

# Air pollutants that are released from medical waste incinerators

**Dioxins & Furans** – Dioxins have been called the most dangerous chemical known to man. Contrary to popular usage, "dioxin" is *not one compound* of a single, defined toxicity, but a *family of compounds* consisting of 17 dioxins and furans, and 13 polychlorinated biphenyls (PCBs). Each have a wide range of toxicity. Dioxins form from the burning of plastics and paper containing polyvinyl chloride. Furans, are similar to dioxins, and cause cancer in animals, and are suspected to cause cancer in people. These chemicals form when temperatures are not consistent, when waste is not completely incinerated, and during by-pass events when air pollution control equipment fails.

Items common to medical waste that may contain dioxins and furans are blood bags and fluid (IV) bags. Smaller amounts of dioxins are present in bleached paper products including facial tissue, toilet tissue, paper towels, and disposable diapers. Instead of recycling them, the BMWNC medical waste incinerator needlessly burns plastic and paper products – the very things that when burned form dioxins and furans. Dioxins formed during incineration are released into the air and travel long distances via air currents, contaminating fields and crops. Cattle and other livestock eat soil contaminated with dioxin, the dioxin enters their tissues, and then people eat the contaminated meat and dairy products. Once dioxins enter the human body they are absorbed by fat tissue where they stay for years. In the environment, dioxins tend to accumulate in the food chain. Birds are highly susceptible to poisoning because of their eating habits close to the ground. Dioxin is absorbed by algae in surface waters and eaten by fish which then become poisoned by dioxins.

Dioxins cause cancer. Long-term, low-level exposure of humans to dioxins and furans can lead to the impairment of the immune system, impairment of the development of the nervous system and endocrine system, birth defects, altered liver functions, breast cancer, and reproductive functions. Dioxins have also been linked with lowered sperm counts, behavioral problems and increased incidence of diabetes. A systematic review of epidemiologic studies has found an association between dioxin exposure and heart disease. Short-term, high-level exposure may result in skin ulcers called chloracne. Exposure of animals to dioxins has resulted in several types of cancer.

**Mercury** - Mercury is found in dental wastes which are burned by medical waste incinerators. A neighborhood being poisoned by mercury emissions from a medical waste incinerator (Stericycle) in Alamance County demanded that the incinerator stop taking dental waste. The state issued an order to that made it illegal for the incinerator to take medical waste and a sharp decrease in mercury emissions resulted. Mercury is suspected to cause cancer. At high levels it may damage the brain, kidneys, and developing fetus. Children are at special risk. It can affect the brain functioning, mental retardation, seizures, tremors, inability to speak, kidney damage, digestive problems, and may result in irritability, shyness, tremors, changes in vision or hearing, and memory problems. Very young children are more sensitive to mercury than adults. Mercury in the mother's body passes to the fetus and it can also pass to a nursing infant through breast milk.

**Hydrogen Chloride** - Hydrogen chloride is a colorless gas with a pungent odor. Heavier than air, it accumulates in low-lying areas. Hydrogen chloride is irritating and corrosive to any tissue it contacts. Brief exposure to low levels causes throat irritation; exposure to higher levels can result in rapid breathing, narrowing of the bronchioles, blue coloring of the skin, accumulation of fluid in the lungs, and even death. Some people may develop an inflammatory reaction to hydrogen chloride, called reactive airways dysfunction syndrome (RADS), a type of asthma caused by irritating or corrosive substances. It is not known if hydrogen chloride causes cancer or reproductive problems.

**Nitrogen Oxide** - Low levels of nitrogen oxides in the air can irritate your eyes, nose, throat, and lungs, possibly causing coughs and shortness of breath, tiredness, and nausea. Breathing high levels of nitrogen oxides can cause rapid burning, spasms, and swelling of tissues in the throat and upper respiratory tract, a build-up of fluid in your lungs, and death. Exposure of pregnant animals to nitrogen oxides has resulted in toxic effects in developing fetuses. Nitrogen oxides have also caused changes in the genetic material of animal cells. We do not know if exposure to nitrogen oxides causes reproductive or developmental effects in humans.

**Lead** - Lead is one out of four metals that have the most damaging effects on human health. Lead is highly toxic and can enter the human body through uptake of contaminated food, water and air. Health effects include anemia, elevated blood pressure, kidney damage, miscarriages and subtle abortions, disruption of nervous systems, brain damage, and declined fertility of men through sperm damage. Lead is particularly harmful to children, and exposure can result in diminished learning abilities, and behavioral disruptions, such as aggression, impulsive behavior and hyperactivity.

**Cadmium** - Cadmium is an extremely toxic metal and causes cancer. Acute exposure may result in flu-like symptoms of weakness, fever, headache, chills, sweating and muscular pain. Chronic or long-term exposure is lung and/or prostate cancer, and kidney damage. Cadmium also is believed to cause pulmonary emphysema and bone disease. Cadmium may also cause anemia, teeth discoloration and loss of smell.

**Sulfur dioxide** - High concentrations of sulfur dioxide can result in breathing problems with asthmatic children and adults who are active outdoors. Short-term exposure has been linked to wheezing, chest tightness and shortness of breath. Other effects associated with longer-term exposure include respiratory illness, alterations in the lungs' defenses and aggravation of existing cardiovascular disease.

**Carbon monoxide** - Carbon monoxide is an odorless, colorless, toxic gas and results from incomplete combustion. It is impossible to see, taste or smell the toxic fumes. At lower levels of exposure, carbon monoxide causes mild effects that are often mistaken for the flu. These symptoms include headaches, dizziness, disorientation, nausea and fatigue. The effects of carbon dioxide exposure can vary greatly from person to person depending on age, overall health and the concentration and length of exposure.

**Particulate matter** - Particle pollution, especially fine particles, contains microscopic solids or liquid droplets so small that they can get deep into the lungs and cause serious health problems. Numerous scientific studies have linked particle pollution exposure to a variety of problems, including increased respiratory symptoms, such as irritation of the airways, coughing, or difficulty breathing, decreased lung function, aggravated asthma, development of chronic bronchitis, irregular heartbeat, nonfatal heart attacks and premature death in people with heart or lung disease. People with heart or lung diseases, children and older adults are the most likely to be affected by particle pollution exposure. However, even if you are healthy, temporary symptoms may result from exposure to elevated levels of particle pollution.

The President's Cancer Panel recently issued a new report on the dangers of chemicals in our environment. The report concluded that tens of thousands of chemicals and other substances currently in use have never been evaluated, and it is not known how many cause cancer. Only a handful of chemical mixtures have been assessed, and virtually nothing is known about the toxicity of the *combinations of various chemicals* under various situations. New chemicals are created from the incineration process, and these are not tested or regulated. Stericycle's draft permit allows for more waste to be incinerated. Do we really want to place our communities at greater risk for illness and disease when there are cleaner, safer alternatives?

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## BLUE RIDGE ENVIRONMENTAL DEFENSE LEAGUE

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