

# Health and Environmental Effects of Open Burning of Refuse and Other Solid Wastes

The open burning of certain wastes has scientifically been proven to produce air toxins. Saskatchewan's *Environmental Management and Protection Act (EMPA)*, 2010 oversees incinerators and fuel-burning equipment, and prohibits the burning of trash, garbage, industrial waste or any other material or waste.



There are better ways to dispose of mixed waste than open burning.

Harmful pollutants of particular health and environmental concern from open-air burning include:

- fine particulates;
- black carbon (soot) particles;
- polychlorinated dibenzo dioxins (PCDDs) and polychlorinated dibenzo furans (PCDFs); and
- polyaromatic hydrocarbons, including known carcinogens such as benzo(a)pyrene.

## Health Effects

Young children and older adults, especially those with existing respiratory conditions (e.g., asthma, chronic obstructive pulmonary disease etc.) are most susceptible to the immediate negative health effects from open-air burning. Exposure to polyaromatic hydrocarbons, dioxins and furans are linked to problems with cancer, the liver, the immune system, endocrine system, the reproductive system, and the developing systems of the young.

Other pollutants of concern in the smoke can include nitrogen oxides, carbon monoxide, arsenic, mercury, lead, hydrochloric acid, and volatile organic compounds.

The ash from a burn may contain these pollutants and be potentially toxic. Fly ash is made of light particles, carried out by combustion gas and is laden with toxic metals, dioxin/furan and other products of incomplete combustion. Ash can travel thousands of kilometers before it drops out of the sky and possibly enters the human food chain.

## Environmental Effects

Open-air burning is predominately practiced in rural and agricultural areas so pollutants may settle on crops, in lakes and rivers and where animals graze or live. These pollutants can affect micro-organisms, plants, fish and mammals, or may be deposited on plants and eaten by livestock. The pollutants are then absorbed into the animals and stay in the food chain.

Bottom ash (heavier ash) may cause local soil contamination or be carried off-site with surface water runoff. In addition, smoke from open-air burning also contains black carbon or “soot”, a contributor to climate change.

“The burning of plastic grain bags releases chemicals into the air that we all breathe, causing serious lung damage and contributing to other long-term health problems. For people with lung diseases such as asthma and Chronic Obstructive Pulmonary Disease, even a single exposure to this type of smoke can worsen their disease. This can result in hospitalization, increased use of expensive medications and absences from school or work.”

Dr. Brian Graham  
Past President & CEO  
Lung Association of Saskatchewan

Do not burn plastic grain storage bags.



Not approved for mixed waste, trash or garbage.



Saskatchewan generates approximately 20,000 tonnes of residential plastic waste and 3,500 tonnes of agricultural plastic waste - mostly grain and storage bags - each year.

The Environmental Management and Protection (General) Regulations identify the burning of many types of waste as an industrial activity that may only be done with a permit. Section 13 states *the burning of any of the following substances constitutes an industrial activity:*

- waste or spent lubricating oil and spilled oil or oil production by-products;
- hazardous substances and wastes;
- motor vehicle tires;
- animal carcasses and animal manure;
- railway ties and other wood

- treated with wood preservatives;
- waste materials from building or construction sites;
- trash, garbage or other waste from commercial, industrial or municipal operations;
- materials containing rubber or plastic; and
- materials disposed of as part of reclamation operations.

Regular incineration will not destroy these substances. Open burning, which occurs at low temperatures in oxygen-starved conditions, whether on the ground, or a burning barrel or similar structure is not approved incineration for these materials.

Pursuant to 51(e) of *The Environmental Management and Protection Act 2010*, Sections 1-7 of the Industrial Source (Air Quality) Chapter of the Saskatchewan Environmental Code, indicate that an incinerator is an industrial source. Anyone operating an incinerator in Saskatchewan, including a municipal or mixed waste incinerator, is required to submit an Environmental Protection Plan for ministry review and approval. Please refer to the ministry's factsheet on municipal waste incineration for further details on approved incineration.

To burn clean wood wastes, follow the [Best Practices Guide for Open Burning](#) or the conditions of your permit if applicable.

- clean wood waste refers to tree trunks, tree branches, brush, or wood products that **do not contain painted or treated wood material**.
- open-air burning should be avoided whenever possible. Alternatives to burning clean wood waste include mulch, compost or reuse.

## More info?

For information contact the Saskatchewan Ministry of Environment Client Service Office at  
Tel: 1-800-567-4224  
(toll-free in North America)  
Email: [centre.inquiry@gov.sk.ca](mailto:centre.inquiry@gov.sk.ca)

## Report Violations

If you suspect someone is burning mixed waste unlawfully please call the TIP line at 1-800-667-7561.