



## Health Based Guidance Values for PFAS

The Department of Health, Food Standards Australia New Zealand (FSANZ) and the National Medical Research Council (NHMRC) have developed health based guidance values for perfluorooctane sulfonate (PFOS), perfluorooctanoic acid (PFOA) and perfluorohexane sulfonate (PFHxS), which belong to a group of chemicals known as per- and poly-fluoroalkyl substances (PFAS).

These values aim to protect the general community from exposure to PFAS from food, drinking water and recreational water.

The guidance values are available in FSANZ's *Hazard Assessment Report – PFOS, PFOA and PFHxS*, NHMRC's *Australian Drinking Water Guidelines* (2011) and the *Guidelines for Managing Risks in Recreational Water* (2008).

The health based guidance values are protective of human health; are a precautionary measure for use when conducting site investigations; and are to assist in providing advice to affected communities on how to minimise exposure to PFAS.

### What is a health based guidance value?

Health based guidance values indicate the amount of a chemical in food or drinking water that a person can consume on a regular basis over a lifetime without any significant risk to health. Health based guidance values can be expressed as a tolerable monthly intake (TMI), a tolerable weekly intake (TWI) or a tolerable daily intake (TDI). The choice of whether a TMI, TWI or TDI is set depends on the nature of the chemical.

Health based guidance values can also be used to calculate guideline values for certain exposure scenarios (such as those derived for drinking water or recreational water by NHMRC) to set a level or threshold of a substance that is protective of human health.

### Health based guidance values for use in site investigations in Australia

FSANZ has recommended health based guidance values for PFOS and PFOA in the form of a tolerable daily intake. A tolerable daily intake is a level of daily oral exposure over a lifetime that is considered to be without significant health risk for humans.

Based on FSANZ's recommended tolerable daily intake, NHMRC has issued drinking water quality and recreational water quality guideline values for use in site investigations in Australia. These health based guideline values are levels at which the chemicals may be present in drinking or recreational water without presenting a risk to public health.

The health based guidance values for use in site investigations in Australia are:

Health based guidance value	Total PFOS+PFHxS	Total PFOS+PFHxS	PFOA	PFOA
	<i>ng</i>	$\mu$ <i>g</i>	<i>ng</i>	$\mu$ <i>g</i>
Tolerable daily intake ( <i>ng</i> or $\mu$ <i>g</i> / <i>kg</i> bw/ <i>day</i> )	20	0.02	160	0.16
Drinking water quality guideline value ( <i>ng</i> or $\mu$ <i>g</i> / <i>L</i> )	70	0.07	560	0.56
Recreational water quality guideline value ( <i>ng</i> or $\mu$ <i>g</i> / <i>L</i> )	2,000	2.0	10,000	10.0

Note: bw = body weight, ng = nanograms,  $\mu$ g = micrograms

### How did FSANZ determine the health based guidance values?

The tolerable daily intake for PFOS and PFOA are derived from the results of toxicity studies in laboratory animals. FSANZ concluded that the current available epidemiological data on human health is not suitable to support the derivation of tolerable daily intake levels for PFOS and PFOA.

A pharmacokinetic modelling approach was used to extrapolate data for humans, noting that animal physiology is not the same as human.

For PFHxS, FSANZ concluded that there was not enough toxicological and epidemiological information to justify establishing a tolerable daily intake. However, as a precaution, and for the purposes of site investigations, the PFOS tolerable daily intake should apply to PFHxS. In practice, this means that the level of PFHxS exposure should be added to the level of PFOS exposure; and this combined level be compared to the tolerable daily intake for PFOS.

The tolerable daily intakes include conservative assumptions to ensure the protection of public health.

FSANZ's report and recommended health based guidance values have been nationally and internationally peer reviewed.

### How did NHMRC determine the guideline values?

NHMRC used the TDIs developed by FSANZ with the methodology outlined in Section 6.3.3 in the *Australian Drinking Water Guidelines* to calculate the health based guideline values for PFAS in drinking water. [Please refer to the Australian Drinking Water Guidelines for more detail on the methodology used.](#)

The health based guideline values for PFAS in recreational water were derived using the TDIs developed by FSANZ along with a new methodology that uses current Australian estimates of recreational water use. Please refer to NHMRC's *Guidance on per- and poly-fluoroalkyl substances (PFAS) in recreational water* for more information on the methodology used.

Recreational water guideline values vary from drinking water guideline values because when people are in contact with water for recreational purposes, for example swimming, they are less likely to consume the water in terms of volume and frequency. This decreases the risk of exposure to recreational water. The recreational water use takes into account current estimates on how often Australians use lakes, rivers and coastal water over the course of a year and how much water people might swallow when participating in these activities.

Both the recreational water and the drinking water guideline values are precautionary and protective of human health. The guideline values include a wide safety margin and are expected to be well below the level at which any negative effects could occur.

NHMRC developed this advice with the [Water Quality Advisory Committee](#) and in consultation with the Australian Government Environmental Health Standing Committee (enHealth).

### How do health based guidance values impact communities affected by PFAS contamination?

Commonwealth agencies and other organisations that conduct site investigations for PFAS contamination can use the health based guidance values to assist in assessing human health risk. Agencies or organisations that have recently conducted human health risk assessments for PFAS contamination may review their assessments and advice based on the health based guidance values.

Advice on reducing exposure to PFAS will vary with each location so you should follow the most current advice provided by your state or territory government, and if available, the human health risk assessment for your area conducted by the investigating agency.

### Where can I get further information?

For further information regarding health based guidance values and the Department of Health's response to PFAS contamination, please visit the [Department of Health website \(health.gov.au/pfas\)](https://www.health.gov.au/pfas)

[For further information on PFAS related material from FSANZ, please visit FSANZ's website here.](#)

[For further information on PFAS related material from the NHMRC, please visit NHMRC's website here.](#)

Alternatively you can contact the Department of Health by phone on 1800 941 180 or by email: [health.pfas@health.gov.au](mailto:health.pfas@health.gov.au)