



This information sheet is about plastics and how they influence your cancer risk. It is based on research evidence and has been written for the general public.

Key Messages

There is limited evidence of a link between the use of plastics for food packaging and wrapping and cancer.

It is important to follow directions to store, heat or cook food in plastic.

Plastic containers can be re-used but should be replaced if damaged.

Limited exposure to BPA is recommended.

There has been quite a lot of talk about the safety of plastics in recent years with people worried about the cancer risk linked with:

- freezing water in plastic water bottles
- re-using plastic water bottles
- leaving plastic water bottles exposed to heat or the sun (for example in a car)
- the plasticisers in plastic food wrap getting into food
- microwaving foods in plastic containers or covered with food wrap
- BPA being used in food packaging and babies bottles
- plastic bottles and food containers containing dioxin.

Plastic drink bottles

Plastic drink bottles, particularly water bottles, are generally made of polyethylene terephthalate (PET). Two of the chemicals used in making this kind of plastic, di-ethylexyl adipate (DEHA) and di-ethylhexyl phthalate (DEHP) have been rumoured to cause cancer but neither are classed as being carcinogenic (cancer causing). There is no evidence that they have other harmful effects on humans.

Freezing water in plastic bottles is not a risk because cold temperatures lower the chance of chemicals being released from the plastic.

Water bottles can be safely re-used but should be well washed in hot soapy water often to make sure they do not pick up germs. If bottles become damaged or begin to deteriorate (break down) use a new one.

Only use plastics labelled as safe to use in microwaves because at high temperatures other plastic may release chemicals which could be harmful. However, plastic will not get hot enough to release these chemicals if left in the car or in the sun.

Plastic food wrap and containers

Plastic food wrap and flexible plastic food containers are, generally, made from polyvinyl chloride (PVC). Research has found DHEA, one of the plasticiser chemicals contained in PVC to make it flexible, can be released and absorbed by fatty foods, such as meat and cheese, when they are wrapped or microwaved/heated in these plastics.

The International Agency for Research on Cancer says there is not enough evidence to suggest DHEA causes cancer. Most research shows the level of plasticisers consumed as a result of using plastic wrap is well below levels which show poisonous effects in animal studies. Some researchers also suggest animal studies are not a reliable way to judge the risk to humans. However, because not enough is known about the risks it's wise to reduce unnecessary exposure (cut down on any contact);

- do not use plastic wrap in the microwave unless it is labelled as microwave safe
- do not use plastic containers not meant for cooking or heating food (for example ice cream or yoghurt containers) to heat/microwave foods
- do not use plastic containers not meant for food to store food (for example cosmetics or household chemical containers)
- use heat-proof glass, ceramic or stainless steel containers for hot food or liquids and especially for heating, cooking or microwaving. Do not use stainless steel in the microwave.

BPA - Bisphenol A

Polycarbonate is a type of plastic that is clear, lightweight, heat resistant, and shatter resistant. This makes it useful for food and drink packaging (for example water and infant bottles and plastic tableware). Bisphenol A (BPA) is found in polycarbonate plastics. Plastics labelled with the number 7 are likely to contain BPA. It is also used to coat metal products such as food cans and bottle tops.

Very small amounts of BPA can transfer from the packaging into food and drinks.

What are the health effects of BPA?

It's possible BPA might affect the hormone system in people's bodies but there is disagreement amongst scientists about the effects of low levels of BPA on health.

BPA belongs to a group of substances which can act in a similar way to some hormones and are sometimes called 'endocrine disruptors'. Studies in laboratory animals suggest low levels of (consumed) BPA may have an effect on the reproductive system. Some recent studies provide reason for some concern about the possible effects of BPA on normal hormone functions. However, there are questions about the results of these studies and what they could mean for the health of humans exposed to BPA. The effect of BPA on cancer risk is currently unknown. Because there is doubt, we recommend as little BPA exposure as possible.

BPA contact can be cut down by:

- not microwaving polycarbonate plastic food containers. Polycarbonate is strong and durable, but over time it may break down from over-use at high temperatures
- avoiding plastic containers with the number 7 on the bottom
- using less canned foods and not storing food in opened cans
- when possible, using glass, porcelain or stainless steel containers, particularly for hot food or liquids
- using baby bottles that are labelled as BPA free.

Many international agencies and government organisations are carrying out more studies to see if there is a real risk to humans.

Dioxin in plastic

Dioxins are organic environmental pollutants released by burning of waste, especially PVC and some chemicals used in hospitals. These dioxins, after being released into the air, are taken up by fish and animals and stored in fat. People are exposed to dioxins most by eating meat, dairy foods, eggs and fish. The Ministry of Health says contact with dioxin for the New Zealand general population is at the low end of the range of levels reported internationally of exposure to dioxin.

Plastics used for food and water do not contain dioxins.

Summary

Currently, there is limited scientific evidence suggesting a link between the use of plastics for food packaging and wrapping and cancer. The general safety of many of these, and other, chemicals is constantly under review throughout the world. At this time, effects from plastics cannot be ruled out so it is important to follow directions when using plastics to store, heat or cook food.