

## BACKYARD BURN BARRELS VS. MUNICIPAL WASTE COMBUSTORS

When the amount of chemicals emitted from a barrel burn is compared to what is emitted from a municipal waste combustor (MWC) it becomes obvious how much dirtier the smoke is from a burn barrel than a MWC.

Pound for pound of garbage burned:

- A burn barrel emits 10,000 times more total dioxin than a MWC.
- A burn barrel emits 1000 times more total furans than a MWC.
- A burn barrel emits 3000 times more polycyclic aromatic hydrocarbons than a MWC.

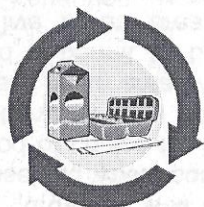
## ALTERNATIVES TO BURNING HOUSEHOLD WASTE

**Reduce:** Avoid disposable items. Buy products in bulk or economy sizes versus individually wrapped or single serving sizes. Buy durable, repairable products and products that can be recharged, reused, or refilled.

**Reuse:** Donate unwanted clothing, furniture and toys to friends, relatives or charities. Give unwanted magazines and books to hospitals or nursing homes. Mend and repair rather than discard or replace.

**Recycle:** Separate the recyclable items from your residential waste and prepare them for collection or drop-off at a local recycling program.

**Disposal:** As a last resort have your household waste picked up by a licensed waste removal company or take it to a licensed disposal facility (landfill or incinerator).



## HOUSEHOLD WASTE BURNING LAWS

Determining *if* you may burn and, if so, *what* you may burn can be confusing. Michigan residents and business owners usually want to "do the right thing" but may not be quite sure just what the right thing is. Some of the laws that regulate the burning of household waste in Michigan include Parts 55 (regarding air pollution control); 115 (regarding Solid Waste Management); and 515 (regarding Forest Fire Prevention) of the Natural Resources and Environmental Protection Act (Act 451 of 1994). In addition, local units of government such as city, county and township boards often regulate the burning of household waste through local laws.

For information regarding the regulation of open burning in Michigan, visit the DEQ Internet Website at [www.michigan.gov/deqair](http://www.michigan.gov/deqair). Open burning information is located under "Spotlight" - or- contact the Department of Environmental Quality's Environmental Assistance Center at 1-800-662-9278.



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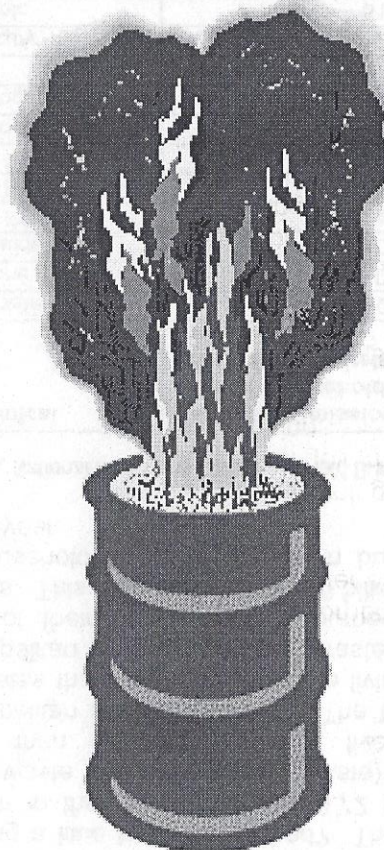
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**DEQ** Michigan Department of Environmental Quality

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# Burning Household Waste



## A Source of Air Pollution in Michigan

**DEQ** Air Quality Division  
Michigan Department of Environmental Quality  
Jennifer M. Granholm, Governor      Steven E. Chester, Director





In many parts of Michigan -- in urban as well as rural areas -- burning of household waste continues to be the disposal method of choice for a significant part of the population. It may be illegal to burn household waste in the area where you live, or you may need a permit to burn your waste. Even if you live in an area where burning household waste is allowed there are several reasons why you should choose to dispose of your waste in another manner.

