



What's all the buzz about my Nalgene bottle?

Recently there has been a lot of discussion about the safety of drinking water. Concerns about tap water, bottled water, and reusable plastic bottles like Nalgene brand water bottles, can be overwhelming. But, research and studies can be important tools to help you inform your decisions since the bottom line is you have choices to make about the water you drink every day. You can choose to continue using a reusable water bottle. You can buy bottled water. You can drink tap water in glass, plastic cup, or those new metal canteens that are all the rage. You can install a filter for your tap water. You can drink from public water fountains. All these options have different impacts on the environment and your health: some choices are better than others. It is up to you to decide what fits best in your life and what is important to you. This fact sheet was created to help give you the information you need to make a more informed decision about reusable plastic bottles.

What's the deal with my Nalgene bottle?

The main issue concerning Nalgene bottles is the leaching of the chemical Bisphenol-A (BPA) which is used in manufacturing these types of polycarbonate bottles. "Polycarbonate" refers to the type of hard clear plastic that is characteristic of the colorful Nalgene bottles and other similar water bottles.

What's the difference between Nalgene, BPA and polycarbonate?


BPA, or Bisphenol-A, is one of the essential chemicals used in the manufacturing of polycarbonate plastics. Polycarbonate plastic is a hard clear plastic that is used in consumer and household goods because of its characteristics: it is very durable, moldable, and has good temperature resistance. In 2000, Nalge Nunc International Corporation of Rochester, NY, began their sports line of their highly popular Nalgene bottles, which first came in red, blue, and yellow, but have since expanded to include a spectrum of rainbow colors. These bright and distinct "indestructible" bottles were instantly popular on college campuses throughout the U.S. and Canada. Nalgene is the number one producer of polycarbonate water bottles, but polycarbonate plastics can be found in numerous other products, like beverage and food storage containers, dishes, five-gallon water jugs, and baby bottles. (For more information see *Smart Plastics: Common Questions and Answers* by the Institute for Agriculture and Trade Policy. This fact sheet has contains information about baby bottles.)

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How do I know if I have a polycarbonate water bottle that contains BPA?

Almost all polycarbonate bottles contain BPA, but not all Nalgene bottles are polycarbonate. For example, some Nalgene brand water bottles are #7 BPA-free co-polyester, although currently there are no studies that have been done to alleviate concerns around this type of plastic either.

Polycarbonate water bottles that contain BPA can be distinguished by a few characteristics. They are usually clear hard plastic and have a number 7 resin code (a small number 7 enclosed by the “chasing arrows” symbol) stamped on the bottom of the bottle. If your water bottle is soft, cloudy-colored, or does not have a number 7 it probably does not contain BPA.

What is BPA and why is it bad?

There are many chemicals that go into the manufacturing of plastics and some have been shown to be toxic and can leach out of the plastic and cause health concerns. Bisphenol-A (BPA) is a chemical that mimics the human hormone estrogen and can be linked to breast and prostate cancer, miscarriages, low sperm count, infertility, reproductive problems, enlargement of male breasts, and early puberty. This is why it is sometimes referred to as a “hormone disruptor” or an “endocrine mimicking” chemical. Products containing or made from BPA have been in circulation for more than fifty years and are very widespread.

How does BPA get into my water from the bottle?

The BPA that is used in the polycarbonate plastic has been proven to leach, meaning it migrates out of the plastic in to foods or liquids stored in the plastic, and ends up in human cells when it is ingested by people. Leaching can be made worse when polycarbonate plastics bottles, for example, are old or scratched, exposed to high heat, heated in a microwave, cleaned with harsh cleaners, or used to store acidic foods like tomato sauce or fatty foods like gravy. Other types of plastics have also been proven to leach under specific circumstances.

So, is BPA banned?

There has been concern with the hazards of BPA for many years but recently this issue has received more attention as some companies and governments are discontinuing and banning products containing BPA. Currently there are no bans or recalls in the United States but the Canadian government declared BPA a toxic chemical, outlawing its use in plastics for baby bottles. Canada was the first country to have a ban of this sort but many U.S. states, including Minnesota, are considering a ban on children’s products containing BPA.

Due to rising concern among citizens, many more companies have pulled BPA-containing plastic products from their shelves, including Walmart Canada, Hudson’s Bay Company, Canadian Tire, the Forzani Group, Sears Canada, Rexall Pharmacies, and Home Depot Canada. Wal-Mart Canada announced that it will phase out all baby bottles containing

BPA by early next year. Nalgene announced it will cease production of its polycarbonate bottles in favor of alternative plastics. Many companies still do not openly acknowledge the dangers of BPA but are making changes to provide alternatives.

What is #7 plastic?

Polycarbonate is given the plastic resin code number 7. There are 7 codes and #1-6 all stand for a certain type of base resin. #7 is the catch-all "other" category. Since #7 is a catch-all category for plastics that don't fit into the #1-6 categories, it is used for polycarbonate, plastic mixtures (copolymers) and also the new bio-based, compostable plastic. Just because a plastic has number 7 does not mean it has BPA or is polycarbonate, but if the bottle is referred to as polycarbonate or has the qualities of polycarbonate (clear hard plastic such as Nalgene) it likely contains BPA.

I thought the number was a recycling code? Can I recycle it?

It is unlikely there will ever be good recycling options for #7 bottles since you cannot easily determine what resin and what types of chemicals went into making a #7 bottle.

