This up-flow type saturator is for use with crystalline and powder grades of sodium fluoride or technical grade granular potassium permanganate. Operation is automatic, requiring only periodic addition of chemical. The saturator is capable of treating flows to 15 million gallons of water per day with 1 mg/L of fluoride ion or over 18 million gallons of water per day with mg/L permanganate ion.

**FEATURES**

**Convenient, Rugged, Assembled Package**
The saturator consists of a 50-gallon plastic tank with a sturdy fiber glass cover. The cover easily supports a Premia® 75 low capacity metering pump and a float-type level switch. The switch is connected to a solenoid valve for automatic water filling. Delivered assembled, the unit occupies only about 4 square feet of floor space.

**Corrosion-Resistant Construction**
Plastic wetted parts give maximum corrosion resistance. All openings are covered to minimize dusting.

**Many Grades of Sodium Fluoride**
The saturator is designed to operate efficiently with all grades of sodium fluoride, from fine powder to coarse crystals.

**Anti-Syphon and Overflow Protection**
An A.S.S.E. approved anti-syphon vacuum breaker is designed to prevent chemical syphoning back into the water supply. An overflow connection is also provided.

**Dependable Operation**
As well as the anti-syphon vacuum breaker, the saturator has other features designed for reliability. They include the up-flow design and a regulator at the water inlet which limits flow to 4 gpm. An alternate arrangement uses a second tank to provide an air gap for anti-syphon protection.

**Meets Code Requirements**
Conforms to Article 250 and 400, National Electric Code and Standard 1001, American Society of Sanitary Engineers.

**Easy to Install and Maintain**
The saturator is fully piped and wired. Installation requires only piping to the drain, overflow, and water inlet connections and providing a 115-volt outlet. The unit is easily moved when empty. A plastic-capped hole in the cover permits chemical addition without removing the cover. There are no water supply connections in the cover. It is easily removed for periodic cleaning.
The saturator has a free standing, 50-gallon, polyethylene tank. The translucent tank wall has graduations every 5 gallons for easy checking of solution levels. The 1/2-inch inlet water piping is manifolded in the tank for optimum water dispersion through the chemical bed. The tank wall has 3/4-inch drain and overflow connections. It also has a 1/2-inch inlet-water connection with a solenoid valve. A vacuum breaker and a flow regulator (set to pass 4 gpm, maximum) are in the inlet-water line. The cover supports a level switch and a metering pump. A floating pump-suction connection has a strainer, and for some pumps, a foot valve.

The tank holds 300 lb of sodium fluoride and requires refilling (manual) at the 100 lb level; with potassium permanganate, the tank capacity is 460 pounds and refilling required when level falls to 150 lb.

Water is automatically admitted by the float-level switch and solenoid valve. A drop pipe carries it to the tank bottom where it is discharged through manifold piping. It flows up through the chemical to produce a saturated solution. The pump suction and strainer floats on this solution. Solution is drawn into the pump head and metered to point of application.

To record solution prepared and applied, an optional disc-type meter can be installed in the inlet water line. It totals the amount of water added in a given period which is the equivalent of solution fed.

Fluoride will combine with calcium and magnesium hardness in the make-up water. Since both calcium and magnesium fluoride are only slightly soluble, they will precipitate causing loss of fluoride and clogging of internal piping. The use of softened water will eliminate this precipitation. If hardness exceeds 75 mg/L, a water softener is required.

NOTE:

▲ Not furnished by Wallace & Tiernan Products

Optional equipment furnished only if specifically listed in quotation.
Chemical
Crystalline through powder grades of sodium fluoride; or technical grade potassium permanganate conforming to AWWA Standard B603-83.

Chemical Capacity
Sodium fluoride: 300 lb total, with manual refill at 100 lb level. Potassium permanganate: 460 lb total, with manual refill at 150 lb level.

Solution Feed Rate
To 840 gpd of 4% saturated sodium fluoride solution (treats flows to 15 million gpd with 1 mg/L fluoride ion); or to 840 gpd of saturated potassium permanganate solution (treats flows to 18 million gpd with 1 mg/L permanganate ion at 32° F, to 41 million gpd with 1 mg/L permanganate ion at 68° F). Note: The solubility of potassium permanganate varies greatly with changes in temperature. A constant solution temperature is necessary for accurate dosage control.

Inlet Water
Fixed at 4 gpm; pressure range of 20 to 125 psi.

Connections
3/4” female NPT fittings for drain and overflow connections; 1/2” female NPT for water inlet; pump suction connections are for 1/4” or 5/8” I.D. plastic tubing at the pump; standard tubing connection at the strainer is 1/4” I.D. tube connection; optional arrangement for 5/8” I.D. tubing includes 5/8” to 3/8” I.D. tube adapter and strainer with 3/8” I.D. tube connection.

Electrical Requirements
115-volt, 60 Hz outlet.

Options
An alternate arrangement with a second tank to provide an air gap for anti-syphon protection, disc-type meter for inlet water; water softener for use where water hardness exceeds 75 mg/l.

Metering Pump Capacities
For Wallace & Tiernan Products
Premia®75 Solenoid Operating Pumps: capacities up to 21 gph or 500 gpd. For capacities higher than 500 gpd, an Encore®100 or 700 mechanical diaphragm metering pump may be used. The Encore®100 and 700 Pumps cannot be mounted on the saturator cover; they must be floor or wall mounted.

Weight and Shipping Weight
60 lb and 80 lb.

NOTE: Not for use with sodium silico-fluoride.
Progressive changes in design may be made without prior announcement.