

*Reducing our exposures to toxic chemicals is both a private and a public affair. This pamphlet can help you to make better personal choices for a healthy lifestyle. Of course, improved public health policies and cleaner energy production are also critically needed in order to protect us all from the dangers of toxic chemicals.*

Healthy cooking starts with fresh, non-contaminated foods. Healthier food options include diets low in carbohydrates or fat, vegetarian or vegan, organic and antibiotic-free. The US government offers some helpful food safety hints ([www.cfsan.fda.gov](http://www.cfsan.fda.gov)), but make sure you also look at the Physicians for Social Responsibility's work on mercury in fish ([www.psr.org](http://www.psr.org)), and the Environmental Working Group's work on pesticides in our produce ([www.foodnews.org](http://www.foodnews.org)).

What you store and cook your food in and heat your food on also contribute to the safety of your diet, and may lower your risk of breast cancer. This pamphlet takes a look at these and other aspects of healthy cooking: pots and pans, storage containers, stoves and grills.

## All About Healthy Cooking

### **Tools for Healthy Cooking**

According to The Green Guide ([www.thegreenguide.com](http://www.thegreenguide.com)), "The best cooking surfaces distribute heat evenly and are tough enough to stand up to the test of time. The cast iron skillet may be 19th century technology, but it's still around and for good reason: few pans are as versatile or as durable. For one thing, the cast iron skillet is a solid piece of heavy duty metal, which remains nontoxic at any cooking temperature. One shortcoming of cast iron, though, is that it oxidizes, or rusts, very easily, and while the rust itself is non-toxic, it can affect flavor and appearance."

Another shortcoming of cast iron is the weight. Pots larger than a standard 4 quart Dutch oven are too heavy to be of any personal use. Consequently, many substitutes have been tried and tested over the years. Quality stainless steel, while pricey, is the best alternative to cast iron. It does not rust and can provide years of healthy cooking. Avoid copper clad bottoms since the steel eventually wears thin, allowing toxic copper to come into contact with food. And avoid aluminum since you might find oxidized aluminum in your food, which, unlike oxidized iron, is toxic.

When considering a grill surface, other options include porcelain enamel and chrome-plated products. Porcelain enamel cast iron will not rust and out-performs porcelain enamel aluminum and chrome plated aluminum, but all will eventually chip and reveal the problem interior metals.

### **Toxic Chemicals in Non-stick Cookware**

Non-stick cookware contains perfluorooctanoic acid (otherwise known as PFOA or C-8) which is also a key material in a variety of other consumer products, including stain-repellant rugs, fast food packaging and household paint.

Living near one of the plants seems to pose the greatest health danger; PFOA releases get into ground water and the contamination is very difficult to clean up. Recent studies have found high concentrations of PFOA in people living near a processing plant in West Virginia.

New research is showing that PFOA seems to migrate from some manufactured products. In a study reported in the June 1, 2005 issue of *Environmental Science & Technology*, researchers found that PFOA leached from certain stain-guard treatments of carpeting and upholstery.

PFOA is a very persistent compound. Once in the environment, it does not appear to ever break down, and traces of it have been found in the blood of most U.S. residents tested. The United States Environmental Protection Agency (EPA) website has posted, "PFOA can cause developmental and



other adverse effects in laboratory animals," including cancer.

New non-stick cookware does not seem to pose a risk for consumers, but some scientists believe scratched or over-heated cookware may. Additional risk may also come from cooking with plastic utensils. The safest option may be to avoid non-stick cookware as well as treated carpeting and upholstery as a precautionary measure, and to press for greater safeguards in production.

### **Plastics and Plastic Wrap**

When it comes to food storage, inert containers are best. That includes glass, ceramics and stainless steel. But plastic food storage containers are popular and everywhere. There are differences of opinion on how safe plastic containers and plastic wrap are. The U.S. Food and Drug Administration (FDA) Center for Food Safety and Applied Nutrition recommends, "Only use cookware that is specially manufactured for use in the microwave oven. Glass, ceramic containers, and all plastics should be labeled for microwave oven use."

Unfortunately, emerging science is beginning to show that not all plastics are as safe as the FDA suggests. Three product lines are under currently serious examination: containers or food wrap made with polyvinyl chloride (PVC), polystyrene (PS) or polycarbonate plastic.

PVC, with recycle triangle number three (3), is one of the few common plastics to contain chlorine. It is 56 percent chlorine by weight. During its production and incineration, a number of toxic chemicals are released into the environment. U.S. government reports show individual facilities emit between seven and 30 tons of vinyl chloride annually. Since there are 27 PVC plants currently operating in nine states, it is a good chance that most of us are exposed at one time or another to those highly reactive, environmentally persistent chemicals. Pennsylvania's only PVC plant, Occidental Chemical's vinyl specialty resin plant in Pottstown, closed in January 2005, but was reported to have emitted over 89,000 pounds of vinyl chloride annually.

As goods (including carpets, plastic piping, shower curtains, garden hoses and plastic kitchenware) made from PVC break down, they can degrade indoor air quality and pose an irritant to asthmatics. Non-toxic alternative products are available.

