

IMPORTANT BASIC PLASTIC INFO AND TIPS – EMPOWER YOURSELF, BECOME PLASTIC AWARE!

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Plastic is all around us. It forms much of the packaging for our food and drink. For many of us, it is throughout our home, our workplace, our car and the bus we take to and from work. It can be in our clothing, eyeglasses, teeth, computers, phones, dishes, utensils, toys. The list goes on.

Plastic is versatile, lightweight, flexible, moisture resistant, durable, strong and relatively inexpensive. It can be chemical resistant, clear or opaque, and practically unbreakable. These are wonderful useful qualities, and plastic plays many important roles in life on Earth, but the widespread use of plastic is also causing unprecedented environmental problems, and harbours serious health risks – especially for children. Plastic should be used wisely, with caution and only when suitable alternatives do not exist or are not available.

Environmental Problems

Environmentally, plastic is a growing disaster. Most plastics are made from petroleum, a non-renewable resource extracted and processed using energy-intensive techniques that destroy fragile ecosystems. Plastic packaging – especially the ubiquitous plastic bag – is an enormous source of landfill waste and is regularly eaten by numerous marine and land animals, to fatal consequences.

Health Risks

In terms of health risks, the evidence is growing that chemicals leached from plastics used in cooking and food/drink storage are harmful to human health. The most disturbing of these are hormone (endocrine) disrupters, such as Bisphenol A (BPA), which can stimulate the growth of cancer cells. Exposure to BPA at a young age can cause genetic damage, and BPA has been linked to recurrent miscarriage in women. The health risks of plastic are significantly amplified in children, whose immune and organ systems are developing and are more vulnerable. The manufacture of plastic, as well as its destruction by incineration, pollutes air, land and water and exposes workers to toxic chemicals, including carcinogens. The evidence of health risks from certain plastics is increasingly appearing in established, peer-reviewed scientific journals.

Plastic Types, Characteristics... Dangers

Fortunately, consumers have a way to identify the type of plastic in many products, especially food storage containers and packaging. Many, but not all, such plastic products have a number – the resin identification code – molded, formed or imprinted in or on the container, often on the bottom. This system of coding was developed in 1988 by the U.S.-based Society of the Plastics Industry to facilitate the recycling of post-consumer plastics. It is voluntary for plastic manufacturers, but has become relatively standard on certain plastic products sold globally. Knowing the code for a particular product, consumers can then inform themselves of the characteristics of the plastic and the risks of using that

product.

The seven plastic resin codes are each briefly described below to provide a quick snapshot detailing the name of the resin (i.e., the base material of the plastic), typical products it is found in, dangerous chemicals it leaches, and why they are dangerous.

Polyethylene terephthalate (PET or PETE) – Used in soft drink, juice, water, beer, mouthwash, peanut butter, salad dressing, detergent and cleaner containers. Leaches Antimony trioxide: workers exposed to antimony trioxide for long periods of time have exhibited respiratory and skin irritation; among female workers, increased incidence of menstrual problems and miscarriage; their children exhibited slower development in the first twelve months of life. The longer a liquid is left in such a container the greater the concentration of antimony released into the liquid.

High density polyethylene (HDPE) – Used in opaque milk, water, and juice containers, bleach, detergent and shampoo bottles, garbage bags, yogurt and margarine tubs, cereal box liners. Our research on risks associated with this type of plastic is ongoing.

Polyvinyl chloride (V or Vinyl or PVC) – Used in toys, clear food and non-food packaging (e.g., cling wrap), some squeeze bottles, shampoo bottles, cooking oil and peanut butter jars, detergent and window cleaner bottles, shower curtains, medical tubing, and numerous construction products (e.g., pipes, siding). PVC has been described as one of the most hazardous consumer products ever created. Leaches di(2-ethylhexyl) phthalate (DEHP) or butyl benzyl phthalate (BBzP), depending on which is used as the plasticizer or softener (usually DEHP). DEHP and BBzP are endocrine disruptors mimicking the female hormone estrogen; have been strongly linked to asthma and allergic symptoms in children; may cause certain types of cancer; linked to negative effects on the liver, kidney, spleen, bone formation and body weight. In Europe, DEHP and BBzP and other dangerous phthalates have been banned from use in plastic toys for children under three since 1999. Not so elsewhere, including Canada. There is currently a similar NDP Private Members Bill (C-307) before the House of Commons, but the chances of it passing appear slim.

Low density polyethylene (LDPE) – Used in grocery store, dry cleaning, bread and frozen food bags, most plastic wraps, squeezable bottles (honey, mustard). Our research on risks associated with this type of plastic is ongoing.

Polypropylene (PP) – Used in ketchup bottles, yogurt and margarine tubs, medicine and syrup bottles, straws, Rubbermaid and other opaque plastic containers, including baby bottles. Our research on risks associated with this type of plastic is ongoing.

