

# Per- and poly- fluoroalkyl substances (PFASs) Factsheet

## What are per- and poly- fluoroalkyl substances?

Per- and poly- fluoroalkyl substances, also known as “PFASs”, are a large group of manufactured chemicals. This group of chemicals includes perfluorooctanesulfonic acid (PFOS) and the related chemicals perfluorooctanoic acid (PFOA) and perfluorohexanesulfonic acid (PFHxS).

PFASs have been used since the 1950's in a range of common household products and in some specialty applications. These include in the manufacture of non-stick cookware; fabric, furniture and carpet stain protection applications; food packaging; some industrial processes; and in some types of fire-fighting foam.

## Why are these chemicals being phased out?

The manufacture and use of some PFASs is being discontinued or limited by manufacturers primarily because of their persistence in the environment. PFASs break down very slowly in the environment, so they tend to accumulate in the food chain and in human tissue. There is potential for unforeseen effects resulting from accumulating levels, and difficulty in removing these chemicals from the environment once they are released.

Industry has been advised to actively seek alternatives to PFOA, and ultimately to aim to phase out use of these substances. In Queensland, existing stocks of firefighting foams containing PFOS and PFOA are being withdrawn from service at commercial and industrial premises, and similar products phased out and replaced with more sustainable alternatives. However, chemicals in this group may be present in the environment due to historic use or release from pre-treated articles imported into Australia.

## How are people exposed to PFASs?

PFASs are found at very low levels in the blood of the general population all over the world. The general public are exposed to small amounts of PFASs in everyday life through exposure to dust, air, food, water and contact with consumer products. For most people, food is thought to be the most important source of exposure. Treated carpets and floors treated with waxes and sealants that contain PFASs can be an important source of exposure for babies and infants.

PFASs may be readily absorbed through the gut and are not metabolised or broken down in the body. These chemicals are only very slowly eliminated from the body. Studies have shown that Australians have small amounts of PFASs in their blood. PFASs can also be found in urine and breast milk.

People who work in industries that use PFASs, or use products containing these chemicals, may be exposed to higher levels than the general public.

Where larger quantities of PFASs have been released into the environment, communities located near those sites may be exposed to higher levels than the general public. It is important to understand how people living near contaminated areas may come into contact with PFASs so that exposure may be minimised. This could include by examining in detail the pathways through which people could be exposed to these chemicals.

## What if I live in a contaminated area?

If you live in or near a contaminated area, advice will be provided to your community on possible exposure. The advice will include information on how you may be exposed, and what actions you can take to reduce your exposure. This advice will be specific to the particular site, and information provided to communities in other areas may not apply to you. The extent of contamination, the movement of the chemicals in the environment, and likely routes of exposure will be different at different sites.

## How can people reduce the risk of exposure to PFASs?

In areas where contamination of water (for example in underground, springs, water bores, dams, ponds or creeks) has been identified, human exposure can be minimised by:

- not drinking the water or using it to prepare food
- not consuming food products (for example, eggs, milk, meat, fish, fruit or vegetables) grown or produced using, or in, contaminated water
- avoiding or minimising the use of the water for showering/bathing, sprinklers or to fill swimming pools or paddling pools due to the possibility of unintentionally drinking the water.

If people are concerned about use of contaminated water, an alternative water source, if available, may be considered for poultry and use on home-grown crops.

## Are there any health effects linked to PFASs in humans?

The potential effects of exposure to PFASs to human health continue to be studied. These studies involve laboratory animal studies, as well as occupationally exposed workers (i.e. manufacturing workers), residents in communities with higher exposure and studies of the general population in the USA and other countries.

Adverse health effects have been demonstrated in animal studies, but at much higher exposure levels than are found in people.

Much of the research on humans has been done with people who were exposed to relatively high levels of PFASs through their work, for example. workers involved in the manufacture or use of PFASs who usually have higher blood PFAS levels than the general public. These studies have looked for effects on cholesterol levels, male hormones, heart disease, liver changes and other effects, including cancer. These studies have not consistently shown that PFAS exposure is linked to health problems.

Whether PFASs cause health problems in humans is currently unknown, but on current evidence the potential for adverse health effects cannot be excluded. Also, because the elimination of PFASs from the human body is slow there is a risk that continued exposure to PFASs could result in adverse health effects due to accumulation of the chemicals in the body over time. As a precaution, people living in or near an area that has been identified as having been contaminated with PFASs should take steps to limit their exposure to these chemicals.

## Should I get my blood tested?

Blood tests are not recommended to determine whether any medical condition is attributable to exposure to PFASs and have no current value in informing clinical management, including diagnosis, treatment or prognosis in terms of increased risk of particular conditions over time.

Blood testing will provide information on whether you have been exposed to a higher level of these chemicals than the rest of the Australian population.

It takes a very long time for levels of these chemicals to reduce in humans, with the levels of some taking three to eight years to reduce by half if there is no ongoing exposure. This means that levels in the blood now may reflect exposure from years ago, not necessarily recent exposure.

Anyone concerned about their own health or that of family members should talk to their GP or call 13HEALTH (13 43 25 84).