### Burning Garbage Releases Toxic Air Pollution

Household burn barrels or similar homemade devices produce low temperature fires. They receive very little oxygen and produce a lot of smoke. Under these conditions a great many toxic substances are produced. Virtually all of the pollutants are released into the air close to ground level where they are easily inhaled.

### Pollutants Are Emitted From Burn Barrels

Carbon monoxide, carbon dioxide, and nitrogen oxides represent the largest portion of pollutants emitted from burning household waste in a burn barrel. Smaller amounts of more poisonous chemicals are also released into the air when household waste is burned. Chemicals commonly detected in the smoke include benzene, styrene, formaldehyde, polychlorinated dibenzodioxins (PCDDs; also known as dioxins), polychlorinated biphenyls (PCBs), polychlorinated dibenzofurans (PCDFs; also known as furans), and heavy metals such as lead, mercury and arsenic. Estimates of garbage burned at home show that this is a significant source of air pollution (see Table 1).

### REASONS NOT TO BURN HOUSEHOLD WASTE

#### Burning household waste is unhealthy

Smoke from burning household waste is unhealthy to breathe. Small children, pregnant

women, older adults and people with asthma or other respiratory ailments are especially sensitive to its effects.

- **ACIDS & ALDEHYDES:** Smoke from burn barrels can contain hydrochloric acid as well as formaldehyde and other aldehydes. These chemicals are especially irritating to the eyes and lungs.
- **DIOXINS:** Bleached paper products, lightweight white cardboard, and certain plastics contain chlorine which create dioxins when burned with other trash at low temperatures. Exposure to dioxins is associated with cancer, birth defects and altered immune function.
- **HEAVY METALS:** Burning slick colored papers and cardboard printed with synthetic inks releases heavy metals into the atmosphere. The absorption of heavy metals by humans has been linked to birth defects and cancer.
- **STYRENE:** The burning of polystyrene polymers - such as foam cups, meat trays, egg containers, yogurt and deli containers - releases styrene. Styrene gas can readily be absorbed through the skin and lungs. At high levels styrene vapor can damage the eyes and mucous membranes. Long term exposure to styrene can affect the central nervous system, causing headaches, fatigue, weakness, and depression.

### Burning household waste harms the environment

Pollutants released from burning waste in a burn barrel are transported through the air either short or long distances, and are then deposited onto land or into bodies of water. A few of these pollutants such as mercury, PCBs, dioxins and furans persist for long periods of time in the environment and have a tendency to bioaccumulate which means they build up in predators at the top of the food web. Bioaccumulation of pollutants usually occurs indirectly through contaminated water and food rather than breathing the contaminated air directly. In wildlife, the range of effects associated with these pollutants includes cancer, deformed offspring, reproductive failure, immune diseases and subtle neuro-behavioral effects. Humans can be exposed indirectly just like wildlife, especially through consumption of contaminated fish.

### Burning household waste causes odor problems

Smoke released from burning waste in a burn barrel is released close to the ground and may drift onto a neighbor's property. Field staff from the Michigan Department of Environmental Quality Air Quality Division are frequently asked to respond to odor complaints resulting from burning garbage.

### EVERY LITTLE BIT COUNTS

The United States is a big place. How can burning a little trash be so bad? The average person in the U.S. generates 3.72 pounds of solid waste (excluding yard waste) per day. More than 50 million people live in non-metropolitan areas in America. The U.S. EPA<sup>1</sup> estimates that 40% of the people living in non-metropolitan areas burn their waste and that 63% of their daily waste is burned in burn barrels. This means that over 1.8 billion pounds of household waste is burned in burn barrels every year.