Polystyrene (PS) – Used in Styrofoam containers, egg cartons, disposable cups and bowls, take-out food containers, plastic cutlery, compact disc cases. Leaches styrene, which is an endocrine disruptor mimicking the female hormone estrogen, and thus has the potential to cause reproductive and developmental problems; long-term exposure by workers has shown brain and nervous system effects;

adverse effects on red blood cells, liver, kidneys and stomach in animal studies. Also present in secondhand cigarette smoke, off-gassing of building materials, car exhaust and possibly drinking water. Styrene migrates significantly from polystyrene containers into the container's contents when oily foods are heated in such containers.

Other – The catch-all category; often indicates the presence of polycarbonate, which is used in most plastic baby bottles (!), clear plastic “sippy” cups, Nalgene brand and other “sports” water bottles, three and five gallon large water storage containers, metal food can liners, some juice and ketchup containers, compact discs, cell phones, computers. Leaches Bisphenol A (some effects described above), and numerous studies have indicated a wide array of possible adverse effects from low-level exposure: chromosome damage in female ovaries, decreased sperm production in males, early onset of puberty, various behavioural changes, altered immune function, and sex reversal in frogs.

Important Note: Two other types of plastic that fall under code 7 are acrylonitrile styrene (AS) or styrene acrylonitrile (SAN), and acrylonitrile butadiene styrene (ABS). Both AS/SAN and ABS are higher quality plastics with increased strength, rigidity, toughness and temperature and chemical resistance. AS/SAN is used in mixing bowls, thermos casing, dishes, cutlery, coffee filters, toothbrushes, outer covers (printers, calculators, lamps), battery housing. The incorporation of butadiene during the manufacture of AS/SAN, produces ABS, which is an even tougher plastic. ABS is used in LEGO toys, pipes, golf club heads, automotive parts, protective head gear. Our research on risks associated with AS/SAN and ABS is ongoing.

WHAT THIS MEANS FOR YOUR EVERYDAY PLASTIC USE: You may wish to seriously consider your – and especially your children's – use of plastics numbered 1, 3, 6 and 7 (polycarbonate), all of which have been shown to leach dangerous chemicals. This does not necessarily mean the others are completely safe, just that they have been studied less to date.

So if you have to use plastic, it is safest to stick to numbers 2, 4, 5 and 7 (other than polycarbonate) whenever possible.

If an item does not have a plastic code on it, or if the type of plastic is unclear from the code (e.g., with #7, it likely will not say it is polycarbonate), your best bet is to contact the manufacturer and ask them directly what type of plastic was used to make the product.

If you are interested in digging deeper and obtaining more evidence on the risks of plastic use, take a look at the more detailed Plastic Types Table, which is constantly being updated with new information and research studies: [plastic_types_jan07.pdf](#).

Plastic Tips

Here are some simple tips to help you in working toward a life without plastic, or a life of safer, more informed plastic use.

Avoid polycarbonate (#7) baby bottles and sippy cups. For baby bottles, try and use glass (e.g., Evenflo), polyethylene (e.g., Evenflo, Medela, Playtex) or polypropylene (e.g., Gerber, Medela) instead. Sippy cups made of stainless steel (e.g., Kleen Kanteen), or of polypropylene or polyethylene (e.g., Avent, Evenflo, First Years, Gerber, Playtex) are safer. Be sure to check the bottle or cup to be sure of the type of plastic it contains. As for baby bottle nipples, try and use silicone which does not leach the carcinogenic nitrosamines that can be found in latex.

If you must use polycarbonate (#7) bottles, avoid heating food and drink in the bottle. Heat it in a separate container and transfer it to the bottle once it is warm enough for the child to eat or drink. If the plastic is showing signs of wear – scratched, cloudy – discard the container.

For drinking water, try and avoid plastic bottles. If you do use plastic bottles made from #1 or #2 plastic try not to reuse them as they are intended only for single use. One alternative is a stainless steel water bottle. For storing large quantities of water, glass and stainless steel containers are also available. If you use a #1 water bottle, try to consume the contents as soon as possible because leaching of antimony increases with time.

Try to avoid heating foods in plastic containers, especially in the microwave oven, which can cause the plastic to degrade and leach chemicals faster. As well, leaching increases when plastic comes into contact with oily or fatty foods, or when the plastic is scratched, worn, cracked, or sticky.

Use plastic wraps with caution, especially in the microwave, and try to keep the plastic from touching the food. Alternatives include wax paper or paper towels.

Try and use alternatives to plastic packaging and storage containers. Cloth, paper or cardboard are possibilities for transporting groceries. Stainless steel and glass food storage containers are available. Avoid plastic dishes and utensils for meals. Alternatives include glass, ceramic, wood, stainless steel, and lacquer ware. Offer your child or grandchild a non-plastic dish set made of either stainless steel or wood (safely coated using the Japanese lacquer technique). ag