

TOXIC TEFLON

*Excerpted from a report by the Environmental Working Group
(www.ewg.org)*

Executive Summary

In two to five minutes on a conventional stovetop, cookware coated with Teflon and other non-stick surfaces can exceed temperatures at which the coating breaks apart and emits toxic particles and gases linked to hundreds, perhaps thousands, of pet bird deaths and an unknown number of human illnesses each year, according to tests commissioned by Environmental Working Group (EWG).

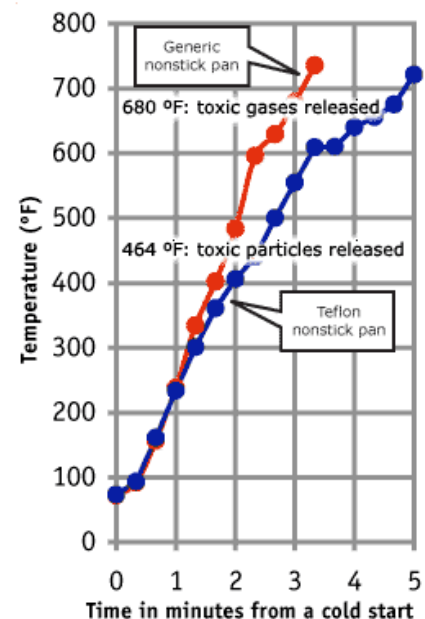
In new tests conducted by a university food safety professor, a generic non-stick frying pan preheated on a conventional, electric stovetop burner reached 736°F in three minutes and 20 seconds, with temperatures still rising when the tests were terminated. A Teflon pan reached 721°F in just five minutes under the same test conditions (See Figure 1), as measured by a commercially available infrared thermometer. DuPont studies show that the Teflon offgases toxic particulates at 446°F. At 680°F Teflon pans release at least six toxic gases, including two carcinogens, two global pollutants, and MFA, a chemical lethal to humans at low doses. At temperatures that DuPont scientists claim are reached on stovetop drip pans (1000°F), non-stick coatings break down to a chemical warfare agent known as PFIB, and a chemical analog of the WWII nerve gas phosgene.

For the past fifty years DuPont has claimed that their Teflon coatings do not emit hazardous chemicals through normal use. In a recent press release, DuPont wrote that "significant decomposition of the coating will occur only when temperatures exceed about 660 degrees F (340 degrees C). These temperatures alone are well above the normal cooking range."

These new tests show that cookware exceeds these temperatures and turns toxic through the common act of preheating a pan, on a burner set on high.

In cases of "Teflon toxicosis," as the bird poisonings are called, the lungs of exposed birds hemorrhage and fill with fluid, leading to suffocation. DuPont acknowledges that the fumes can also sicken people, a condition called "polymer fume fever." DuPont has never studied the incidence of the fever among users of the billions of non-stick pots and pans sold around the world. Neither has the company studied the long-term effects from the sickness, or the extent to which Teflon exposures lead to human illnesses believed erroneously to be the common flu.

Figure 1: Teflon pans on stovetop burners easily reach temperatures that produce toxic particles and gases



Source: University Food Safety scientist and Environmental Working Group. Tests conducted on May 12 and 13, 2003.

[Experimental Method](#)

The government has not assessed the safety of non-stick cookware. According to a Food and Drug Administration (FDA) food safety scientist: "You won't find a regulation anywhere on the books that specifically addresses cookwares," although the FDA approved Teflon for contact with food in 1960 based on a food frying study that found higher levels of Teflon chemicals in hamburger cooked on heat-aged and old pans. At the time, FDA judged these levels to be of little health significance.

Of the 6.9 million bird-owning households in the US that claim an estimated 19 million pet birds, many don't know that Teflon poses an acute hazard to birds. Most non-stick cookware carries no warning label. DuPont publicly acknowledges that Teflon can kill birds, but the company-produced public service brochure on bird safety discusses the hazards of ceiling fans, mirrors, toilets, and cats before mentioning the dangers of Teflon fumes.

