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Plastic not so fantastic

Are chemicals from plastic food containers as safe as the industry and regulators claim, or are they slowly poisoning us?

NUTSHELL

>> Although the risk is low, there's growing evidence that food can be contaminated by harmful chemicals from some types of plastic.

>> Many foods are packaged in these risky plastics, including fresh meat, gourmet cheese and even some health foods and organic vegetables.

>> There are safer alternatives, and CHOICE wants the industry to phase out these risky plastics.

Almost everything you buy at the supermarket comes in some sort of plastic container or wrapper. Plastic is cheap, convenient and hygienic – and much of it can be recycled. The industry and food regulators assure us the plastics used are perfectly harmless. But there's a growing body of scientific evidence suggesting some plastics are not quite as safe as we're being led to believe.

Moving hazards

Plastic as such isn't a problem. The polymer molecules from which it's made are far too big to move from the packaging material into the food. But plastic can also contain much smaller molecules, such as phthalates, that are free to migrate into the food it's in contact with.

• Polycarbonate (often used to make food storage containers and bottles, in particular bottles marketed for use by infants and small children) and the epoxy resin used to line cans can release bisphenol A (BPA), a chemical many experts now believe can cause serious health problems.

• PVC (used to make bottles, cling wrap and the seals for screw-cap jars) contains added chemicals known as plasticisers. On its own, PVC is hard and rigid (it's used to make drains, guttering and downpipes), so plasticisers are added to make it soft and flexible – in much the same way water added to clay makes it soft. Phthalates and DEHA (di-(2-ethylhexyl) adipate) are often added as plasticisers to the PVC that's used for food packaging; again, recent research raises doubts about the safety of these compounds.

Risk assessment

BPA and some phthalates are endocrine disruptors, meaning they can mimic the body's natural hormones and cause a raft of health problems. Infants and the very young are most vulnerable to exposure because of their lower body weight and because their growth and development are strongly influenced by hormones; the effects on health can be lifelong.

While these compounds are undoubtedly hazardous at high levels of exposure, scientific opinion is divided over the risk from the much lower levels that we're exposed to every day in our food. There is, however, growing scientific evidence that even at these lower levels of exposure, phthalates and BPA may be causing problems such as infertility, obesity, breast cancer, prostate cancer, heart disease and diabetes.

Bisphenol A BPA gets into our food via polycarbonate food containers and drink bottles, especially after repeated exposure to heat and detergent in a dishwasher. The epoxy resins used to line cans are another significant source. Our US sister organisation, the Consumers Union, recently tested 19 leading brands of canned food and found BPA in almost all of them. One of Australia's leading brands of canned foods, SPC Ardmona, told CHOICE a 2002 industry survey found no BPA in their products – but this was part of a study commissioned by the canned food industry that was not publicly released.

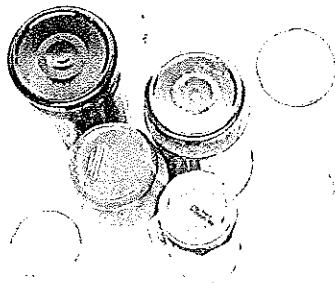
Most of us have detectable levels of BPA in our body tissue. Typical levels, however, are well below the daily upper limit of safe exposure set by the US Food and Drug Administration and European Food Safety Authority. However, a number of independent scientists recently expressed concern that this limit is based on experiments done in the 1980s, rather than on the hundreds of more recent animal and laboratory studies suggesting we could be at risk from much lower doses. In 2006, an international panel of 38 experts concluded that "the wide range of adverse effects of low doses of BPA in laboratory animals ... is a great cause for concern with regard to the potential for similar adverse effects in humans". A major US study has since identified a direct link between exposure to low levels of BPA and increased risk of diabetes and heart disease.

Not surprisingly, the plastics industry strenuously refutes these findings and continues to assert that BPA is harmless at the low levels to which we're regularly exposed in our food. But while the evidence is far from conclusive, there's

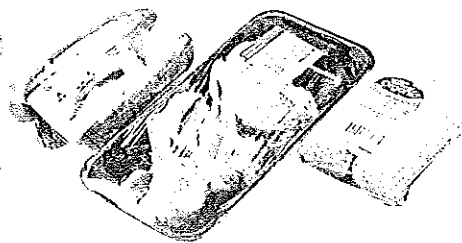
Australian regulators could do more to protect consumers against some potentially harmful chemicals in plastics, such as BPA

SOME PRODUCTS TO AVOID

CHOICE found far too many supermarket foods packed in risky plastics, including some health foods and organic vegetables – these are just a few. Plasticisers are more likely to migrate into fattier foods such as meat and cheese.



CHOICE tested food in glass jars (August 2008) and found plasticisers from the PVC used to seal the lids.



Fresh meat, fruit and vegetables wrapped in cling wrap The cling film you use at home is made from low-density polyethylene, but we found meat and fresh vegetables from supermarkets wrapped in PVC film; plasticisers can leach into the food.



Reusable polycarbonate bottles The more you wash them, the more BPA they release into your drink.

< now too much of it to be ignored. The underlying science is sound and the potential for such effects is real. Most experts agree that more research is needed, and in the US, \$14 million has been committed to research over the next two years on the health effects of low-level exposure to BPA. Meanwhile, the Canadian government is taking steps to prohibit sale and importation of polycarbonate baby bottles.

Phthalates Some phthalates can be endocrine disruptors but, as with BPA, the evidence for adverse health effects from low level exposure to phthalates is more limited. Again, though, there's too much of it to be ignored.

