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Teflon Toxicity; Slick Poison!

We all appreciate the simplicity and ease that Non-stick cookware bring to our lives. Many of us have been using it for decades, marveling at how well it works while cooking and how easily it makes clean-up after the meals. It's also wonderful to have stain-resistant upholstery and carpeting in the home with products such as Stain-Master and Gore-Tex. What a wonderful compound right?

Almost.

As with so many things, if it seems to good to be true, maybe it is, even though it may take years or decades to find the downside. Polytetraflouroethylene (PTFE) or Teflon as it's known was first released to the public in cookware in the 1960's. The website www.Teflon.com states that it is safe to use at temperatures up to 600°F, this is noted in small print buried in their website and not always prominently displayed on products coated with Teflon. Interestingly this same website recommends that "birds should not be kept in the kitchen while cooking". In fact, just as miners used to carry caged canaries into coal mines to warn them of toxic gasses in the mines, this coating can be toxic in the kitchen and may kill birds by causing PTFE Toxicosis and lung damage in birds. DuPont publicly acknowledges that their product can kill birds. What can it do to people?

When heated to 464°F, Teflon emits poisons into the atmosphere. At 680°F at least 6 toxic gasses including two carcinogens, 2 global pollutants and MFA, a chemical lethal to humans at low doses. At 1,000°F an analog of the WWII nerve gas Phosgene is emitted. In three minutes twenty seconds on a conventional stove top, Teflon cookware being pre-heated can exceed 730°F causing the emission of toxins. This may underlie the warning to not keep your pet bird in the kitchen while you cook. Bird deaths have been reported from these cooking surfaces due to birds being in the kitchens; this is not an idle warning. This happens in homes all across our country every day.

The federal government has never rigorously studies the effect of Teflon on cooking surfaces. According to a Food and Drug Administration (FDA) food safety scientist: "You won't find a regulation anywhere on the books that specifically addresses cook-wares," 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. There are

two major categories of danger. Acute toxicity occurs right now and should be seen fairly quickly if it's recognized. Long-term dangers can be more difficult to detect and discern. It may take generations before cancer and other long-term problems occur. Look at the many decades that doctors encouraged cigarette smoking to help relieve stress. We just didn't have the data back then to know how dangerous tobacco is. Some day we may be looking back at the toxicity in Teflon and wonder why we never saw it coming.

Litigation is being filed as of 2006 regarding these dangers and will likely continue for many years to come.

Two chemicals linked to cancer or tumors in laboratory studies (PFOA and TFE); Two chemicals that are potent global warming gases (PFB and CF₄); Two chemical warfare agents (PFIB and MFA) and a chemical analog of WWII nerve gas phosgene (COF₂); At least two chemicals that have widely contaminated the world (PFOA and TFA), one currently undergoing a rigorous safety review at the Environmental Protection Agency (PFOA); Four gaseous chemicals and some components of the particulate matter that are highly persistent environmental pollutants, that likely never break down in the environment (TFA, PFOA, CF₄, PFB, and the perfluorinated particulate alkanes); and four chemicals that are considered highly toxic relative to most other industrial chemicals (PFIB, MFA, COF₂, HF).

What happens to us, what are the toxic effects? DuPont representatives admit that a "flu-like symptoms which are reversible" according to Uma Chowdhry DuPont's vice president of R&D. DuPont scientists list the hallmark human symptoms of polymer fume fever as tightness of chest, malaise, shortness of breath, headache, cough, chills, temperatures between 100 and 104°F, and sore throat, based on a survey of complaints registered by workers who were struck by the illness. Based on this suite of symptoms, cases of polymer fume fever from home exposures could easily be mistaken for the common flu. Our Environmental Protection Agency has discovered almost universal contamination of our bloodstreams with compound C-8 which is a breakdown product of Teflon. Human blood levels are close to the levels causing harm in lab animals, the EPA is moving fast to understand more about these potential dangers.

So what are the safe temperatures for use of Teflon?

464°F; Ultra-fine particle production that cause extreme lung damage to rats within 10 minutes, longer exposures is lethal.

680°F;

Tetrafluoroethylene (TFE) a "reasonably anticipated carcinogen that causes kidney, liver & blood tumors in mice and rats.

Hexafluoropropene causes eye, nose, throat irritation, heart irregularity, headache, fluid in the lungs, decreased motor speed, memory & learning, immune cell dysfunction. Long-term exposure causes death. Trifluoroacetic acid, enlarges the liver, decreases blood sugar, can be concentrated in fetal tissue leaving pregnant mothers using this at high risk of damaging their unborn child. Depletion of the Ozone layer. Difluoroacetic acid causes kidney toxicity in rats

Monofluoroacetic acid, extremely toxic, doses as low as 0.7 mg/kg can kill people, initially causes nausea, vomiting, abnormal nerve function, anxiety, muscle twitching, low blood pressure, blurred vision.

Convulsions, heart & lung failure and death follow continued exposure. This chemical quickly breaks down to fluoroacetate used to kill rats.

Perfluoroacetic acid which never breaks down in the environment and is found in the blood of over 92% of Americans. This is very toxic in rats & monkeys. It also decreases thyroid hormone levels which can impair brain development and delays sexual maturation in lab animals.

878°F; Silicon tetrafluoride a very toxic corrosive gas that causes hydrofluoric acid to form in the lungs causing damage to the airways.

887°F; Perfluoroisobutene (PFIB) which is about ten times more toxic than Phosgene a chemical weapon used by the military in chemical warfare.

932°F;

Carbonyl fluoride, the fluorine version of Phosgene, which is a chlorinated chemical warfare agent, it breaks down to hydrogen fluoride with many toxic effects

Hydrogen fluoride causes death to any tissue it contacts, including the lungs due to the fluoride ion which destroys lung tissue and also destroys cellular respiration decreasing formation of ATP which the cells use

as their form of energy to carry out cellular functions. Fluoride binds to Calcium creating low blood calcium levels which can also be lethal if not properly diagnosed and treated.

Above 1000' F several other poisons are produced, we won't review that today as most of us won't be reaching temperatures that high with conventional home cookware.

Swiss Diamond Cookware is another company that has non-stick cookware. Their advertising and website infer that there is no Teflon in their product; that it's a nanocomposite containing diamond crystals that give it its durability etc. The truth is, it's Teflon without the trademark but with all of the same inherent toxicities.

Remember, there are two proven safe cooking surfaces; Iron & Pyrex. Steel is safe, Aluminum has been linked with a broad range of toxicities most notably early risk of Alzheimer's disease, plastics have phthalates that are toxic, ceramics may have lead in the glazing,. Steel is an alloy with iron and other materials with as yet unknown potential toxicities but is probably safer than most of the others listed above.

Have you ever brought new carpeting and noticed that "new" smell? Many upholstered products as well as carpeting are coated with Teflon to provide stain resistance. These products will "off-gas" or emit chemicals into the local atmosphere for hours to weeks after the product is installed, depending on factors such as temperature, humidity, ventilation etc. These are also toxic, although some people are more sensitive than others. Symptoms again can include the "flu-like" syndrome with headache, fatigue, muscle aches, joint aches, lack of energy—it makes you feel like you're getting old before your time, another case of polymer fume fever. Many patients will complain of "multiple environmental sensitivities".

Fibromyalgia will often mimic this as well, causing some physicians to even wonder if it's a true syndrome or may be an undiagnosed environmental toxicity. These symptoms are happening as your immune system and detoxification systems are working hard to clear the poisons from your body. Some people are much more sensitive than others due to factors such as their genetic makeup, other environmental exposures that may be occurring, diet, nutritional status etc.

Stay Healthy!

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