

# Bulk Bag Sodium Silicofluoride (SSF) Feeder System

Plant Size > 40 ML/day



ProMinents Bulk Bag Sodium Silicofluoride (SSF) Feeder System. The ProMinent Silicofluoride Bulk Bag Preparation and Transfer System is variable concentration, constant transfer system; designed to maintain a constant level of fluoride in the fresh water being processed by the water treatment plant.

## General

- Typical Installation > 40 ML/day
- A minimum 1.5m<sup>3</sup>, Stainless Steel Chemical Storage Hopper to allow one full sodium silicofluoride bag to be stored +20% ullage. The chemical Storage Hopper will be supported on a Mild Steel, primed and painted frame or 304 Stainless.
- The Chemical Storage Hopper will come with an inspection hatch and fitted with a sight glass located on top of the hopper. We allow for tuning fork style level switches located in a high and low level position, four pad heaters; and two mechanical vibrators.
- The Chemical Storage Hopper will have four load cells. These load cells provide signals to a load cell amplifier that gives an instantaneous digital readout of the remaining weight of fluoride powder in the hopper. The load cell amplifier that allows for the setting of all the control and alarm levels; and has a 4-20 mA signal for retransmit to the Water Treatment Plant SCADA system (by others).
- The feeder is isolated from the Chemical Storage Hopper by manual slide gate.
- We have 1 x Duty operating ProMinent Dry Chemical Feeder which is made in 316 Stainless Steel. The feeder comes with a DN25 - DN40 solid flight feeder screw. The feeder spout is fitted with a heater to minimise the exposure to moisture.
- The connections between the ProMinent Dry Chemical Feeder and mixing tank will be dust proof; and allow for easy feeder calibration.
- Sodium Silicofluoride powder is directly mixed into the LDPE Tank located directly below the Chemical Storage Hopper with service water. The fluoride mixer will mix the Sodium Silicofluoride Solution producing a maximum solution strength of 0.2%.
- The mixing tank is sized to retain the newly mixed solution for ten minutes before it overflows to the adjacent solution dosing tank.
- The flow rate of service water into the mixing is controlled by a diaphragm valve set to deliver water at 120% of the maximum required dosing flow rate.
- An ABB magnetic flow meter installed in the service water line produces a 4-20mA signal proportional to the incoming flow. This signal controls the speed of Duty ProMinent Dry Chemical Feeder that is connected to the bottom of the storage hopper. This way, the concentration fluoride solution is maintained at the required level.
- In the service water delivery line we have also made the necessary allowances for a fail-safe solenoid valve and pressure indicator.
- The Sodium Silicofluoride solution flows under a baffle located in the mixing tank and overflows by gravity to the adjacent solution dosing tank.
- The level in the mixing tank is maintained at the overflow level at all times, whereas the level in the dosing tank fluctuates between the BATCH START low level and the BATCH STOP high level.
- When the low of BATCH START level is reached a solenoid valve opens to allow service water into the mixing tank. The service water solenoid valve closes on high or BATCH STOP level to stop service water flow into the mixing tank.
- The levels in the solution dosing tank are monitored by an ultra sound level transducer, mounted on the top of the dosing tank. HIGH and LOW level alarms are provided by the same ultrasonic level transducer.

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## Unloading

- The Bulk Bag Unloader comes with a Bulk Bag Station Dust Collection System. This system receives air from the dual tele-tube with a vacuum connection for greater safety and; the intermediate chemical storage hopper. This will be vented into a common vent trap located either outside or inside the plant room.
- Located within the intermediate hopper where chemical is received from the bulk bag via the tele-tube, we have included a twin mechanical hopper agitator assembly to minimise chemical lumps being passed through into the main storage hopper. The intermediate hopper will also have a low level proximity switch to ensure that there is chemical within the hopper whilst it is in operation.
- Another feature of the Bulk Bag unloader we have included in our offer is the Power Clincher. The Power Clincher is designed to control the material flow from the bulk bag; and allow the bulk bag outlet spout to re-seal after the emptying process.
- The frame work will be mild steel, primed and painted. The intermediate hopper will be 304 stainless steel; and the dust collector will be milk steel, primed and painted.
- The conveyoer is 114mm O.D ultra-high molecular weight polyethylene outer tubing with a heavy duty wire configuration spiral.

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