

## Information about Plastic Bottles & Chemicals

Most types of plastic bottles are safe to reuse at least a few times if properly washed with hot soapy water. But recent revelations about chemicals in Lexan (plastic #7) bottles are enough to scare even the most committed environmentalists from reusing them (or buying them in the first place). Studies have indicated that food and drinks stored in such containers—including those ubiquitous clear Nalgene water bottles hanging from just about every hiker's backpack—can contain trace amount of Bisphenol A (BPA), a synthetic chemical that interferes with the body's natural hormonal messaging system.

The same studies found that repeated re-use of such bottles—which get dinged up through normal wear and tear and while being washed—increases the chance that chemicals will leak out of the tiny cracks and crevices that develop over time. According to the Environment California Research & Policy Center, which reviewed 130 studies on the topic, BPA has been linked to breast and uterine cancer, an increased risk of miscarriage, and decreased testosterone levels. BPA can also wreak havoc on children's developing systems. (Parents beware: Most baby bottles and sippy cups are made with plastics containing BPA.) Most experts agree that the amount of BPA that could leach into food and drinks through normal handling is probably very small, but there are concerns about the cumulative effect of small doses.

Health advocates also recommend not reusing bottles made from plastic #1 (polyethylene terephthalate, also known as PET or PETE), including most disposable water, soda and juice bottles. According to The Green Guide, such bottles may be safe for one-time use, but reuse should be avoided because studies indicate they may leach DEHP—another probable human carcinogen—when they are in less than perfect condition. The good news is that such bottles are easy to recycle; just about every municipal recycling system will take them back. But using them is nonetheless far from environmentally responsible: The nonprofit Berkeley Ecology Center found that the manufacture of plastic #1 uses large amounts of energy and resources and generates toxic emissions and pollutants that contribute to global warming. And even though PET bottles can be recycled, millions find their way into landfills every day in the U.S. alone.

Another bad choice for water bottles, reusable or otherwise, is plastic #3 (polyvinyl chloride/PVC), which can leach hormone-disrupting chemicals into the liquids they are storing and will release synthetic carcinogens into the environment when incinerated. Plastic #6 (polystyrene/PS), has been shown to leach styrene, a probable human carcinogen, into food and drinks as well.

Safer choices include bottles crafted from safer HDPE (plastic #2), low-density polyethylene (LDPE, AKA plastic #4) or polypropylene (PP, or plastic #5). Consumers may have a hard time finding water bottles made out of #4 or #5, however. Aluminum bottles, such as those made by SIGG and sold in many natural food and product markets, and stainless steel water bottles are also safe choices and can be reused repeatedly and eventually recycled.

### CONTACTS:

The Green Guide

Environment California

SIGG

<http://www.thenewhomemaker.com/plastic-bottle-safety>

## Which plastic water bottles don't leach chemicals?

by Vreni Gurd | Thu, 03/29/2007 - 10:23pm

Featured in: Nutrition & Life.

**Choose your water bottles very carefully in order to prevent chemicals in the plastic from leaching into your water.**

Plastic water bottles are very convenient for carting water around when we are on the go, as they don't break if we drop them. However, it is worth paying attention to the type of plastic your water bottle is made of, to ensure that the chemicals in the plastic do not leach into the water. If you taste plastic, you are drinking it, so get yourself another bottle.

To be certain that you are choosing a bottle that does not leach, check the recycling symbol on your bottle. If it is a #2 HDPE (high density polyethylene), or a #4 LDPE (low density polyethylene), or a #5 PP (polypropylene), your bottle is fine. The type of plastic bottle in which water is usually sold is usually a #1, and is only recommended for one time use. Do not refill it. Better to use a reusable water bottle, and fill it with your own filtered water from home and keep these single-use bottles out of the landfill.

