



Fluoride facts for Western Australia

This factsheet has been written to provide accurate information about the type, source quality and quantity of fluoride used to treat drinking water supplies in Western Australia.

In Western Australia the following compounds containing fluoride are used to treat drinking water supplies:

- **fluorosilicic acid** (a compound of fluorine, hydrogen and silicon). This is the most common method of adding fluoride to scheme drinking water in WA. A very small amount of fluorosilicic acid is dosed to drinking water as a liquid which then dissolves to release fluoride.
- **sodium fluoride** (a compound of fluorine and sodium). Sodium fluoride is delivered as a powder which is dissolved and dosed into the scheme drinking water supply. Sodium fluoride is used in some of the smaller drinking water schemes in WA.
- **sodium fluorosilicate** (a compound of fluorine, hydrogen and silicon). This form of fluoride is delivered as a powder, mixed into a solution and then dosed into the scheme drinking water supply. This substance is used to treat the Derby drinking water supply.

Where does the fluoride that is used to treat drinking water come from?

- **Fluorosilicic acid** is sourced as a by-product from superphosphate production. Phosphate rock and sulphuric acid are the main raw materials used to make fluorosilicic acid. This is the most common way of making fluoride found around the world. The fluorosilicic acid used in WA comes from CSBP Kwinana, with a smaller amount imported from New Zealand.
- **Sodium fluoride** is produced by neutralizing hydrofluoric acid with soda ash or reacting sodium fluorosilicate with caustic soda or soda ash. This product comes from Orica and from Bisely and Co NSW.
- **Sodium fluorosilicate** is produced by neutralising sodium fluorosilicic acid with sodium chloride or caustic soda. This product comes from Redox Pty Ltd NSW.

How pure are the products used to fluoridate drinking water?

- All chemicals added to drinking water including fluorosilicic acid, sodium fluoride and sodium fluorosilicate must meet the quality standards specified in the "Australian Drinking Water Guidelines", as published by the National Health and Medical Research Council and be approved by the Department of Health for addition to drinking water.
- The licensed water provider is also required to apply its own strict quality control processes and monitoring programs to ensure that any product added to drinking water meets the highest levels of purity.



How much fluoride is added to drinking water?

- The quantity of fluoride used to treat drinking water varies across WA. The amount used depends on the annual average maximum daily air temperature, and the amount of fluoride from other sources such as foods and drinks. In general terms, the warmer the climate, the greater the water consumption and thus less fluoride is required in the drinking water.
- The optimal level across WA ranges from 0.6 to 0.9 milligram per litre, with a maximum of 1.0 milligram per litre established in law (the *Fluoridation of Public Water Supplies Act 1966*). The optimal level for Perth metropolitan area is 0.8 milligram per litre, with a range of 0.7 to 1.0 milligram per litre.
- The amount that is used to treat drinking water is set to achieve the best dental health outcome for the community within the water supply district. After considering the factors mentioned above the optimal level is recommended by the Statutory Fluoridation of Public Water Supplies Advisory Committee based on the guidelines published by the National Health and Medical Research Council.
- The level of fluoride used to treat drinking water in WA is similar to other areas in Australia.
- For more than forty years fluoridated drinking water has proven to be the safest and most effective approach to improving community dental health for all Western Australians.

More information

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