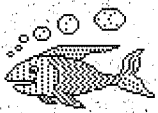


# Where ha

CIELAP Shelf:  
Canadian Institute for Environmental Law and Policy  
Where has all the hazardous waste gone?

RN 27116



## hazardous waste gone?

Each year, about 2.5 million tonnes of hazardous and liquid industrial waste is produced in Ontario.

### WHAT IS HAZARDOUS WASTE?

Good question.

Hazardous waste is broadly defined as being the by-products of industrial, commercial, agricultural and domestic activities which have the potential to cause harm to human health and safety or to the environment. This includes substances that are toxic, reactive, explosive, ignitable, corrosive, infectious, mutagenic, carcinogenic or teratogenic, bioaccumulative, or radioactive.

There are over 20,000 chemicals in use in Canada. Mix them together in our landfills and sewers and you'll get a veritable chemical soup.

That's about 60% of all of Canada's industrial hazardous waste.

2.5 million tonnes is a conservative estimate based on Ministry of the Environment data. Other estimates go over 5 million tonnes.

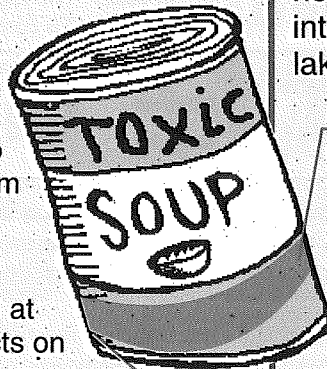
- ◇ A July 1997 report by the North American Commission on Environmental Cooperation ranked Ontario as the third largest source of pollutants in Canada and the United States.
- ◇ There are between 27,000 and 30,000 hazardous and liquid industrial waste generators in Ontario.
- ◇ Ontario's annual rate of growth in hazardous waste is estimated to be about 3%.

### HAZARDOUS MATERIALS CAN BE HARMFUL TO YOUR HEALTH

The hazardous waste stream in Ontario includes many substances that can harm human and animal life.

Many heavy metals are known to be acutely toxic in high concentrations and at lower levels may have deleterious effects on various organs and the central nervous system.

Other metals, such as arsenic and chromium, are listed as human carcinogens by the International Cancer Research Centre.



If it's not recycled, or properly treated and neutralized, the waste will make its way into our groundwater, streams, rivers and lakes.

### Ingredients

**Hazardous wastes generated by Ontario industries include:**

heavy metals (may contain lead, mercury and cadmium), arsenic, chromium, organic compounds (chloroform, tetrachloroethylene, carbon tetrachloride, benzene, formaldehyde, toluene, phenol, PAH, PCP, PCDD, PCBs and dioxin), and thousands more.

# WHERE DOES IT ALL GO?

40% of all hazardous and liquid industrial waste is disposed of on-site, with the remainder being sent off-site for treatment and disposal. Some of the more common ways of disposing of these wastes are as follows:

## 1. Municipal Sewers and Sewage Treatment Plants:

According to an analysis done by the Ontario Waste Management Corporation (OWMC), based on Ministry of the Environment (MoE) data, the most common fate of hazardous wastes is to be discharged into municipal sewer systems. OWMC estimated that 384,000 tonnes of hazardous waste were disposed of in this way in 1991. The Ministry of the Environment reports that in 1995 another 481,000 tonnes were shipped by truck and other means to municipal sewage treatment plants for disposal. Most of these shipments were made up of leachate from landfills.

**2. Treatment and Discharge to Lakes and Rivers:** The same OWMC analysis indicated that the second largest fate (266,000 tonnes) is to be treated at on-site water pollution control facilities and then discharged to lakes and rivers.

**3. Landfill:** The third largest fate (260,000 tonnes) is disposal in a landfill on the site of the facility where the wastes were generated. The Ministry of the Environment estimates that another 100,000 tonnes were disposed of at off-site landfills in 1995 alone.

**4. Incineration and Energy Recovery:** 35,000 tonnes of hazardous waste were found to have been incinerated on-site in 1991. Another 54,000 tonnes were incinerated at the province's only commercial hazardous waste incineration facility at Sarnia. Also in 1995, 1,471 tonnes of waste covered under the National Pollutant Release Inventory (NPRI) were sent to energy recovery (i.e. burned as fuel). This included 533 tonnes of xylene and 262 tonnes of toluene.

