

Open Burning & Your Health

Open Burning is a Health Hazard in Your Own Backyard

Open burning has traditionally been accepted as a way to dispose of household and yard waste, and agricultural and land development debris. But we now understand that the smoke produced from burning such materials contains toxic chemicals and microscopic particles that may cause or aggravate health problems, as well as reduce visibility in our communities. Even prescribed fires to manage for wild fire risk should be carried out in the least harmful way for public health.

Burning trash and waste is commonly done in burn barrels, homemade burn boxes, open piles, indoor and outdoor wood stoves, and outdoor boilers. These types of burning devices are a **major** source of toxic pollutants because the burning process is uncontrolled and lacks filters and air pollution control devices.

Tiny particles from open burns can reach deep into the lung tissue and cause symptoms such as coughing, wheezing, chest pain and shortness of breath. These pollutants also increase the risk of heart and lung diseases such as asthma and emphysema, and make you more susceptible to illness. In some cases, symptoms may not occur until several days **after** exposure. In addition, these pollutants can irritate the eyes, noses and throats of even healthy individuals.

Who's at Risk?

Burning releases toxic chemicals directly into the air we breathe at ground level in our neighborhoods. Even healthy individuals are at risk, but the toxic pollutants released by open burning pose a greater risk for children, the elderly, and people with pre-existing lung and heart disease.

Hazardous Chemicals in Smoke

Besides being an irritant, smoke from open burning contains many hazardous chemicals that are harmful to our health. These include:



- **Dioxins:** Highly toxic, long-lasting chemicals that pose health risks even at low exposure levels. Dioxin exposure has been linked to cancer, developmental and reproductive disorders. Created when waste (especially household garbage) is burned in an uncontrolled manner, dioxins also accumulate in the food chain. Airborne dioxins can settle on crops and pollute our waterways. These crops, in turn, are eaten by meat and dairy animals, and consumed by humans when we eat meat, fish, and dairy products.
- **Particulate Matter (PM):** Minute solid or liquid particles that are blown into the air and become suspended, e.g. dust, dirt, soot, and smoke. PM can be breathed deep into the lungs, aggravating heart and lung disease. Depending on the source of the PM, particles can include toxic substances such as lead and cadmium.
- **Polycyclic Aromatic Hydrocarbons (PAH):** This group of chemicals is produced from the uncontrolled burning of carbon-containing materials such as oil, wood, garbage or coal. Some PAHs are believed to increase the risk of cancer with prolonged exposure.
- **Volatile Organic Compounds (VOC):** This group contains toxic and carcinogenic chemicals such as benzene. Inhaling certain VOCs can lead to eye, nose and throat irritation, headaches, loss of coordination and nausea. VOCs also combine with nitrogen oxides to create ground-level ozone, which can worsen lung, heart and other existing health problems.

- **Carbon Monoxide:** A colourless, odourless and tasteless gas produced by uncontrolled burning. Exposure to low levels can cause dizziness, headaches, and nausea. Inhaling high levels can lead to unconsciousness and death.
- **Ash:** Ash residue from open burns contains hazardous chemicals such as mercury, lead, chromium and arsenic. Toxic when ingested, it is important not to scatter ash in gardens or bury it on your property. Rain can wash the ash residue into ground and surface water, contaminating drinking water and food.
- **Acrolein:** A VOC or chemical that can irritate the eyes and airways.
- **Formaldehyde:** A VOC commonly used as a preservative that is a carcinogen and can cause headaches and airway irritation.

We All Share the Air

Open burning not only poses serious health risks to the people who are burning, but also exposes their families, pets, neighbours, and surrounding communities to these toxic chemicals. Closing doors and windows will not help – smoke can easily waft through tiny cracks and holes in walls, windows and doors, and in turn, pollute our indoor air as well as the community at large. And when multiple burns occur in a community, they can pollute an entire area for days.



This is especially true when burning takes place on calm days with no wind, or when a temperature inversion has hit a valley community. (A **temperature inversion** occurs when warmer upper air acts like a lid to hold surface air and smoke near the ground. This most commonly occurs in the fall and winter, but is also common overnight and early in the morning during clear and calm conditions any time of the year). Because hazardous chemicals are not diluted on calm days, they can build up and remain in the air we breathe for long periods, increasing the risk for health effects and reducing the visibility.

Protecting the air is a shared responsibility between all levels of government and the general public. So we can all do our part. See **What You Can Do** on the reverse.

What You Can Do

- **Reduce, Reuse and Recycle:** Reduce the amount of waste generated at home, school and work; reuse whenever you can; and recycle products whenever possible. Contact the BC Recycling Hotline at 1-800-667-4321 or your local government for more information about collection service and drop-off sites in your area.
- **Compost:** Compost organic waste such as kitchen scraps and yard trimmings like leaves and weeds. Composting produces rich soil that can recondition your lawn and garden.
- **Chip:** Brush and prunings from your yard, land-clearing debris, and wood waste from construction and demolition sites can all be turned into wood chips. Wood chips make excellent mulch, which protects the soil, keeps away weeds, and reduces the need for watering.
- **Be Aware:** Many municipalities have by-laws banning open burning, or only allowing it at certain times of the year. Be aware of “no-burn” periods..
- **Spread the Word!** Educate your neighbours and friends, and encourage your local government to establish convenient and affordable alternatives to burning. Contact your local elected representatives to express your concern about smoke management and air quality from open burns and wood stoves. (For more information about using your wood stove wisely, please contact the BC Lung Association at 1-800-665-LUNG).

What Your Community and Local Government Can Do

- Provide curbside pickup for residents.
- Provide an accessible transfer station or drop-off site.
- Develop a recycling program.
- Establish a community composting facility.
- Establish a neighborhood wood waste chipping program.
- Develop an air quality management plan to address open burns, proper wood stove usage, and other sources in your airshed.

Don't Burn If You Don't Have To!

But if you must burn, here's what you can do to burn cleaner. People and neighbourhoods are often right in the middle of smoke plumes, so **be considerate of your neighbours** and follow these guidelines for burning:

- Never burn garbage or prohibited materials such as plastic, treated wood, newspapers, junk mail, and tires.
- Burn only during good venting conditions.
- Burn only dry, seasoned organic materials.
- Never burn garbage or wet yard trimmings such as leaves or branches.
- Burn small, hot, and controlled fires with good air ventilation.
- Never start a fire late in the afternoon – smoke tends to settle near the ground as the air cools at night.
- Do not start fires with diesel or other fuel.

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