

Dual Solid Biocide Feed System



An Ecolab Company

Specification SPEC-536

- Simplifies feed of solid biocides to HVAC open cooling systems
- BIO-FEEDER – Time based slug feeds of SOLIDBIONOX, a non-oxidizing biocide
- OXI-SLUGGER – Continuous low-level feed of 7346TAB, an oxidizing biocide
- Self-contained system is lightweight and easy to install
- Safe chemical handling - refill without spills, leaks or splashes
- BIO-FEEDER or OXI-SLUGGER can be ordered as standalone units

Description

The Nalco Dual Solid Biocide System is part of a “solid chemical” program designed to provide superior slime control in cooling systems. This modular system consists of the BIO-FEEDER and the OXI-SLUGGER. They are designed to safely dispense SOLIDBIONOX, a non-oxidizing biocide, and 7346TAB, an oxidizing biocide, into HVAC open cooling systems at levels where biocidal activity is very effective.

Each feeder features a vinyl ester flow-through tank. The tank provides UV protection, enabling installation indoors or outdoors. In addition, a wide opening on the tank makes refilling hassle-free. Both feeders include a flow meter that simplifies control of the dosage, solenoid valve, pressure relief for increased operational safety, 50 ft. of ½” OD PE tubing, a funnel, and wrench to remove the tank lid.

Pre-assembled inlet and outlet plumbing modules, and quick-connect tubing fittings cut installation time down to only minutes. Although designed as a dual solid biocide system, each feeder module can also be used independently.



Figure 1 — Dual Solid Biocide Feed System

Specifications

Water Requirements:

Source: Fresh tower makeup water

Pressure: 30 psi to 100 psi (2 – 6.9 bar)

Capacity: 2 gpm (11.4 lpm) minimum

Temperature: 40°F to 100°F (4.4°C – 37.7°C)

Inlet Connection: ½” OD tubing, quick-connect

Outlet Connection: ½” OD tubing quick-connect

Tank Capacity: 40 lbs (18.2 Kg)

Overall Dimensions (each feeder): 14”D x 10”W x 37”H
(36cm D x 25cm W x 94 cm H)

Wetted Materials of Construction:

Tank: Blue or natural vinyl ester resin

Inlet & Outlet Assy: PVC, Schedule 80

Pressure Relief: PVC, Viton

Flow Meter: Polysulfone/Viton/SS

Power (Solenoid Valve): 120 VAC, 50/60 Hz, ½ amp

Support

If you have any questions regarding this specification or its compatibility with the product in use contact your local Nalco Sales Engineer. In North America, you can also contact the Equipment Solutions Help Desk at 800-323-8483.

