



TOXINS IN THE GARAGE

November 2, 2009

SIMPLE TRUTHS

WHITE PAPER RESEARCH

SUBJECT: Toxic Issues outside the home and garage – oil/grease

RESEARCH CONDUCTED BY

Michael Scott

Research Consultant

PRESENTED TO

Kevin Guest, Executive Vice President

USANA Health Sciences

TOXINS IN THE GARAGE

MAD AS A HATTER

You may be asking yourself what does the Mad Hatter of Alice In Wonderland have to do with the subject of toxins in the garage? To explain the metaphor, let's look at the relationship of how seemingly innocuous items in our garage relate to "being mad as a hatter". In the 19th century, mercury was used in the making of hats, and as a result of hat makers continually breathing in mercury their nervous systems were affected, causing them to tremble and appear insane ... hence the coining of the term "mad as a hatter". But, what's important here is to understand that many modern products today contain extremely harmful toxins that may have the same affects on our bodies as the Mad Hatters of old.

Let's take a look inside the garage for a moment. We use the garage for many things, for example, parking our family car(s), storing chemical solvents, gasoline, paints, turpentine and pesticides. The garage also provides a resting place for lawnmowers, edger's, chain saws and many other gas powered tools. Many of us have hobbies that convert our garage into workshops for art, auto mechanics, carpentry and other various activities. The garage may also be the home of the heating furnace, hot water heater and washer/dryers. What appears to be a harmless haven for these items may actually be a holding tank for toxins that enter our body and homes without us being aware of the dangers they pose.

THE FAMILY CAR

Let's start with the car. It's an expensive item that we want to keep away from abusive weather and possibly wandering thieves, so we store it in the garage. We get up in the morning, go out to the garage and begin to warm up the car, and then when we get back from work, we open the garage door, park the car and turn it off. The obvious safety hazard is having the car idle in the garage, but just as harmful is when we drive the car into the garage and turn it off. Gas fumes, hot oil and other liquids from the engine continue vaporizing after the car is shut off and the liquids return to room temperature. The afterburn fumes caused by inefficient burning of gasoline and oil are mostly made up of carbon dioxide.

Carbon dioxide has no odor and is invisible. When we breathe in these fumes they may result in headache, dizziness and mood swings. Without trying to be overly dramatic, we are all aware that many people commit suicide in this manner, so we know fumes in the garage can be deadly. But studies have also shown that houses with attached garages have measurable concentrations of benzene, a natural constituent of crude oil and a precursor in the production of plastics, rubber and dyes that is known to be a carcinogen.

The affect of gas fumes does not only hold true with cars, but gas powered tools such as lawnmowers, edger's, chain saws, hand tools and other gas and oil based tools. We may even be using these tools inside the garage without realizing how dangerous the emissions from these tools can be.

STORING TOXINS IN YOUR GARAGE

The garage also offers a place to store other items such as unused paints, paint thinners and removers, turpentine, pesticides, weed killers, fertilizers and herbicides. Products such as paint thinners vaporize easily and stay in the air for months at a time. Everyone remembers picking up a rag months after being used with paint thinner and still smelling the fumes. The same thing is happening to the air in your garage even though containers may be resealed after use.

Many people use their garage or a portion of their garage for a place to work on their hobbies. Special care should be used in storing toxic hobby materials such as aerosol paints and sprays, woodworking lacquer and varnishes, paints, glues and epoxies. In addition, proper ventilation should be used whenever working with small machinery and tools that elicit dust, smoke or fumes, such as soldering guns, hot glue guns, woodworking tools and paint sprayers.

We keep our yards manicured and attractive with the use of fungicides, pesticides, fertilizers or herbicides. The problem is that if it's meant to lethally harm an insect, plant or mouse, the active toxin agent can just as easily harm you, your pets and your children.

GARAGE APPLIANCES

The garage furnace, hot water heater and washer/dryer are familiar domestic devices that need special attention – especially if these are gas operated appliances. Gas furnaces can produce carbon monoxide. Unlike the gas in the furnace itself, carbon monoxide is odorless and may significantly build up to dangerous levels in your garage and your home. Another dangerous toxin found in old furnaces is asbestos. It made sense in the old days to use asbestos in the manufacturing of furnaces since asbestos acts as a fire retardant. Unfortunately, as most everyone knows, once asbestos becomes airborne people could suffer serious health conditions. In addition, loose gas line fittings, faulty pilot lights and obstructed or dirty filters and vents from appliances can also be a source of toxic fumes that can find their way into your home.

