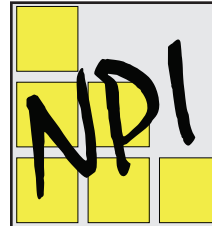


Northeast Pump & Instrument

190 Summer Street, Lunenburg, MA 01462

800-378-1500

Visit us on the web!
npipump.com



FluoroPro

Fluoride Saturator Instructions 55, 70, and 110 Gallon Sizes

The NPI FluoroPro saturator is designed to create a saturated solution of Sodium Fluoride (NaF) from dry NaF crystals and potable water. The system is an 'up-flow' in terms of design

which indicates that the incoming water is introduced from the bottom of the saturator and then gently works its way through the NaF bed upward toward the liquid level. This system will create a solution strength ranging from 4% to 7% by weight, depending on temperature and other variables.

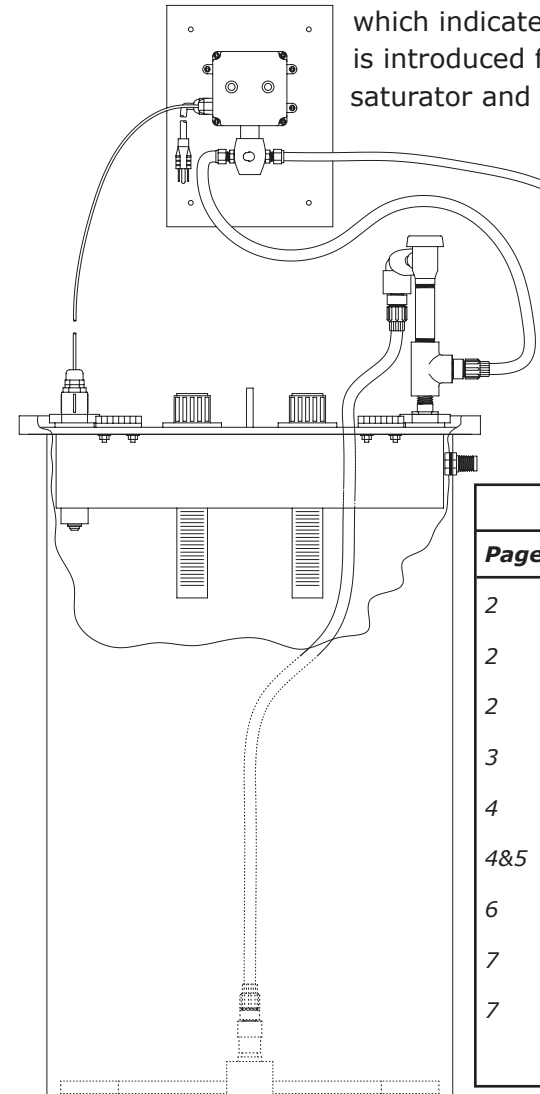


Table of Contents

Page	Category
2	Water Supply
2	Incoming Water Quality
2	Setup and Installation
3	Filling/Loading the Saturator
4	Metering Pump Connections
4&5	Maintenance and Cleaning
6	Operation
7	Spare Parts
7	Additional Information

Water Supply:

The supply of potable water should be equipped with an AWWA approved back-flow preventer (to complement the vacuum breaker installed in your saturator) and a pressure-reducing valve (max output pressure = 80 psig) if your supply pressure exceeds 80 psig. The saturator will require about 2 GPM maximum flow capacity from your supply plumbing. A 1/2" NPT female connection should be provided for supply.

Incoming Water Quality:

Incoming water must be less than 2 grains. This is necessary to avoid precipitation in the saturator which may lead to reduced fluoride effectiveness and increased need for maintenance.

Setup and Installation:

1. Place FluoroPro on a smooth surface (i.e., a floor free of pebbles that could damage the bottom of the tank when fully loaded).
2. Position the gallon indicators (molded in the outer tank wall) and NaF-level labels so that they are clearly visible.
3. Connect the overflow connection to an appropriate point such as a secondary containment tank.
4. Install the two piping subassemblies included with the unit (marked "A" & "B") to the appropriate 1/2" pipe connections in the cover assembly (also marked "A" & "B").
5. Connect the incoming water supply to the installed tubing connector on the saturator using the 3/8" tubing and connector provided.

WARNING:

For proper operation of the mechanical fill valve, the inlet flow rate must be restricted to **2 GPM or less.**

FAILURE TO RESTRICT FLOW TO 2 GPM OR LESS MAY RESULT IN AN OVERFLOW CONDITION.

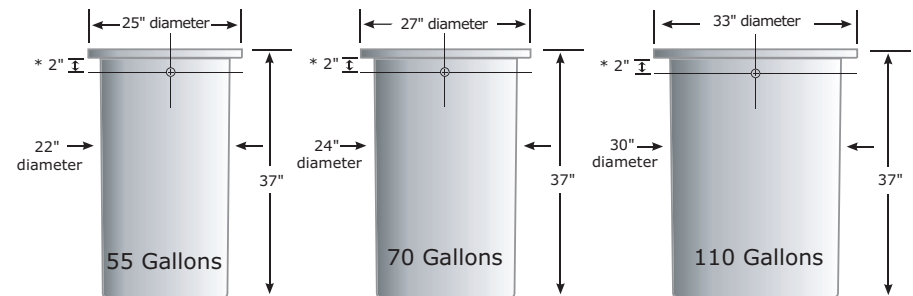
Spare Parts:

Recommended spares would consist of a solenoid valve and distributor assembly. Please use the parts breakdown below and select the appropriate parts for your tank size.

