

Reference Number: 2022/920

27 January 2023

██████████
Email: ██████████

Dear ██████████

Response - Official Information Request

I refer to your request for information received on 9 December 2022. Your request has been considered under the Local Government Official Information and Meetings Act 1987 (LGOIMA) and I provide the following information.

There are currently three fluoridation chemicals available in New Zealand which are explained more in detail below.

- Sodium Fluoride – NaF
- Sodium Fluorosilicate (SFS) – also known as SSF
- Hydrofluosilicic Acid- (HFA)

SODIUM FLUORIDE (NaF)

- NaF is supplied as a white crystalline powder, comprising 45% w/w fluoride ion.
- NaF has an almost constant solubility in water of approximately 4%, regardless of water temperature.
- NaF is generally produced by neutralising hydrofluosilicic acid with caustic soda (sodium hydroxide) or soda ash.
- Suitable for small WTPs supplying up to 5MLD

SODIUM FLUOROSILICATE (SFS)

- Sodium Fluorosilicate (SFS – Na₂SiF₆) is supplied as a white pungent crystalline powder, comprising 60% w/w fluoride ion.
- SFS has a variable solubility in water (unlike NaF).
- Suitable for medium size WTPs supplying 5 – 50MLD.

HYDROFLUOSILICIC ACID (HFA)

- HFA is a pale-yellow fuming corrosive acid with a pungent odour.
- Currently delivered at a concentration of 16.8% – 18.4% (w/w) and has a pH of approximately 1.

Where is fluoride sourced from, and is it imported into New Zealand?

- NaF is available from Ixom in 5kg bottles. NaF is imported from overseas from a New Zealand supplier.
- SFS is available in 25kg bags. SFS is imported from overseas from a New Zealand supplier.
- HFA is available in 200L drums, 1000L IBCs and bulk delivery. HFA is sourced within New Zealand, however some can have some challenges in the supply chain.

What is the process of adding fluoride into the water, how often is it added and what is the mix concentration?

- Process NaF - NaF is proportionally added to water either as a dry powder, or as a solution of varying strengths. A saturated solution tank eliminates the necessity of weighing the compound, but does require a water meter to measure the amount of water that is used to make up a solution of known strength.
- Process SFS - SFS is fed into water by means of mechanical dry feeders equipped with solution tanks, which should completely dissolve the compound before its introduction into the water. SFS is less soluble than NaF, so liquid proportioning of solutions is rarely used and feeding of slurries is not recommended.
- Process HFA - HFA is normally fed directly into water by means of various liquid feeding devices and metering pumps. Dilution of the acid in the range of 10 to 1 and 20 to 1 (parts water to parts acid) before feeding is not recommended due to the possible formation of an insoluble silica precipitate.
- Mix Concentration - Water fluoridation is the process of adjusting the natural level of fluoride in the water supply to between 0.7 ppm and 1.0 ppm. This is the optimal amount that provides protection against tooth decay, and is recommended by the World Health Organization. Fluoride in all forms will have real time monitoring of the fluoride concentration and the systems are full automated and operated by a control based system at the water treatment plant

You are entitled to seek an investigation and review by the Office of the Ombudsman. Information about how to make a complaint is available at www.ombudsman.parliament.nz or free phone 0800 802 602.

Horowhenua District Council publishes responses to Local Government Official Information and Meetings Act 1987 (LGOIMA) requests that we consider to be of wider public interest, or which relate to a subject that has been widely requested. To protect your privacy, we will not generally publish personal information about you, or information that identifies you. We will publish the LGOIMA response along with a summary of the request on our website. Requests and responses may be paraphrased.

If you have any queries regarding this information, please contact the LGOIMA Officer on LGOIMAOfficer@horowhenua.govt.nz

Yours sincerely



Steve McTaylor-Biggs
Executive Sponsor