

Fluoridation of Drinking Water

Fluoridation of drinking water remains the most significant dental health program in Australia.

The advantage of water fluoridation is that the entire community benefits from the preventative measure, regardless of age, socioeconomic level, educational achievement, individual motivation, or the availability of dentists.

ProMinent Australia is one of the market leaders when it comes to providing fluoride systems.

ProMinent have many years of experience with sodium silicofluoride dry feed packages, sodium fluoride saturator packages, and acid plants.

Fluoride packages and installations have to meet strict guide lines. In New South Wales, where ProMinent Australia have supplied more than 40 systems, ProMinent exceeds the requirements of the 'Code of Practice for the fluoridation of public water supplies Fluoridation of Public Water Supplies Act 1957' published by the Oral Health Branch of the NSW Dept. of Health and revised in August 2002.

Types of fluoride

Fluoride is available commercially in 3 different ways, 2 are powders the other a liquid. Each display different concentrations of available fluoride ions & solubility.

Powders

Sodium fluoride (NaF) - 44% by weight available fluoride ion, solubility is 4.0%.

Sodium Silicofluoride (Na_2SiF_6) - 60% by weight available fluoride ion, solubility is 0.4%, nominal solution strength 0.2%.

Liquid

Hydrofluosilicic acid (H_2SiF_6) - liquid - 24% by weight available fluoride ion.



Fluoride Brochure_A4_24-04-08

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Sodium Silicofluoride

A typical sodium silicofluoride package normally consists of:

- Hopper that has at least 36 hours capacity.
- Hopper support frame and base.
- Vacuum loader to easily unload 25 kg bags dust extractor included.
- Powder feeder flow paced from mA signal.
- Solution tank.
- Stirrer.
- Transfer pump
 - Spectra® progressive cavity.
- Optional - Bulky Bag System.

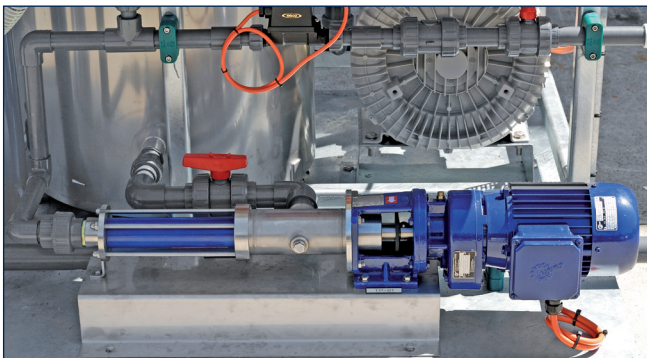


Provision for storing 30 days supply of fluoride powder inside the fluoride room is normal.

Bulky Bag units can be loaded by forklift or electric hoist. ProMinent uses a double teletube for extra dust control and vacuum collapsing of the empty bag.

Fluoride solution can be gravity fed or transferred to the injection point via a ProMinent Spectra® progressive cavity pump with controlled flow.

In both cases we ensure a 10 minute retention time in the solution tank, we include flow regulators on the incoming water.



A crumbler is available to break down lumps before entering the volumetric feeder. This is not required for quality fluoride. ProMinent loss of weight recording includes load cells, digital display and a visual record.



Sodium Saturator

ProMinent®

ProMinent Fluid Controls also manufacture a down flow fluoride saturator.

Sodium fluoride has a reliable saturation solubility of 4%.

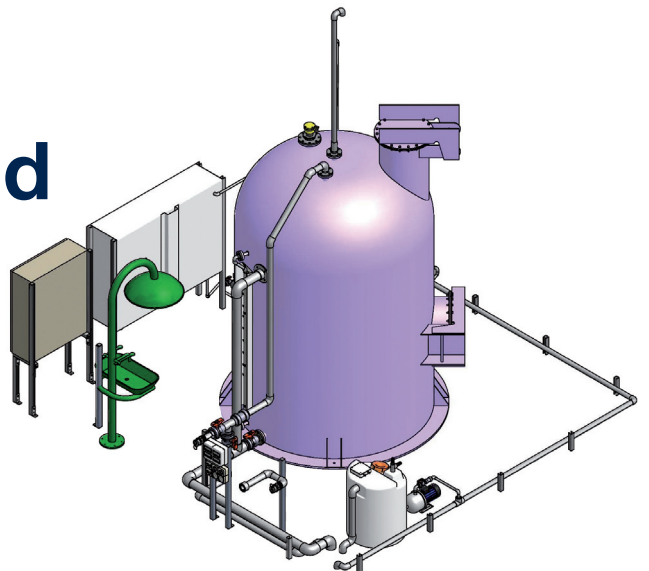
The fluoride solution is dosed proportionally to the mains 4-20 mA flow signal via a ProMinent dosing pump. The dosing pump displays the total amount dosed, which is compared daily against the total water flow to ensure correct dosing has occurred.

Dosing pumps are supplied with a flow failure monitor and alarm relay to indicate if dosing stops.



Hydrofluosilicic Acid

ProMinent provides complete systems with bulk storage tanks and metering pump skids with all controls. We recommend pumps with non-leaking diaphragm failure arrangement.



Fluoride Monitor

For the continuous monitoring of fluoride levels in water supplies, a ProMinent fluoride analyser is available with milliamp retransmit and alarms.

The analyser is normally supplied as backboard mounted with temperature, fluoride and reference electrodes. A magnetic stirrer is also provided to assist with the single or two point calibration.



Laboratory Test Gear and Standards

Vacuum Loader

The ProMinent vacuum transfer system transfers powder from a shipping bag, or container to a hopper or direct to a process. The ProMinent vacuum loader has been specifically designed for both the sodium silicofluoride packages and the sodium fluoride saturators.

The collection unit, includes a dust filter to remove any powder particles that are still airborne, before leaving the unit via the vacuum motor. The exhaust air is normally run to a water trap.

A pneumatically actuated valve at the bottom of the collection unit is used to dump the collected powder into the hopper, and to isolate the hopper from the vacuum system. A second valve on the suction side of the filtration prevents powder from blowing out of the wand during the cleaning cycle.



The ProMinent Vacuum Transfer System is available in 2 models and includes:

- Collection unit.
- Compressed air handling system.
- Hand held vacuum wand.
- Vacuum motor.
- Air supply (either a compressor or plant air).



Operation

With the vacuum loader switched on, the wand is inserted into the container or open bag. Model A vacuum loader, for Saturator, is 240 Volt and empties a 25 kg bag in about 5.5 minutes. Model B, for larger Sodium Silicofluoride plants, is 415 Volt and empties a 25 kg bag in about 3.5 minutes.

Options

Portable buildings, completely fitted out, are available.

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