Polystyrene, with recycle triangle number six (6), is used in foam food trays, egg cartons, opaque plastic silverware, disposable plates, cups and take-out containers. Styrene can leach from these plastics directly into food. Workers with long-term exposures have seen adverse affects to the brain and nervous systems. Animal studies have shown styrene to be harmful to red blood cells, liver, kidneys and stomach. Exposure to styrene can also be linked to secondhand cigarette smoke, off-gassing of building materials, auto exhaust fumes and drinking water. Reasonably priced alternatives exist for all products.

Polycarbonate plastic containers, with recycle triangle number seven (7), contain BEP or Bisphenol A. BEP mimics the sex hormone estradiol in the body and is therefore a known endocrine disruptor. The chemical bonds that hold BEP in place can unravel when heated, washed or exposed to acidic foods, causing the chemical to leach into foods. Up until 2004, some plastic food wrap used BEP as the plastics softener, but, according to the FDA, this has been discontinued.

Plasticizers are required to soften PVC and other plastics to allow for multiple uses. Not all manufacturers list the actual plasticizers or softening agents on the products. To be cautious, avoid plastic wraps. When using a microwave oven, waxed paper is a safe covering to prevent food splatter. For food storage, washable food-caps (which look like small shower caps) are a handy alternative.

The emerging bio-based plastics industry may soon be able to replace many of these petroleum-based plastic products with safer, biodegradable products. Two materials to look for are Natureworks' polylactic acid, or PLA, a corn-based product and EarthShell's foam laminate made from food starches.

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### **Safer Stoves and Ranges**

Indoor air pollution from cooking can involve formaldehyde (which belongs to the large class of volatile organic compounds, or VOCs) and Particulate Matter (PM<sub>10</sub> for large particles and PM<sub>2.5</sub> for smaller ones). One of the most common sources of indoor air pollution from both VOCs and PM is incomplete combustion from tobacco smoking, heaters or stoves. This could include wood or tobacco smoke, natural gas or kerosene combustion. Electric ovens and ranges do not contribute to indoor air pollution, but make sure you ask your electricity provider for green energy options such as solar and wind. Information on the government household appliance energy efficiency program can be found at [www.energystar.gov](http://www.energystar.gov).

Indoor use of portable kerosene or gas space heaters, barbecues, and cookstoves can emit dangerous levels of deadly carbon monoxide and require careful venting. Another danger is the use of paraffin as an alternative fuel for cooking and lighting.

### **Campfires & Backyard Burning**

Pennsylvanians enjoy a wide variety of outdoor activities. Modest campfires pose little problem if there is no posted drought or fire alert and only small quantities of paper and untreated wood are burned. Campfires must be built safely, monitored properly and extinguished responsibly.

Backyard burning is a highly localized source of air pollution in rural Pennsylvania. Most metropolitan areas prohibit open fires, and, instead, offer curbside pick-up of trash and various recycled materials. Rural municipalities and townships often lack the resources to collect recyclables, charge extra for trash pick-up and have few limits on open fires. Thus, the rural backyard burning mantra echoed across the state, "If it burns, burn it. If it doesn't burn, burn it anyway."

This is a very dangerous practice. According to scientific studies, burning household trash can emit as high a volume of dioxins as a full-sized incinerator burning hundreds of tons of refuse per day. Incinerators are equipped with emission controls to limit dioxins' formation and discharge. Backyard burning does not.

Toxic dioxins are carried by the wind until they fall back to the earth where they are absorbed into the earth, plants and animals. Eventually, they end up in the human food chain via fatty meat and fish. This group of chemicals includes the most toxic compounds ever made: over 200 types of chlorinated dibenzo-p-dioxin and dibenzofurans. The human health effects of dioxins include chloracne, a severe form of skin disease, as well as reproductive and developmental effects, liver damage and cancer.

Instead of backyard burning, separate trash into groups: clean burning or reusable paper and wood products, recyclables such as plastic, glass and metal containers, compostable food garbage and hazardous waste. Hazardous waste, such as fluorescent light bulbs that contain mercury, non-latex paints and waste oil, must be delivered to an appropriate agency for disposal. Contact the Household Hazardous Waste (HHW) collection program of the Pennsylvania Resources Council ([www.swpahhw.org](http://www.swpahhw.org)).

#### *Web Resources:*

[www.dep.state.pa.us](http://www.dep.state.pa.us)  
[www.ewg.org](http://www.ewg.org)  
[www.foodsafety.gov](http://www.foodsafety.gov)  
[www.foodnews.org](http://www.foodnews.org)  
[www.thegreenguide.com](http://www.thegreenguide.com)  
[www.healthandenvironment.org](http://www.healthandenvironment.org)  
[www.iatp.org/foodandhealth](http://www.iatp.org/foodandhealth)  
[www.jhsph.edu](http://www.jhsph.edu)  
[www.swpahhw.org](http://www.swpahhw.org)

#### *Produced by*

The Collaborative on Health and the Environment in  
Pennsylvania  
[www.che-penn.org](http://www.che-penn.org)

The Center for Healthy Environments and Communities at the  
University of Pittsburgh  
[www.chec.pitt.edu](http://www.chec.pitt.edu)

*Funded by The Heinz Endowments*  
2005