Unfortunately, those fabulous colourful hard plastic lexan bottles made with polycarbonate plastics and identified by the #7 recycling symbol, may leach BPA. Bisphenol A is a xenoestrogen, a known endocrine disruptor, meaning it disturbs the hormonal messaging in our bodies. Synthetic xenoestrogens are linked to breast cancer and uterine cancer in women, decreased testosterone levels in men, and are particularly devastating to babies and young children. BPA has even been linked to insulin resistance and Type 2 Diabetes. For more of the science on the effects of BPA on our endocrine system etc. see these studies: Environmental Health Perspectives Journal. Nalgene, the company that manufactures the lexan water bottles also makes #2 HDPE bottles in the same sizes and shapes, so we have a viable alternative. Order one at Nalgene.

Unfortunately, most plastic baby bottles and drinking cups are made with plastics containing Bisphenol A. In 2006 Europe banned all products made for children under age 3 containing BPA, and as of Dec. 2006 the city of San Francisco followed suit. In March 2007 a billion-dollar class action suit was commenced against Gerber, Playtex, Evenflo, Avent, and Dr. Brown's in Los Angeles superior court for harm done to babies caused by drinking out of baby bottles and sippy cups containing BPA. So, to be certain that your baby is not exposed, use glass bottles.

Check the recycling numbers on all your plastic food containers as well, and gradually move to storing all food in glass or ceramic.

Store water in glass or brass if possible, and out of direct sunlight.

[http://trusted.md/blog/vreni\\_gurd/2007/03/29/plastic\\_water\\_bottles](http://trusted.md/blog/vreni_gurd/2007/03/29/plastic_water_bottles)

**Plastics are classified by their "resin identification code"—a number from #1 to #7 that represents a different type of resin. That number is usually imprinted on the bottom of your container; flip it upside down, and you'll see a recycling triangle with the number in the middle.**

Here's a quick breakdown of plastic resin types:

**#1 polyethylene terephthalate (PET or PETE)**

Examples: Disposable soft drink and water bottles

**#2 high density polyethylene (HDPE)/**

Examples: Milk jugs, liquid detergent bottles, shampoo bottles

**#3 polyvinyl chloride (V or PVC)**

Examples: Meat wrap, cooking oil bottles, plumbing pipes

**#4 low density polyethylene (LDPE)**

Examples: Cling wrap, grocery bags, sandwich bags

**#5 polypropylene (PP)**

Examples: Cloudy plastic water bottles, yogurt cups/tubs

**#6 polystyrene (PS)**

Examples: Disposable coffee cups, clam-shell take-out containers

**#7 other (plastics invented after 1987; includes polycarbonate, or PC, and polylactide, or PLA, plastics made from renewable resources as well as newer plastics labeled "BPA-Free")**

Examples: Baby bottles, some reusable water bottles, stain-resistant food-storage containers

### **What To Buy:**

**#2 HDPE, #4 LDPE and #5 PP:** These three types of plastic are your best choices. They transmit no known chemicals into your food and they're generally recyclable; #2 is very commonly accepted by municipal recycling programs, but you may have a more difficult time finding someone to recycle your #4 and #5 containers.

**#1 PET:** Fine for single use and widely accepted by municipal recyclers; avoid reusing #1 water and soda bottles, as they're hard to clean, and because plastic is porous, these bottles absorb flavors and bacteria that you can't get rid of.

**PLA:** plastics made from renewable resources such as corn, potatoes and sugar cane and anything else with a high starch content; although you can't recycle these plant-based plastics, you can compost them in a municipal composter or in your backyard compost heap.

**Plastics to Avoid:**

**#3 PVC:** Used frequently in cling wraps for meat, PVC contains softeners called phthalates that interfere with hormonal development, and its manufacture and incineration release dioxin, a potent carcinogen and hormone disruptor.

**#6 PS:** Polystyrene-foam cups and clear plastic take-out containers can leach styrene, a possible human carcinogen, into food.

**#7 PC:** The only plastic made with bisphenol A, polycarbonate is used in baby bottles, 5-gallon water-cooler bottles and the epoxy linings of tin food cans. Bisphenol A has been linked to a wide variety of problems such as heart disease and obesity.

<http://www.thegreenguide.com/buying-guide/plastic-containers>