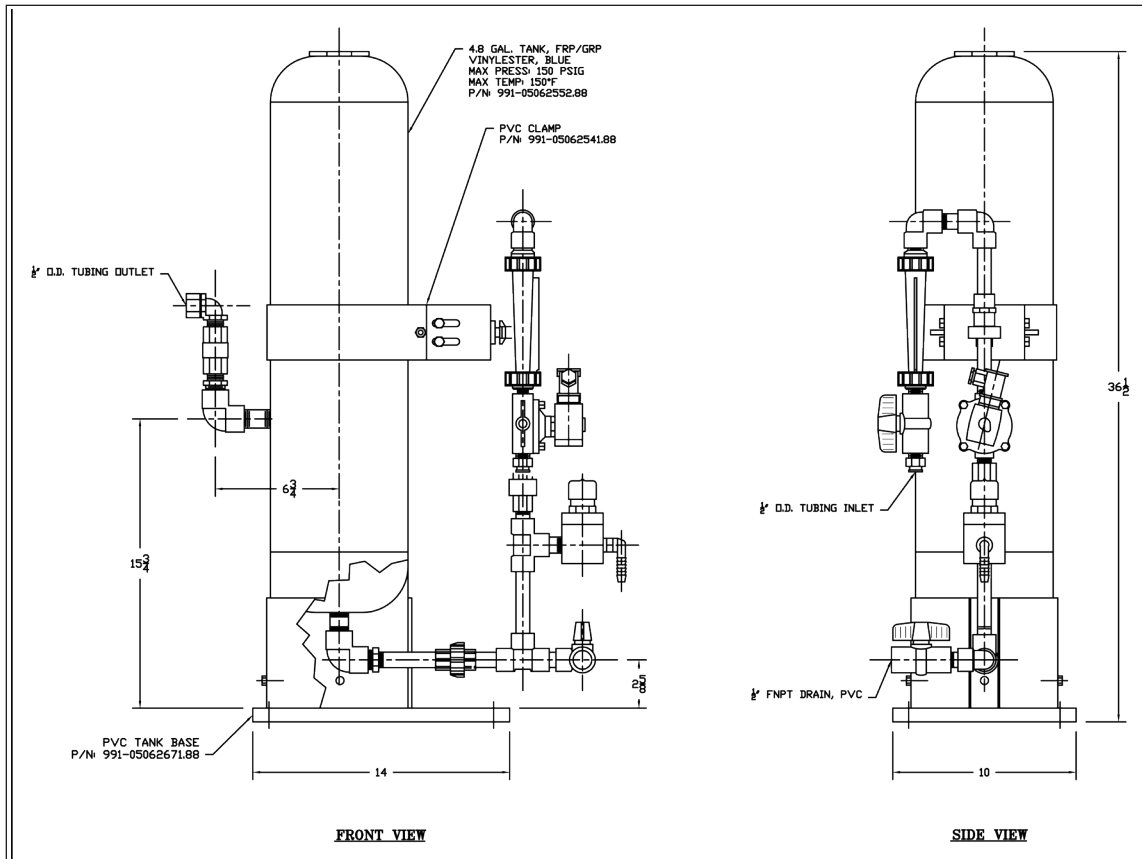


Figure 2 — Feeder Layout Design

To Order

Order feed systems, accessories or replacement parts by their Nalco part number.

System & Accessories

Part Number	Description
6038515	Dual Solid Biocide Feed System
6038513	OXI-SUGGER Feed System
6038514	BIO-FEEDER Feed System
6000409	Dual Manifold Kit
991-03604035.88	1/2" OD, Black PE tubing (per ft.)
160-F00361.88	Funnel, 2.5" opening
160-W00210.88	Wrench (to remove cap)

Replacement Parts

Part Number	Description
6008733	Bracket, pipe, PP, 20 mm
991-05062671	Baseplate, PVC
991-03850198.88	Flow meter, 0.1-2.0 GPM
991-05062541.88	Tank clamp, PVC, 7.5" (for tank)
6031647	Valve, check (with Hastelloy spring)
001-H03221.88	Valve, relief (set to 100 psi)
6031471	Valve, solenoid, 120 VAC, 50/60 Hz

Site Requirements

- Level, well lit area 6 ft. wide x 3 ft. deep, with clearance to load solid chemical tablets into feeders.
- Cooling tower recirculation loop water supply within 15 ft. of feeder
- Rated at 2 gpm, 30 psi minimum, 100 psi maximum, 100°F (37.7°C) maximum
- Located within 25 ft. of feed point.
- 7-Day timer with 110 VAC, 60 Hz powered relay.

Note: Recirculating cooling water (organic contamination-free) may only be used as drive water if the feeder is installed on HVAC systems. All other systems must use fresh water as drive water.

Theory of Operation

The two feeders are installed on the side stream of the cooling tower recirculation loop. Valves mounted on the side stream divert a controlled amount of flow through the system (valves provided in optional Dual Manifold Kit). A single line can be used to supply drive water to both feeders. Additionally, both discharges can be combined into a single line. This greatly simplifies installation. (see Installation diagram).



Dual Manifold Kit

Water continuously flows through the OXI-SLUGGER to slowly dissolve 7346 TAB (oxidizing biocide) and deliver the solution to the cooling tower. The OXI-SLUGGER can be set to properly dose the cooling system by varying the flow rate or by feeding a series of "mini slugs" using a chlorine controller or an ORP controller.

Periodically, a solenoid valve is opened to allow water to flow through the BIO-FEEDER. The proper dose is delivered by adjusting the frequency and duration of the SOLIDBIONOX "slugs". A 7-day timer is required for the BIO-Feeder.

Controllers or timers are not supplied with system.

