

Reducing the risk of spontaneous ignition fires in laundries

Laundry fires can be deadly. One of the least-known causes of these fires is spontaneous ignition of laundry, which can happen before, during, or after the wash and dry cycles. This bulletin explains the hazard, explores the factors that increase the risk, and discusses how to reduce the risk.

Laundry that is contaminated with flammable substances can catch fire without any visible cause. Under the right conditions, substances such as oils, grease, or cleaning products can cause a chemical reaction (oxidation) that generates heat and leads to combustion. The result is known as a spontaneous ignition fire. These fires can happen before, during, or after the wash and dry cycles in clean or dirty laundry.

As an employer or owner of a facility that processes laundry, you need to identify this fire hazard and control the risk. You also need to make sure everyone at your laundry understands how these fires can happen and what they can do to prevent them.

And by law, you must immediately notify WorkSafeBC of all accidents that involve fires that cause or could have caused serious injury to a worker.

When do these fires happen?

Spontaneous ignition fires can happen:

- **Before the laundering process begins** — The grease and oil within a pile of soiled laundry can oxidize, producing heat. If this heat has no way to dissipate (for example, inside a large or tightly packed pile), the heat can build to its ignition point and cause a spontaneous ignition fire.
- **During the laundering process** — Dried laundry frequently retains traces of oil, grease, or even cleaning products that can be flammable. If there

is no cool-down cycle to reduce the temperature of the laundry within the machine, the hot fabric can combust.

- **After the laundering process** — If not cooled down before being folded or stacked into a large pile, the fabric can be very hot. If this hot or warm laundry is left in piles for enough time in a warm environment, the remaining contaminants can oxidize. This produces more heat, which can build until the fabric or contaminant reaches its ignition point and causes a spontaneous ignition fire.

What factors increase the risk?

The following common factors can combine to increase the risk:

- Flammable contaminants on or ground into the laundry fabric, such as unsaturated vegetable oils (canola, sunflower, corn, soybean), fish oils, cooking grease, cleaning products, mechanical grease, volatile organic compounds (VOCs), and solvents.
- Insufficient cleaning to remove the flammable contaminants. (Even after the fabric is cleaned, some residual contaminants can remain.)
- Items with high cotton content. (These items are more flammable than most other laundry items. In addition, cotton terry cloths, shop rags, and kitchen towels are often used to soak up flammable contaminants such as oil and grease. This means

that a flammable fabric is often soiled with flammable contaminants — a combination that further increases the risk.)

- Insufficient or no cool-down cycle as part of the drying phase.
- Storing laundry in locations or situations where heat is unable to sufficiently dissipate, such as in large piles or inside trucks in intense sunlight.
- Storing laundry in polyethylene carts or containers that catch fire easily, release toxic gases, and melt, turning into burning liquid. (This can result in the fire spreading more quickly and causing more serious damage.)

How to reduce the risk

As an employer or owner of a facility that processes laundry, you can reduce the risk by putting in place the following safe work practices:

- Walk around the facility at least once a day to check for potential fire hazards. Regularly look for piled laundry, and feel its temperature to find out if it is cool, warm, or hot.
- Use thermal scanners to ensure you are alerted to heat buildup in stored laundry, whether soiled or clean, especially at the end of daily operations. Many fires occur at night because unattended laundry piles can oxidize and combust, and the resulting fire can spread throughout the site.
- Store flammable and combustible products in vented, non-flammable bins. Keep these bins outdoors if possible.
- Store laundry away from heat sources, including warm environments and sunny rooms.
- Because a wash cycle generally cannot remove all of the contaminants (including grease and oil) that may be present, do the following:
 - Perform an extra cleaning step to extract VOCs from kitchen rags, shop rags, and printer towels before processing them.
 - Pre-soak items that have oils and other contaminants.
- Use warm or hot water to wash items that have oils and other contaminants. Cold water is unlikely to remove the contaminants.

- Use the cool-down cycle on the dryer.
- Install or set the features to eliminate the option to bypass the cool-down cycle of the dryer.
- Verify the cool-down temperature of the fabric with an infrared thermometer.
- Install a fire-suppression system in the dryer, or buy a dryer with a fire-suppression system installed.
- Regularly test your fire-suppression systems.
- Don't leave laundry in the dryer for long periods.
- Refuse some higher-risk items, such as shop rags that are soiled with certain contaminants (for example, engine oil). If refusal is not possible, process the higher-risk, heavily soiled items soon after receiving them.
- Store processed higher-risk fabrics under the sprinkler system, especially if there is a need to store them overnight.
- Conduct fire drills regularly.
- Train workers on the use of fire extinguishers.

Legal and regulatory requirements

Under [section 172\(1\)\(c.1\) of the *Workers Compensation Act*](#), employers are required to immediately notify WorkSafeBC of all accidents that involve fires that had a potential for causing serious injury to a worker, whether or not an injury occurred.

Additional requirements applicable to laundries and fire prevention can be found in the Occupational Health and Safety Regulation and its related guidelines (available on [worksafebc.com](https://www.worksafebc.com)), including the following sections:

- [Sections 3.3\(b\) and \(c\), Contents of \(OHS\) program](#)
- [Section 4.3, Safe machinery and equipment](#)
- [Section 4.16\(1\), Training](#) (in fire prevention and emergency evacuation procedures)
- [Sections 12.142–12.166, Laundry and dry cleaning activities](#), especially [section 12.151, Open flame heaters](#) and [section 12.152, Combustion air supply](#)

Resources

This resource is also available on [worksafebc.com](https://www.worksafebc.com):

- [Spontaneous ignition fires in laundries](#)