



## Wood burning is a source of dioxins and other pollutants

Did you know that some three billion people around the world burn wood in open fires inside their homes for cooking or heating?

Did you know that when wood is burned inside homes, a wide variety of pollutants are produced and released, which may be harmful to your health?

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Occasional exposure to smoke from burning wood may cause only minor, reversible health problems, but continuous, daily exposure may be harmful to health in much more significant ways.

Burning wood in an open fire inside a home is particularly harmful since the smoke remains “trapped” inside the home and can lead to dangerous concentrations of pollutants. The World Health Organization<sup>1</sup> calculates that 2.5 million deaths around the world are related to indoor air pollution.

The individuals most affected by indoor air pollution are children, babies, pregnant women, the elderly, cigarette smokers and those with illnesses such as asthma, bronchitis, emphysema and pneumonia. In addition, wood smoke interferes with normal lung development in babies and small children.<sup>2</sup>

1. <http://www.who.int/mediacentre/factsheets/fs292/en/index.html>

2. J.T Zelikoff et al. (2002), “The toxicology of inhaled woodsmoke,” *Journal of Toxicology and Environmental Health, Part B*, No. 5, pp. 269–282.

## The main pollutants produced from burning wood

When you burn wood, various chemical compounds are produced that can cause symptoms such as: irritation in eyes, nose and throat, headaches, nausea and dizziness.

Some of these compounds are the following:

- **Particulate Matter (PM)** These are fine particles composed of pollutants adhered to very tiny pieces of ash and carbon. These particles can be so small that they penetrate deep into the lungs, and cause lung and heart problems. PM is associated with health problems such as respiratory tract irritation, diminished pulmonary function, asthma aggravation, chronic bronchitis and premature death of persons with heart ailments.
  - **Carbon Monoxide (CO)** This is an odorless, colorless gas that inhibits the blood's ability to carry oxygen. It is highly toxic and may cause death in high concentrations.
  - **Irritant Compounds**, such as acrolein, which cause inflammation and allergic reactions.
  - **Polycyclic Aromatic Hydrocarbons (PAHS)**, which cause cancer and are also found in cigarette smoke and chimney soot.
  - **Volatile Organic Compounds**, such as benzene, which cause cancer.
  - **Dioxins**, which are highly carcinogenic, are also produced when wood is burned.
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## What are dioxins and how do they affect our health?

They are VERY TOXIC compounds that remain in the environment for long periods of time. Dioxins are very DANGEROUS, even in small amounts, and may cause health problems such as:

- liver problems
- disorders in immunological, reproductive and hormonal systems
- developmental problems and brain disorders in children
- some types of cancer



About three billion people around the world burn wood in open fires inside their homes for cooking or heating. When wood is burned inside homes, pollutants are released and can be harmful to health.

## What can be done to diminish the risks from burning wood?

- Only burn wood that is very dry – Dry wood burns better, emits more heat and releases less smoke and pollutants. Use smaller pieces of wood and be sure there is good ventilation when starting the fire.
- Never burn treated wood – such as pieces of furniture, doors or windows that have been treated for termites or other pests, or wood covered with some type of plastic, glue or paint, or utility poles or railroad ties. These types of wood are impregnated with a wide variety of substances that, when burned, release large amounts of toxic substances, including dioxins.
- **NEVER BURN TRASH, PLASTIC MATERIALS OR TIRES.** Due to the toxic substances they contain, burning these types of materials inside of homes is even more dangerous because of the intense concentration of pollutants that are released. The danger is particularly serious for women and children who are directly exposed for prolonged periods of time.
- Do not use fuels such as gasoline, kerosene, oils or charcoal fuel to start fires indoors. It is better to use paper, leaves or small strips of pine wood impregnated with a natural resin.
- If you burn wood in a chimney or stove, be sure that ventilation ducts are clean, since this will facilitate combustion that pollutes less.
- Become informed and learn more about programs for replacing open fires with gas or wood stoves with ventilation ducts leading outside the home. These programs are free and will help you and your family decrease your exposure to pollutants produced inside your home. Refer to websites listed in the next section.

## For more information, visit:

### **US Environmental Protection Agency**

- [www.epa.gov/burnwise](http://www.epa.gov/burnwise)
- [www.epa.gov/particles](http://www.epa.gov/particles)
- [www.epa.gov/asthma](http://www.epa.gov/asthma)

### **Health Canada**

- <http://healthycanadians.gc.ca/environment-environnement/home-maison/wood-smoke-fumee-bois-eng.php>

### **World Health Organization**

- <http://www.who.int/heli/risks/indoorair/indoorair/en/index.html>
- <http://www.who.int/mediacentre/factsheets/fs292/en/index.html>

### **Other sources**

- <http://sis.nlm.nih.gov/enviro/indoorairpollution.html#a6>  
(en español)
- <http://www.cleancookstoves.org>
- <http://www.unep.org/ccac>
- <http://es.scribd.com/doc/15959554/Manual-Estufa-a-lena>
- <http://www.bvsde.paho.org/bvsacd/cd65/AlternativasZonaRural/proceso.pdf>

**Fogones y estufas:** Program for Developing Priority Regions  
(Mexico, en español): <<http://www.sedesol.gob.mx/>>



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