FluoroPro Saturator Spare Parts Breakdown

	55 Gallon	70 Gallon	110 Gallon
Fluoride Saturator P/N	N-FPS1000	N-FPS1070	N-FPS1110
Tank	TC2236AA	TC2436AA	TC3036AA
Cover	N-FPS1000-COVER	N-FPS1070-COVER	N-FPS1110-COVER
Distributor	N-FPS1000-DIST	N-FPS1070-DIST	N-FPS1110-DIST
Tubing	10342-16	10342-16	10342-16
Connector	N-CONN3/8Tx1/2MPT	N-CONN3/8Tx1/2MPT	N-CONN3/8Tx1/2MPT
Solenoid Control	N-FPS1000-SC	N-FPS1000-SC	N-FPS1000-SC
Float Valve Assembly	N-FPS1000-FLOAT	N-FPS1000-FLOAT	N-FPS1000-FLOAT
Fill Valve	N-FPS1000-FV	N-FPS1000-FV	N-FPS1000-FV

Dimensions:



* 3/4 FNPT PVC Bulkhead Installed

Operation:

Prior to start-up sodium fluoride is poured into the saturator tank through the hinged opening in the tank cover. Once the initial bed of sodium fluoride is in place the first fill cycle of the saturator is ready to begin.

As water flow is introduced to the system a distributor assembly at the bottom of the tank allows water to flow through small slits in the 6 laterals radiating from the hub. This distributor assembly allows for even flow, upward, through the fluoride bed.

Once the tank is filled an integral level control system closes a solenoid valve, which is part of the wall mounted control assembly. As the chemical dosing pump draws down the saturated solution, the level control energizes the solenoid valve to re-fill the saturator and maintain the 4% saturated solution.

Please note that the low level circuit has a 5-minute time delay built in to minimize relay chatter, due to wave action in the tank. The high level circuit is an instant cut off to prevent overfilling of the tank.

Additional Information:

For additional troubleshooting and general information, please obtain a copy of "Water Fluoridation, a manual for engineers and technicians" from the U.S. Department of Health and Human Services or the Centers for Disease Control. They provide a technical water fluoridation information manual for plant operators.

USE PROPER SAFETY PRECAUTIONS!

Wear Proper Eye Protection, Dust Mask, Gloves and Other Protective Gear as Specified by Chemical Handling Laws & Standards for NaF

Saturator Capacity Chart:

Max Withdrawl Rates	Size (in Gallons)	Max Load (in lbs)	Min Low Level (in lbs)
8 GPH	55	200	150
10 GPH	70	250	200
14 GPH	110	400	350

Filling/Loading the Saturator:

1. Begin filling the saturator with make-up water, then begin the process of adding NaF powder (this will help keep dust down in the loading process).
2. Add the chemical through the large hinged cover and note level, making sure the crystals are level in the bottom of the saturator.
3. The LOW NaF level label is intended to notify when it is time to refill the saturator. The liquid filling process will take about 20-25 minutes depending on water pressure.

PLEASE NOTE: One of the most common causes of low fluoride residuals in the water of a system that previously worked properly is insufficient NaF material depth in the bottom of the saturator.

Metering Pump Connections:

FluoroPro is designed to have a main and back-up pump mounted on the cover assembly. An alternative is to mount your pumps on an adjacent wall bracket or shelf. In either mounting case, the suction lines for the metering pumps must be fitted with foot valves and strainers and dropped into the pump pickup tubes (2) mounted in the top of the saturator cover. The suction tubing must be straight (no loops).

Maintenance and Cleaning:

Routine maintenance includes refilling of the saturator to maintain a minimum 12" bed depth. Additionally the bed should be loosened to prevent channeling of the fluoride bed over time. This may be done manually with a piece of PVC piping or a dowel. Use caution to avoid damage to the assembly.

It is recommended that the Fluoride Saturator and its contents be cleaned approximately every twelve months or more frequently if necessary to avoid mineral buildup. It is recommended that the NaF level be 'run-down' as far as possible before starting the maintenance process:

1. Allow the Sodium Fluoride bed level to drop to a point at which the distributor tubes become visible.
2. Shut off the incoming water supply.
3. Disconnect the power supply to the Saturator and to the chemical pump.

(Cleaning Process Continued)

4. Disconnect the tubing connection on the cover assembly for the tubing leading into the saturator (and remove and pumps mounted on cover assembly) to free cover for removal.
5. Remove the distributor assembly from the bottom of the saturator tanks and review each of the six laterals for any signs of clogging.
6. Remove, check, and clean the 2-pump pickup tubes located on the top of the cover assembly, if necessary. This may be done easily between major saturator cleanings.
7. Inspect the level control valve for proper operation. Verify that no clogging has occurred.
8. Look upstream to your back flow preventer and check for any cleanable "Y" strainers to ensure proper flow capacity.
9. Dispose of all NaF residue properly in accordance with state and federal guidelines for such material.
10. Flush interior of tank with water to remove deposits. Clean and flush distributor tube assembly and suction tube strainer.
11. Re-install tube assembly, re-mount pump and refer to the operation section of this instruction sheet for startup instructions.

This space was intentionally left blank for your notes.

Figure 1

