

A Closer Look - Burn Barrels



The Problem:

Household trash over the years has changed. Today it is more likely to contain plastics, chemically treated paper products, and other synthetic materials. Burn barrel incineration typically occurs at relatively low temperatures with too little oxygen for complete combustion, creating smoke and toxic substances. Worse, these emissions are released close to the ground in the breathing zone and may also impact local farm and garden vegetation.

Unhealthy Burn Barrel Emissions:



Dioxins & Furans: Under typical burn barrel conditions, combustion of substances containing chlorine and hydrocarbons usually produces dioxins and furans. These compounds share similar chemical structures and some are exceptionally toxic. Health risks from chronic exposure include cancer and immune suppression. These chemicals are long lasting in the environment, becoming part of the food chain, ultimately concentrating in animal fat and milk. An estimate of 2.5 to 37 households (depending on trash composition)¹ burning their trash daily in typical burn barrels produces dioxin/furan emissions comparable to a 200 ton/day well-controlled municipal waste combustor.² Chlorine is present in many household wastes. PVC (polyvinyl chloride) products, marked by the letters “PVC” or the #3 recycling symbol, are especially high in chlorine. Examples of materials containing PVC: #3 plastic jars and certain types of bibs, cling wrap, squeeze bottles, mattress covers, and detergent bottles.³



Particle Pollution: Typically, the burn barrel environment produces significant smoke, with a large percentage of smoke particles being very fine. These small particles are able to bypass nasal defenses, reaching the lungs, and may negatively impact cardiac and pulmonary health. Even burning leaves, whether in a burn barrel or fire pit, produces unhealthy fine particle pollution.⁴



Polycyclic Aromatic Hydrocarbons (PAHs): PAHs are a class of compounds resulting from incomplete combustion of organic matter. Some PAHs are carcinogenic.⁵ Examples of materials that create PAHs when burned: garbage, wood, tires, and oil.



Toxic Metals and Ash: Lead, arsenic, cadmium, and chromium are present in some common household and yard waste items. Do not burn these! Examples of metal-containing materials: batteries, treated wood (deck lumber), and older painted materials.

Ash may contain residual toxic metals and should not be spread in a garden. Plants can absorb the metals, making them unhealthy for consumption. Children playing in the vicinity of ash dust may soil their hands and inadvertently ingest it or carry it into the house on shoes. Pets, similarly, should not be near burn barrel ash.



GROUP AGAINST SMOG & POLLUTION

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Elevation: While tall smoke stacks increase dilution by dispersion, the release of burn barrel pollutants at ground level raises immediate and neighborhood exposure levels.



How is Household Open Burning Regulated?

“Pennsylvania law allows open burning of ‘domestic refuse’ as long as the fire is on the property of a structure occupied solely as a residence by two families or less and when the refuse results from the normal occupancy of the structure.”⁶ At the local level, officials may enact open burning ordinances. Municipal ordinances cannot be less stringent but may be more stringent than the state requirements. For example, Allegheny County does not allow open burning of domestic refuse.



Do Not Burn: PA Department of Environmental Protection’s Allowable “Domestic Refuse” does NOT include:⁷

- Paint
- Waste Oil
- Shingles
- Treated Wood
- Tires
- Batteries
- Metal
- Automotive parts



- Demolition waste
- Insulation
- Mattresses
- Painted or stained materials
- Insulating coating on wire
- Television sets and appliances
- PVC products



Reduce, Reuse, Recycle:

Shop with reusable bags. Avoid overly-packaged goods. Repair if possible. Remove your name from mailing lists of unwanted materials. Make two-sided copies. Mulch. Use resealable containers instead of synthetic wraps. Use ceramic coffee/tea mugs instead of disposable cups.



Contact your municipality for information about local garbage collection service or available garbage haulers.



SW Pennsylvania County Recycling Coordinators with Contact Information:

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|--------------------|--------------|-----------------------|--------------|
| • Allegheny County | 412-578-8390 | • Greene County | 724-852-5300 |
| • Armstrong County | 724-548-8048 | • Fayette County | 724-430-1200 |
| • Beaver County | 724-770-2068 | • Washington County | 724-228-6811 |
| • Butler County | 724-284-5305 | • Westmoreland County | 724-879-4020 |

PA Resources Council 412-488-7490 www.prc.org



List of Pennsylvania Permanent Electronics Recycling Collection Programs by County and Current Recycling and Collection Events

http://www.portal.state.pa.us/portal/server.pt/community/household/14079/electronics_collectionprograms/589591

Endnotes:

1. Numerical burn barrel range represents test with trash of non-recycler and avid recycler. See study noted in footnote #2 for other details.
2. Paul M. Lemieux, Christopher C. Lutes, Judith A. Abbott, Kenneth M. Aldous, *Emissions of Polychlorinated Dibenzo-p-dioxins and Polychlorinated Dibenzofurans from the Open Burning of Household Waste in Barrels*, Environmental Science and Technology <http://www.pca.state.mn.us/index.php/view-document.html?gid=11228>, accessed 9/9/2014
3. Healthy Child Healthy World, *Know Your Plastics*, 3/26/2013 <http://healthychild.org/easy-steps/know-your-plastics>, accessed 7/7/2014
4. Michigan Department of Environmental Quality, *DEQ Encourages Leaf Burning Alternatives*, 2009 <http://www.michigan.gov/deq/0,1607,7-135--224893--,00.html>, accessed 9/10/2014
5. Environmental Protection Agency, *Wastes-Non-Hazardous Waste-Municipal Solid Waste*, [Human Health] updated June 25, 2014 <http://www.epa.gov/osw/nonhaz/municipal/backyard/health.htm>, accessed 6/26/2014
6. The Pennsylvania Code § 129.14 (c) (5)
7. Pennsylvania Department of Environmental Protection, *Air Pollution from Household Open Burning in Pennsylvania* <http://www.dep.state.pa.us>, keyword is Open Burning, > Air Pollution from Household Open Burning in Pennsylvania