Almost all plastic products are imprinted with a resin code — a small number enclosed by the “chasing arrows” symbol. This code can be misleading, since it is not intended to indicate that the plastic is recyclable. Rather, the resin code is used by the plastics industry to indicate the general type of chemical compound used to make the product. The resin codes were adopted by the Society of the Plastics Industry (SPI) in 1988 to provide an industry-wide standard that would make it easier to identify and sort recyclable plastic. As the SPI points out on its web site, “The code was not intended to be — nor was it ever promoted as — a guarantee to consumers that a given item bearing the code will be accepted for recycling in their community.”

To recycle plastic, you can only combine items made from the same resin and chemicals. There can be thousands of different chemical additives. (This not only makes plastic hard to recycle, but also what causes health concerns.) For example, different chemicals are added to #2 yogurt tubs than #2 bottles and they cannot be recycled together. Currently there are no resources for recycling any type of plastic except #1 and #2 bottles. #1 and #2 bottles are the only type of plastic that have sustainable markets because they are the most widely used type of plastic and the infrastructure exists to recycle these types of plastics.

Are other kinds of plastic bottles safer?

It depends. All plastics are made from chemicals. Replacing a polycarbonate plastic bottle with another kind of plastic doesn't necessarily mean it is safe or even safer than plastics that contain BPA. Indeed, there are many studies showing concerns about many different kinds of plastics and chemical additives. For example PVC (#3) or polyvinyl chloride plastic, commonly referred to as vinyl, is one of the most hazardous consumer products ever created and can be found in products from bottles to shower curtains to children's toys. PVC is dangerous to human health and the environment throughout its entire life cycle, releasing chemicals such as mercury, dioxins, and phthalates, which may pose irreversible life-long health threats. When produced or burned, PVC plastic releases

dioxins, a group of the most potent synthetic chemicals ever tested, which can cause cancer and harm the immune and reproductive systems. See www.grn.org, www.eurekarecycling.org, www.mindfully.org for more information about plastics.

According to the Institute for Agriculture and Trade Policy (IATP), the safer options for food and drinks include #1, #2, #4 and #5. The plastics to avoid include: #3, #6 and #7 (except for bio-based plastics). (See IATP's [Smart Plastics Guide Healthier Food Uses of Plastics](#) for more information.) Furthermore, water bottles from #1 or #2 plastics are recommended for single use only. Nalgene and other companies make other products from BPA-free plastics, including bottles made from PET (#1), HDPE (#2), LDPE (#4), PP (#5), Eastman Tritan co-polyester, and stainless steel.

So I should throw all my polycarbonate water bottles away?

When you throw anything away, it is either buried in a landfill or burned in an incinerator. Like anything we throw away it doesn't disappear, rather it stays with us in a different location or in a different form. Furthermore, since plastics are completely synthetic they never ever biodegrade. They do, however, break into small particles over time and are now finding pieces of plastic in the smallest life forms and in our water supplies. When you throw out plastic, it often finds its way into the environment via our water or air. Because of these environmental and health issues, it is best to find a healthy (re)use for your water bottle. See www.eurekarecycling.org for some ideas on how to repurpose your water bottle.

So what is being done to recycle more types of plastics and what can I do?

Plastic is light, easy to store and transport, comes in an endless variety of textures and shapes and can hold almost anything. Those properties make it attractive to manufacturers and packagers, who use it for anything from ketchup bottles to disposable utensils. Unfortunately, most plastic is only reprocessed once before it goes to a landfill. "Downcycling" is a more accurate term than "recycling" when it comes to plastic. Unlike glass or aluminum, plastic recycling does not "close the loop" because most post-consumer bottles are not made into new plastic bottles. Instead, milk jugs, soda containers and other bottles are turned into lower-grade products such as jacket fill, fleece, carpet, toys or plastic lumber. None of these products are in turn recyclable. The final destination for all plastic is either a landfill, where it doesn't decompose, or an incinerator, where it releases harmful chemicals when burned.

Despite promotion of plastic recycling, plastic production has outpaced recycling by five times over the past decade. For example, only one in eight plastic water bottles are currently recycled, the rest are garbage or litter (Container Recycling Institute, <http://www.container-recycling.org>). While increasing the current recycling rate is essential it has only limited potential to reduce the glut of plastic waste. Is it time to reconsider plastic altogether?!

It feels like plastic is everywhere and it might be hard to eliminate plastic from your life completely, but even the smallest choices help. Start with eliminating single serve and

disposable plastics, like plastic bags and water bottles. Look for products with less packaging that are made out of materials that can be recycled or composted. Buy in bulk and use reusable containers. The little choices that you make every day really do make an impact, especially when it comes to plastic.

For more information

Learn more!

About water: www.onthecommons.org

About water bottles: www.eurekarecycling.org

About water bottles: www.container-recycling.org

About plastics & food: see these fact sheets from the Institute for Agriculture and Trade Policy:

[Smart Plastics Guide Healthier Food Uses of Plastics](http://www.healthobservatory.org/library.cfm?RefID=77083)

<http://www.healthobservatory.org/library.cfm?RefID=77083>

[Smart Plastics: Common Questions and Answers](http://www.healthobservatory.org/library.cfm?RefID=102296)

<http://www.healthobservatory.org/library.cfm?RefID=102296>

About PVC plastics: visit www.grm.org

About health concerns with plastic: www.mindfully.org

About water bottles and tap water: www.newdream.org/water/index.php

About healthy alternatives to plastics: <http://www.healthylegacy.org/>