








PLASTICS GUIDE

SYMBOL	TYPE OF PLASTIC	ITEMS IT CAN BE MADE INTO	FURTHER INFORMATION
	PETE or PET polyethylene terephthalate	clear plastic bottles for water, juice, soft drinks, mouthwash, salad dressing; clear plastic food containers and trays, lids for take-out drink cups	<ul style="list-style-type: none"> contains the chemical antimony, a suspected carcinogen leaches chemicals having estrogenic activity (EA) accepted most places for recycling without caps and lids
	HDPE high density polyethylene	opaque plastic bottles for juice, milk, shampoo, conditioner, laundry detergent, bleach; drink bottle caps, plastic bags, buckets	<ul style="list-style-type: none"> leaches chemicals having estrogenic activity (EA) accepted most places for recycling without caps and lids
	PVC polyvinyl chloride	bottles for cooking oil, peanut butter; cling wrap, vinyl shower curtains, toys (including pool toys, rubber duckies), tubing, upholstery, wire insulator	<ul style="list-style-type: none"> cancer causing dioxins are released into the atmosphere from PVC production contains phthalates which cause cancer leaches chemicals having estrogenic activity (EA) not accepted for recycling - least recyclable plastic
	LDPE low density polyethylene	bags (for groceries, dry cleaning, newspapers, bread, frozen foods, produce), six-pack rings, caps and lids	<ul style="list-style-type: none"> leaches chemicals having estrogenic activity (EA)
	PP polypropylene	containers for yogurt, soup, margarine, syrup; rigid caps and lids, food storage containers, straws, bottles for medicines and supplements	<ul style="list-style-type: none"> leaches chemicals having estrogenic activity (EA) accepted in some places for recycling
	PS polystyrene	styrofoam food trays, disposable cups, plates, bowls, clamshell containers, egg cartons, styrofoam packaging, opaque plastic cutlery, CD and DVD cases, lids for take-out coffee cups	<ul style="list-style-type: none"> leaches styrene, a known carcinogen into hot food and drinks. Styrene is toxic to the brain and nervous system leaches chemicals having estrogenic activity (EA) not accepted for recycling
	OTHER includes polycarbonate	baby bottles, 5-gallon water dispensers, "sport" water bottles, inner linings of food and drink cans, medical devices, bicycle helmets	<ul style="list-style-type: none"> polycarbonate plastic leaches bisphenol A (BPA), an endocrine disruptor into food and drinks BPA is linked to breast cancer, prostate cancer, diabetes and obesity leaches chemicals having estrogenic activity (EA) not accepted for recycling

Sources: Institute for Agriculture and Trade Policy; EPA; "Our oceans are turning into plastic...are we?" Best Life Magazine, November 2006; "Most Plastic Products Release Estrogenic Chemicals" (Yang et al, 2011).

© Beach Environmental Awareness Campaign Hawai'i, 2014


About plastic


Most plastic is made from oil. The oil is turned into nurdles (pre-production plastic pellets or resin) which are then melted and chemicals are added to give the plastic specific qualities such as flexibility, strength and durability. All plastic contains chemicals and these can harm our health.


Estrogenic activity (EA)

Chemicals that mimic the action of estrogen, defined as having estrogenic activity (or EA) have been found to leach from every type of plastic (numbers 1–7) and even from “BPA free” plastic products. These chemicals are released from plastic when the item is exposed to heat such as sunlight, microwaving and dishwashing.

Some of the chemicals in plastic

 **Polyvinyl chloride (PVC)** poses risks to the environment and human health. PVC is linked to reproductive problems and cancer.

 **Polystyrene** leaches styrene which is toxic to the brain and nervous system. Do not buy hot food and drinks in styrofoam containers.

 **Bisphenol-A (BPA)** is a chemical that mimics the action of the human hormone estrogen and is referred to as an endocrine disruptor. BPA is linked to breast cancer, prostate cancer, diabetes and obesity. BPA leaches from the plastic inner lining of canned food and drinks, 5 gallon water dispensers and from other polycarbonate containers.

Phthalates leach from many plastic products such as food wrap and children’s toys. Phthalates cause disruption to the endocrine system and are linked to male reproductive problems. Phthalates are combined with the flame retardant additive **polybrominated diphenyl ethers (PBDE)** in car mouldings and cause the “new car smell” which is the plastic off gassing the plasticizers. PBDE has been shown to cause liver and thyroid toxicity, reproductive problems and memory loss in animal studies.

Polyvinyl alcohol (PVA) is dangerous to fish and is used to wrap detergent for dishwashers and washing machines. Never use pods. Plastic does not dissolve.

Do not buy products made from recycled marine debris as plastic in the ocean absorbs **persistent organic pollutants (POPs)** such as DDT, DDE and dioxins. POPs have been found to be concentrated up to one million times more on the surface of the plastic than in the surrounding sea water (Mato et al 2001). Therefore marine debris should not be used for consumer goods.

Safer choices for food and drinks

It is better to use fresh food rather than canned food. Store food, especially hot food and drinks in glass, ceramic or stainless steel. Also avoid heating food or drinks in plastic containers in the microwave because chemicals from the plastic leach out into the food or drink. For take-out food, request containers and utensils made out of 100% compostable vegetable fibres such as sugar cane or bring your own containers and utensils.

Not all plastic is recyclable

The triangular symbol with chasing arrows and a number found on the bottom of plastic products is the “resin identification code.” This code indicates the type of resin used in the item. The symbol is misleading because it looks as if the item is recyclable, however few plastics are accepted for recycling and only 3-5% of all plastics are ever recycled. Also different numbered plastics cannot be recycled together because they melt at different temperatures and contain different chemicals. To do recycling right, check the numbers and only put the right ones in the recycling bin.

Plastic is not biodegradable

There’s no such thing as “biodegradable plastic.” Any plastic item labelled “biodegradable” is misleading. There are no micro-organisms that breakdown plastic and therefore it is not biodegradable. Plastic photodegrades which means it breaks into smaller and smaller pieces when exposed to UV rays in sunlight but it never goes away. Plastic lasts forever.



a guide to PLASTICS



WWW.B-E-A-C-H.ORG