Table 1. National Emissions from Household Burn Barrels

Chemical	Estimated Emissions from all Household Waste Burn Barrels in the US (lbs./year) <sup>**</sup>
benzene	4,500,000
styrene	3,400,000
formaldehyde	3,100,000
total PCDD	139
total PCDF	22
total PCBs	10,962
hydrochloric acid	1,000,000
hydrogen cyanide	1,700,000
lead	1790
mercury	232
arsenic	8186

<sup>\*\*</sup>Based on a household that does not recycle.

<sup>1</sup> EPA. 1998. The Inventory of Sources of Dioxin in the United States. EPA/600/P-98/002Aa.



## Burning of Building Materials

Air quality and solid waste regulations prohibit open burning of construction and demolition waste. Chemically treated lumber as well as synthetic and painted building materials contain high concentrations of hazardous compounds that produce toxic emissions when burned.

## Burning of Buildings

Structures which are to be demolished by intentional burning are subject to State and Federal regulations. Michigan air regulations only allow buildings to be intentionally burned for fire department fire suppression training.

Federal law requires the removal of asbestos from any building (residential & non-residential) prior to authorized burning. The NESHAP Asbestos Coordinator must be notified 10 working days prior to the burn. For a notification form and more information, fire officials can visit the Air Quality webpage: [www.michigan.gov/air](http://www.michigan.gov/air) then select the "Compliance" tab on the left.

Guidance information for fire suppression training is at: [www.michigan.gov/openburning](http://www.michigan.gov/openburning)

## Campfires

Air quality regulations allow the burning of logs, brush, charcoal, and other similar materials for the purpose of food preparation or recreation, unless prohibited by local laws.

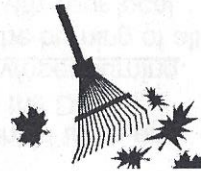


## Flags

An unserviceable US flag may be burned by a congressionally chartered patriotic organization.

## Open Burning Alternatives

Composting yard waste and using leaves and grass clippings for mulch are alternatives to open burning of yard waste.



Composting produces valuable soil fertilizer through the natural process of decomposition. Compost piles are simple to begin and maintain, and take up relatively little space. For more information on composting at home, contact your county Michigan State University Extension Office.

Contact local programs about recycling of plastics, cardboard, paper, metals, etc. in your area. Donate reusable items to charitable organizations, families, or friends. Dispose of unwanted items in a licensed landfill or incinerator instead of open burning.



DEQ AIR QUALITY DIVISION  
P.O. BOX 30260, LANSING, MI 48909-7760  
[www.michigan.gov/air](http://www.michigan.gov/air)

For more information regarding the regulation of open burning in Michigan, please visit the DEQ website at:

[www.michigan.gov/openburning](http://www.michigan.gov/openburning)

-or-

call the Environmental Assistance Center:  
1-800-662-9278

In the event of a Pollution Emergency call:  
1-800-292-4706

The Michigan Department of Environmental Quality will not discriminate against any individual or group on the basis of race, sex, religion, age, national origin, color, marital status, disability or political beliefs. Questions or concerns should be directed to the Quality of Life, Office of Human Resources, PO Box 30473, Lansing MI 48909.

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# Open Burning Regulations in Michigan



## What is Open Burning?

"Open burning" is the burning of unwanted materials such as paper, trees, brush, leaves, grass, and other debris where smoke and other emissions are released directly into the air. During open burning air pollutants do not pass through a chimney or stack, and/or combustion of solid waste is not adequately controlled.

Open burning pollutes the air and poses a forest fire hazard. The air pollution created by open burning can irritate eyes and lungs, obscure visibility, soil nearby surfaces, create annoying odors or pose other nuisance or health threats.

Because of the problems created by this activity, state and local laws prohibit open burning of many materials. Many people are either unaware of the regulations or unsure about which regulations apply to them. The following information will help identify the problems, regulations, sources of information, and alternatives to open burning.