Because of its low cost, DEHP is the phthalate often used as a plasticiser for PVC. Experts now generally agree that low-level exposure to DEHP can affect reproductive development, particularly in young boys, and a US study found a link between exposure to phthalates and increased risk of diabetes and obesity in men. With other phthalates there's a worrying lack of information about health effects.

We tested 25 food products in glass jars with screw caps sealed with a PVC gasket (CHOICE, August 2008). Twelve contained phthalates at levels above the limit set by the EU, and one, a tandoori dip imported from India, contained DEHP at 230 times the EU limit.

What is the regulator doing?

The plastics industry has been fighting off tighter regulation. It's a huge industry with vast resources, and independent scientists have complained about an

aggressive disinformation campaign. Our regulators could do more to protect consumers; a lack of evidence of harm is not evidence of safety.








In Australia, the use of plastics for wrapping or packaging foods is governed by the Food Standards Code, which sets a limit for the level permitted in food of highly toxic vinyl chloride monomer (10 parts per billion) yet sets no specific limits for BPA, or phthalates. Food Standards Australia New Zealand (FSANZ), our food regulator, maintains that BPA and phthalates pose no significant health risks at the low levels found in food. FSANZ told CHOICE it plans to review the approach to regulating food packaging materials, but for now assesses the risk from individual chemicals on a case-by-case basis.

The National Industrial Chemicals Notification and Assessment Scheme (NICNAS) told CHOICE they are aware of concerns and are conducting a thorough investigation, focusing on the use of specific phthalates (including DEHP) in childcare articles, toys, and cosmetics.

What CHOICE wants

- ▶ Manufacturers to phase out PVC and polycarbonate in baby products and food packaging, and phase out BPA-based plastic lining for food and drink cans.
- ▶ The federal government to implement the Productivity Commission's recommendation to establish a more systematic research program on the risks from chemicals in consumer articles.

PLASTIC CONTAINERS

Identification code	Type of plastic	Uses	Risks
	Polyethylene terephthalate (PET)	<ul style="list-style-type: none"> › Bottles used for bottled water and soft drinks › Jars for products such as peanut butter › Lightweight and "green" wine bottles 	No known health hazards.
	High density polyethylene (HDPE)	<ul style="list-style-type: none"> › Bottles used for milk and cream › Yoghurt cups › Bags that line breakfast cereal packets 	No known health hazards.
	Polyvinyl chloride (PVC)	<ul style="list-style-type: none"> › Shrink and cling wrap › Clear plastic containers for fresh fruit or take-away sandwiches › Some soft drink bottles › Gaskets that form a seal on screw-cap glass jars 	Contains plasticisers such as DEHA or phthalates that can leach into food.
	Low density polyethylene (LDPE)	<ul style="list-style-type: none"> › Take-away containers › Waterproof coating on milk cartons › Bags used for bread and frozen foods › Cling wrap 	No known health hazards.
	Polypropylene (PP)	<ul style="list-style-type: none"> › Bottle caps › Yoghurt and margarine containers › Food storage boxes 	No known health hazards.
	Polystyrene (PS)	<ul style="list-style-type: none"> › Plastic cutlery › Drinking cups and yoghurt cups › Cups for hot coffee (polystyrene foam) › Lightweight trays used by supermarkets to package meat and sometimes vegetables (polystyrene foam) 	Researchers have investigated possible health risks from traces of styrene monomer. This risk seems to be low.
	This number is used as a catch-all for any other plastics, one of which is polycarbonate	<ul style="list-style-type: none"> › Bottles for sauces and condiments › Babies' feeding bottles and infants' drinking cups › Reusable water bottles for cyclists or bushwalkers 	Polycarbonate can release BPA into the food, especially when bottles are washed for reuse.

What you can do

Most food and drink is packaged in containers made from plastics that seem to be harmless (see table, above). There's no real need for food manufacturers to use packaging or wrapping made from polycarbonate or PVC, but there are still far too many products in the supermarkets where the food is in contact with these potentially harmful plastics (see Some Products to Avoid, top left). But there are steps you can take to reduce your exposure to them.

› You can often identify the type of plastic from its identification code (see table, above), but this code is voluntary so you won't find it on all plastic packaging. Look for the codes 1 (PET), 2 (HDPE), 4 (LDPE), 5 (PP) and 6 (PS). Where possible, avoid foods or beverages that have been in contact with plastics with the symbol 3 (PVC) or 7 (a catch-all category that includes polycarbonate).

› Avoid fresh meat, fruit or vegetables wrapped in cling wrap. Most cling wrap sold for domestic use is now made from low density polyethylene (4), which seems to be safe. But supermarkets and many independent butchers and greengrocers are still wrapping meat and fresh vegetables in cling wrap made from PVC (3).

› Avoid reusable plastic bottles with the symbol 7 (or look for product labels that say "BPA-free"). Keep in mind that heating and washing polycarbonate bottles can increase the amount of BPA that leaches out.

› Consider cutting down on canned foods, as can linings can leach BPA directly into food.

› While some plastics such as polypropylene (often used for take-away containers) seem to be OK, as a general rule it's probably safer to avoid using any plastic containers when cooking or reheating food in a microwave oven. Always use glass containers for high-fat foods, as toxic chemicals are more likely to migrate into fatty foods at high temperatures. Some of the microwaveable ready meals CHOICE tested (see Time-Critical Food, page 26) were in containers with the symbol 7 – possibly not a healthy choice.

› Send any plastic packaging you can't identify or have concerns about to Plastic Packaging, CHOICE, Reply Paid 63621, Marrickville, NSW 2204. We'll take them all to Nicola Roxon, Minister for Health and Ageing, with a request for action on harmful chemicals. ■

Avoid fresh meat, cheese, fruit or vegetables at supermarkets that are wrapped in cling film – they may still use PVC