## Out of Sight... ...Out of Mind

According to Ontario's Environmental Commissioner, the Ministry of the Environment...

- is not tracking total loadings of industrial discharges into waterways
- does not monitor persistent toxics in effluents of sewage treatment plants
- has drastically reduced reporting on municipal/industrial discharges to water

1997 Annual Report  
April 1998

## THEY'RE OUT THERE...

**PCBs:** There are approximately 1,700 PCB storage sites in Ontario which contain 29,200 tonnes of high level (>1000ppm) and 115,000 tonnes of low level (<1000ppm) PCB waste.

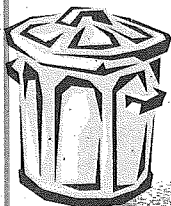
**CFCs:** The Ministry of the Environment has estimated that the phase-out of ozone depleting substances will mean that 40,000 tonnes of CFCs will have to be disposed of in Ontario. There is currently no available technology to destroy them.

**Pesticides:** In 1991, a federal-provincial "clean sweep" program collected 1,704kg of banned or de-registered pesticides (including 1,200kg of DDT). No collection programs have been run since then.

**Waste Oil:** 250 million litres of waste oil are generated in Ontario each year. The fate of 75 million litres is unaccounted for. That's as much as 2.5 Exxon Valdez sized oil spills yearly.

## SOLID WASTE $\neq$ CLEAN WASTE

Garbage dumps are a major "source" of hazardous waste in Ontario. Groundwater and rainwater percolate through a landfill and become polluted with salts, nutrients, biodegradable organics and heavy metals. Each year, about 430,000 tonnes of this leachate are collected at Ontario's landfills and sent for treatment (usually to a sewage treatment plant). This figure does not include discharges from landfills with direct connections to municipal sewer systems. No estimate is available for these discharges.



What's in a landfill?

Garbage dumps are home to a wide range of hazardous materials, including batteries, paint cans, oil cans, and pesticides. Virtually everything we buy will one day become garbage.

### Don't forget about contaminated sites...

No complete inventory or reliable estimates of contaminated sites in Canada exists, but there are an estimated 5,000 sites on federal land alone.

# SEWERS AREN'T FOR DUMPING...

Sewers and sewage treatment plants (STPs) are designed to handle biological wastes, not toxic chemicals, heavy metals, used motor oil and other hazardous wastes.

The OWMC estimated that each year 383,000 tonnes of industrial waste are discharged into municipal sewer systems, and nearly 500,000 tonnes are shipped to sewage treatment plants for disposal.

Many toxic substances pass through STPs and are discharged into lakes and rivers. The Ministry of the Environment has estimated that 1,100 tonnes of heavy metals are discharged into Ontario waterways from STPs each year, mainly as a result of industrial discharges. Another 200 tonnes of metal have been estimated to end up in sewage sludge, which can be incinerated or used as a soil conditioner on farm lands.

Industrial Discharges to the Metro Toronto Sewer System		
Substance	Estimated Discharges (Kg/day)	Estimated Discharges (Tonne/year)
Copper	131	77
Zinc	105	38
Toluene	86	33
Xylene	69	25
Chromium	18	6.5
1,4 dichlorobenzene	2.5	0.912
Mercury	0.2	0.073

Source: Metro Toronto Works Department

**There are no provincial regulations controlling the discharge of industrial wastes into municipal sewer systems.**

**Q: WHEN IS A HAZARD NOT A HAZARD?  
A: WHEN IT'S A PRODUCT.**

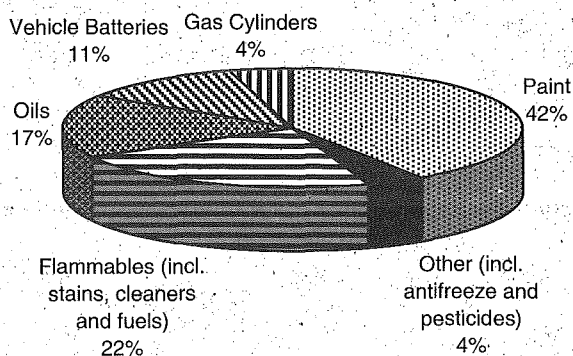
Every day, consumers buy oils, paints, batteries, pesticides and chemicals for use in our homes and backyards. But only when the leftovers are thrown away are they considered to be hazardous!