**DEQ** Air Quality Division  
Michigan Department of Environmental Quality



## Statewide Open Burning Laws

In Michigan, open burning is regulated by the Natural Resources and Environmental Protection Act (Act 451 of 1994) and associated rules. The act includes:

- Air Pollution Control - Part 55,
- Solid Waste Management - Part 115
- Forest Fire Prevention - Part 515

In addition, local units of government, such as city, county, or township boards, often regulate open burning through local laws. Local open burning laws take precedence over state regulations only if they are more restrictive.

The most common burning issues are defined below, along with the related regulations.

### General Open Burning

Michigan air quality and solid waste regulations prohibit open burning that creates smoke or odor nuisances.



Burn permits may be obtained by using the *Burn Permits Management System* interactive county map located at: [www.michigan.gov/burnpermit](http://www.michigan.gov/burnpermit)

A burn permit does not allow burning prohibited by other regulations. Burn permits are available from the DNR for the Upper Peninsula and Northern Michigan counties. In the southern Lower Peninsula, permits may be obtained from the local fire department or local governing body. These permits allow for tree limbs, brush, stumps, evergreen needles, leaves, and grass to be burned in a safe manner.

The local DNR Fire Manager must issue a permit for ongoing burns for construction or land clearing, for roadway maintenance, and for performing prescribed burns without a written plan.

Do you have burn permit questions? Contact DNR Forest Resources Division, PO Box 30452, Lansing, MI 48909, or visit their website at: [www.michigan.gov/dnr](http://www.michigan.gov/dnr). Scroll to *Forestry*, and select the *Forest and Land Programs* listing to locate *Burn Permits*.

Many communities prohibit open burning of any kind. Check with your local governing body before conducting open burning.

#### NOTICE TO THOSE WHO CHOOSE TO BURN:

You are responsible for fire, smoke, or odors created from open burning ... and for damage that results from your fire.

### Burning of Household Trash

Public Act 102 of 2012 prohibits trash burning of household waste from a family dwelling with the exception of untreated paper. Trash that contains plastic, rubber, foam, chemically treated wood, textiles, electronics, chemicals, or hazardous materials must not be burned as emissions release chemicals which pose a danger to human health and the environment.

Homeowners that choose to burn trash that is not prohibited, may do so in an approved container on their property as long as it does not violate any other local or state ordinances or regulations. *An approved container is constructed of metal or masonry with a metal covering device with openings no larger than 3/4 inch.* Local police and fire officers are authorized to enforce this provision as a state civil infraction of Section 11522 of Act 451 of 1994.

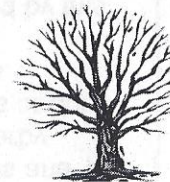
Information regarding household trash and open burning is available on the DEQ webpage: [www.michigan.gov/openburning](http://www.michigan.gov/openburning). Many communities prohibit the burning of all household waste; so check with your local governing body ahead of time.

## Burning of Grass Clippings and Leaves

Since 1995, solid waste regulations have prohibited the open burning of grass clippings and leaves in Michigan municipalities having a population of 7500 or more. Local governing bodies may enact an ordinance authorizing such open burning provided other regulations are not violated. They must submit a copy of the ordinance to the Michigan DEQ Office of Waste Management and Hazardous Materials, P.O. Box 30241, Lansing, MI 48909.

### Burning of Brush and Trees

Air quality regulations state that open burning of trees, logs, brush and stumps must be conducted further than 1400 feet from the boundary of an incorporated city or village and may not violate other air pollution rules.



Local laws may prohibit open burning of this material; check with your local governing body before conducting open burning.

### Disease and Pest Control: Burning of Beekeeping Equipment and Wood Crates

Air quality regulations allow the burning of beekeeping equipment and products for disease control. Open burning of untreated wooden fruit or vegetable crates for the purpose of disease control is allowed, unless prohibited by local laws.

### Prescribed Burns

Prescribed burns are used to manage agricultural and natural lands. They are allowed in compliance with Part 515 of the Natural Resources and Environmental Protection Act of 1994 and must also comply with local ordinances.