SEEPAGE

The danger of garage toxins is not limited to the garage alone. In fact, a more dangerous concern is how air borne toxins move into the home. Gaseous molecules spread from areas of higher concentration to areas of

lower concentration until there is equalization. So, a pollutant wants to fill as much air space as possible. Combustion pollutants, also known as “respirable particles”, are drawn into the home through open doors that lead directly from the home to the garage, spaces around doors leading into the house, small cracks in the walls between the house and the garage and through the top-floor ceiling. Leakage areas are usually hidden, hard to find and are tough to seal, and if the drywall is simply screwed on the wall and isn't finished, removing it will give access to the interior spaces. Even when there is a suction fan used, it may not be “ventilated out”, and as a result may still draw pollutants into the house. Many times there are open ducts from the garage into the house that allow seepage. And don't forget if you live in a condo or apartment and share walls with your neighbors, you could be inheriting fumes from their bad toxic handling and storage habits.

TOXIC MOLDS

The very nature of many unfinished garages lends themselves to leaks and other infiltration of water. Even in the lack of an actual water leak, material stored in a garage may go from high heats to cold temperatures in the course of a day, creating dampness and moisture within storage items that can become a breeding ground for mold. Although there are millions of different types of molds, only a few are toxic, but many can trigger allergic responses, especially in children and those with compromised respiratory systems.

DANGEROUS TOXINS

Toxins found in the home injured 789,000 Americans between 1992 and 1995, and new research suggests that this figure is underestimated. "Toxins in U.S. homes now account for 90 percent of all reported poisonings each year and while these figures include everything from non-fatal aspirin overdoses to the deadly consumption of drain cleaners, they fail to include long-term exposure to toxins like lead and asbestos.

Here is a short list of toxins:

Formaldehyde off gasses (evaporates) from cushions, particleboard and the adhesives used to manufacture most inexpensive wood-based products. Carpets and carpet cushions can also offgas formaldehyde, causing eye and upper respiratory irritation. According to the EPA, formaldehyde may even cause cancer.

Radon is the second-leading cause of lung cancer in the United States, warns the Surgeon General. Radon is a natural radioactive gas that can seep into homes through cracks in the basement, the surrounding foundation and in well water. It enters the body quietly through the airways.

Lead keeps epidemiologists returning to the drawing board, says Soloway, "mostly because we know more now about the adverse effects of low-level exposure." Levels once thought to be acceptable are now known contributors to learning disabilities and behavioral problems. Lead is found in paint in older houses, old plumbing and soil near highways and busy roads. It causes neurological and kidney damage, high blood pressure, disrupted blood cell production and reproductive problems.

Carbon monoxide will kill an estimated 660 Americans this year. Don't look for exhaust fumes in the attached garage; the biggest culprit is the unserviced furnace burning propane, butane or oil.

Arsenic is still lacing many household pesticides and is increasingly used as a wood preservative. Low levels of inorganic arsenic "may cause lung cancer risk," according to the CDC. The Department of Health and Human Services agrees, adding arsenic compounds to the list of unknown carcinogens.

Vinyl chloride is the source of "new car smell": The plastic interior of a new car off-gasses this known carcinogen. Water sitting in PVC pipes overnight may also be steeping into a toxic tea. Very large exposures can lead to "vinyl chloride disease," which causes severe liver damage and ballooning of the fingertips.

Hydrofluoric acid "can cause intense pain and damage to tissues and bone if the recommended gloves happen to have holes in them," says Soloway. This highly corrosive substance is the active ingredient in many household rust removers.

VOCs: But even the most liberal list of known toxins pales next to the order of volatile organic compounds (VOCs). VOCs comprise hundreds of natural and man-made, carbon-based agents. They react quickly with other carbon-based compounds, and evaporate easily, making them ideal solvents. VOCs can be found in disinfectants and pesticides, too.

Solvents: Benzene and methyl ethyl ketone traverse cell walls unchecked by normal cell defense. Both are known carcinogens. Cousins toluene, xylene, 1,1,1-trichloroethane and trichloroethylene make up the lion's share of the solvent market;

Disinfectants: Phenols, which include biphenyl, phenolics and the preservative pentachlorophenol, are found in disinfectants, antiseptics, perfumes, mouthwashes, glues and air fresheners;

Pesticides: Chlordane, aldrin, dieldrin, though all banned for nearly two decades, continue to show up airborne in older houses.

GHOSTS OR TOXINS?

One last note to ponder: Studies have found that the effects of being exposed to high levels of electromagnetic fields (EMF) on the human brain and physiology result in symptoms that range from hallucinations, blackout, skin rash and joint pain, to dizziness and an altered state of consciousness. Some researchers argue that EMF exposure is the material cause of close encounters, that UFO close encounters are essentially a form of dream caused by an external, but natural, force. There is no non-human entities involved. This also triggers people to experience the paranormal, seeing ghosts and demons. Its found when the front temporal lobe is exposed to an electrical or chemical change people can be made to see anything from aliens to ghosts to God. Psychics and sensitive subjects exposed to EMFs can think they are experiencing paranormal activity, when actually the brain is creating the feelings and imagery. So, if you and your family are seeing ghosts, it might be time to clean out that garage.