As a result of the new data showing that non-stick surfaces reach toxic temperatures in a matter of minutes, EWG has petitioned the Consumer Product Safety Commission (CPSC) to require that cookware and heated appliances bearing non-stick coatings must carry a label warning of the acute hazard the coating poses to pet birds. Additionally, we recommend that bird owners completely avoid cookware and heated appliances with non-stick coatings. Alternative cookware includes stainless steel and cast iron, neither of which offgases persistent pollutants that kill birds.

Tips for bird owners & the rest of us

Bird owners should avoid non-stick cookware. It is not enough to keep the bird in a room of the house far from the kitchen. In numerous cases, Teflon kitchen fumes have killed birds far from the source, in other rooms of the house. Bird owners should also avoid other heated appliances coated with non-stick surfaces, including waffle irons, griddles, stovetops and ovens, space heaters, irons and ironing board covers. Many of these are also implicated in deaths of pet birds by Teflon toxicosis.

What about the rest of us?

Even if you don't have pet birds, Teflon toxicosis is something to be aware of and, in our view, concerned about. There is absolutely no doubt that when heated to temperatures well within normal cooking range, for instance, Teflon and products with other non-stick PFC coatings emit toxic fumes that can be harmful to people. They can make you and your family sick. The long term effects of routine exposure to Teflon fumes, and "fume fever" itself, have not been adequately studied.

Our advice: phase out the use of Teflon or non-stick cookware in your home. In fact, avoid any kitchen equipment that contains Teflon or other non-stick components that are heated to high temperature during use. It's not always easy to find out about Teflon components in ovens, space heaters or other devices, and in fact, some bird owners were reassured their products were Teflon-free, only to find out the truth when their birds were killed. That's why we want the government to require labels on such products. In the meantime, you should inquire before purchase or continued use.

In addition to avoiding risks to you and your family, phasing out Teflon and other non-stick products that might be heated to high temperatures will help reduce the impacts of the "PFC" economy on human health and wild animals.

Tips on safer cookware

When heated, cookware coated with Teflon and other non-stick surfaces emits fumes that can kill birds and potentially sicken people. You can avoid exposures to the fumes from Teflon and other non-stick cookware by phasing out your home use of these products. If you can afford to replace your non-stick cookware now, do so.

Statistics reported by the Cookware Manufacturers Association indicate that 90 percent of all the aluminum cookware sold in the United States in 2001 was coated with non-stick chemicals like Teflon (Cooks Illustrated, September 2002). Chemicals and tiny, toxic Teflon particles released from heated Teflon kill household pet birds. At least four of these chemicals never break down in the environment, and some are widely found in human blood. Consumers concerned about the effects of Teflon on human health and the environment should consider these alternatives:

Stainless Steel

Stainless steel is a terrific alternative to a non-stick cooking surface. Most chefs agree that stainless steel browns foods better than non-stick surfaces. In their 2001 review of sauté pans, Cooks Illustrated, an independent publication, chose a stainless steel pan over otherwise identical non-stick models. They also recommended stainless steel pan roasters over non-stick.

Cast Iron

Cast iron remains a great alternative to non-stick cooking surfaces. Lodge, America's oldest family-owned cookware manufacturer, refers to their cookware as "natural non-stick." Cast iron can be pre-heated to temperatures that will brown meat and will withstand oven temperatures well above what is considered safe for non-stick pans. Cast iron is extremely durable and can now be purchased pre-seasoned, ready-to-use.

Other Cooking Surfaces

Because Teflon coated non-stick surfaces fail to brown foods there has been a push to find other "non-stick" cookware coating that will allow the use of higher temperatures and still clean up easily. Some examples include ceramic titanium and porcelain enameled cast iron. Both of these surfaces are very durable, better at browning foods than PTFE (Teflon) non-stick coatings, and are dishwasher safe. Anodized aluminum is another alternative, but some people question its safety, citing evidence in some studies linking aluminum exposures to Alzheimers.