outdoors (such as lawn clippings, waste sawdust, etc.) protect against moisture infiltration, store away from valuable structures, and remove when possible.
- ✓ There are forms of fixed extinguishing, dry sprinkler, or special foam systems that can be used to protect certain situations against spontaneous combustion.
- ✓ Fire detection systems using heat, smoke, or flame detection can be used for early detection in spontaneous combustion situations.

Summary

Understanding the risks associated with spontaneous combustion, including injury, building damage, and loss of income, is vital to safely operate your facility. Don't forget to ensure contractors on your site also understand these risks and take safety precautions to prevent fires.

Resources

NFPA report – *Spontaneous Combustion or Chemical Reaction* – www.nfpa.org/research/reports-and-statistics/fire-causes/chemical-and-gases/spontaneous-combustion-or-chemical-reaction

OSHA – *Guidance for hazard determination* – <https://www.osha.gov/dsg/hazcom/ghd053107.html>

According to the National Fire Protection Association (NFPA):

- ✓ Oily rags commonly used at homes and businesses are the leading item that spontaneously combusts.
- ✓ Spontaneous combustion fires occurring in commercial, business, manufacturing and storage facilities usually occur in late afternoon or overnight.

For further information on this topic, please contact your independent insurance broker.

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