Between 20,000 and 86,000 tonnes of household hazardous waste (HHW) are generated in Ontario each year (depending which estimates are used).

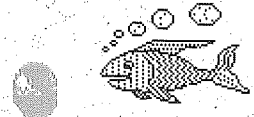
**Currently, no provincial support exists for municipal household hazardous waste collection programs.**

By comparison, other provinces are starting to require producers to make arrangements for the collection and recycling or disposal of products that become household hazardous waste.

## Ontario HHW Stream Composition by Weight (Six Municipalities - 1996)

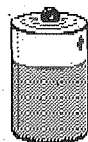


Source: AMRC Analysis of Household Hazardous Waste, 1996



## LONG-LASTING PRODUCTS

Now available in stores everywhere



Just because a battery has run out of juice, doesn't mean it's harmless. In a landfill, it may leak its hazardous contents into the environment. The same is true for used oil, pesticides, paint, harsh cleansers, and many other household products.

Despite the significant expansion of municipal HHW collection programs, only a small portion of the HHW produced in Ontario is being collected.

# SOLUTIONS



## POLLUTION PREVENTION

The best way to deal with hazardous waste is to not create it in the first place. If you don't produce it, you don't have to dispose of it.

All the different ways of disposing of hazardous wastes pose potential threats to human health and the environment. Even "recycling" is not risk free. Governments, environmental groups, and many industries have agreed that the best way to deal with hazardous waste is to not make it in the first place!

This approach is called pollution prevention, or source reduction. It involves things like replacing toxic substances with non-toxic alternatives and redesigning industrial processes so that toxic substances are no longer needed to make a product. Many companies have found that pollution prevention not only reduces hazardous waste, but it saves them money as well.

To date, Canadian governments

have relied almost exclusively on voluntary efforts by industry to promote pollution prevention. No new legislation has been introduced to require pollution prevention by industry.

Many American states have taken a more aggressive approach and passed legislation requiring companies to develop pollution prevention plans for their facilities. Two of the most successful programs have been in Massachusetts and New Jersey.

A 1997 study of the Massachusetts program, for example, showed that it resulted in a 30% reduction in waste generation and significant cost savings to industry.

## WHAT YOU CAN DO

### Buy Green

Buy products that will not become hazardous waste. Read the label carefully and shop at stores that offer less-hazardous alternatives.

### Handle With Care

If you have any hazardous waste, call your local environment or works department to find out how to dispose of it safely.

### Practice Pollution Prevention at Work

Promote pollution prevention at your office, business, or school.

### Write the Minister of the Environment

If you agree that Ontario and Canada need stronger rules to govern the management and prevention of hazardous waste, send a brief letter to the Minister of the Environment, with a copy to your local member of parliament.



### Pollution Prevention Defined

The federal government's Pollution Prevention Strategy, adopted in 1995, defines pollution prevention as:

*the use of processes, practices, materials, products or energy that avoid or minimize the creation of pollutants and waste, and reduce the overall risk to human health and the environment.*

### For More Information

CIELAP has prepared a special report, "Hazardous Waste Management in Ontario" (February 1998), including a list of 79 recommendations to improve hazardous waste management in Ontario.

Order your copy for \$28.75 (postage included).

## FIVE WAYS TO MAKE IT BETTER

The Provincial Government should:

1. require companies to file annual reports on the total amount of hazardous waste they generate, what it consists of, and what happens to it. This information should be available to the public.
2. enact pollution prevention legislation similar to the laws adopted in New Jersey and Massachusetts.
3. establish regulations to control the dumping of industrial wastes into municipal sewer systems.
4. strengthen regulatory controls on hazardous waste "recycling" and other activities that may pose a danger to the public or the environment.
5. require producers to take back products that become household hazardous wastes, such as batteries, waste oil, and pesticides.



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