Assembly and Installation Instructions

Assembly

1. The feeder requires some assembly prior to installation. Fittings are preinstalled on the tank inlet and outlet to simplify assembly.
2. Attach the inlet assembly to the half-union fitting near to the bottom of the feeder.
3. Slide the large PVC clamp over the tank. Attached the small pipe clamp to the PVC clamp.
4. Adjust the position of the PVC clamp so that the vertical piping section is plumb. Tighten the bolts on the PVC to hold the piping in place...
5. Screw the discharge assembly into the hole near the middle of the tank. **THE ASSEMBLY MUST BE POINTED UPWARDS FOR THE CHECK VALVE TO WORK PROPERLY.**
5. Push the coupon support rod into the RCI. Once fully inserted, rotate the rod counterclockwise into the locking collar and insert the rod holding pin.
6. Fully tighten the packing nut.

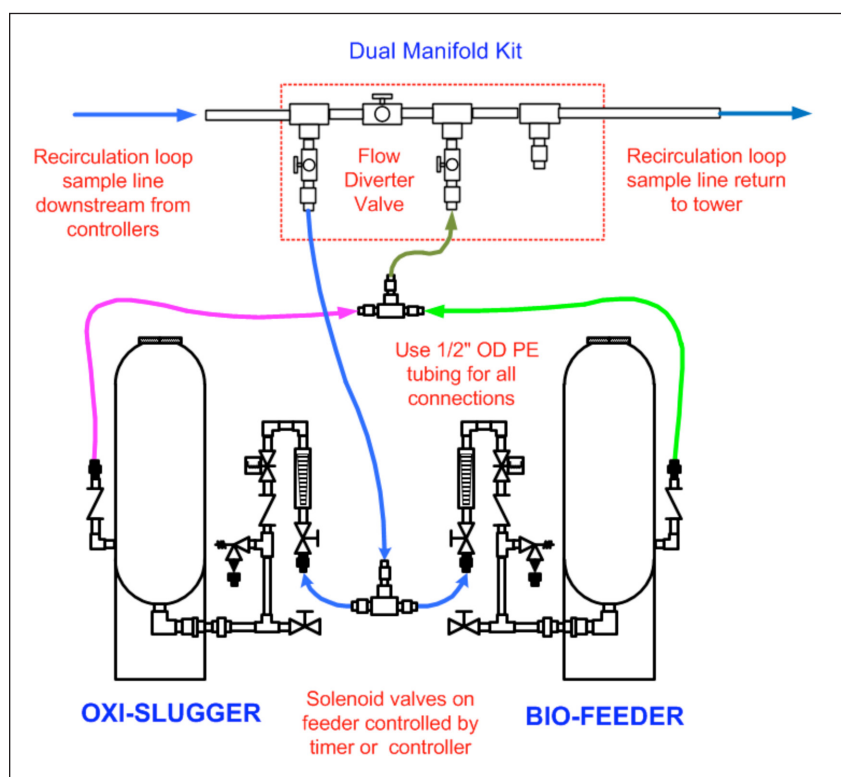


Figure 3

Notes:

- NEVER FEED BIOCIDES INTO THE SAME PIPE (OR FEEDPOINT) USED TO FEED INHIBITOR. Run a separate line to the tower if necessary.
- The BIO-FEEDER assembly is the same as the OXI-SLUGGER.
- If both the OXI-SLUGGER and BIO-FEEDER are installed connect the drive water lines together and connect the discharge lines together using tee equipped with 1/2" tube connectors.
- Hydro-test the system before filling the tanks with chemicals.
- The feeder can be secured to the wall by using a second PVC tank clamp (only 1 supplied).

To Open/Close the BIO-FEEDER and OXI-SLUGGER

1. Isolate the feeder by closing the ½" ball valves installed on the sample and discharge lines.
2. Carefully relieve any pressure in the feeder by slowly loosening the lid.
3. Using the valve on the inlet assembly drain enough liquid to permit adding biocide tablets without overflowing.
4. Remove the lid.
5. To return to service after filling, securely close the tank lid.
6. Slowly open the discharge isolation valve.
7. After the discharge isolation valve is fully open, slowly open the inlet isolation valve.

Dosage Control

Feed Nalco 7346TAB or SOLIDBIONOX according to the instructions on the product label. The amount of chemical delivered by the feeder is dependent on the amount of tablets in the tank, flow rate through the feeder and length of feed time. Expect to make several adjustments to the settings in order to obtain the desired dosage.

Note: To achieve the desired total residual oxidant (TRO) in the cooling tower the OXI-SLUGGER can be controlled using a chlorine or ORP controller. Alternately, a timer can be used to deliver numerous "mini slugs" of Nalco 7346 TAB and TRO levels verified with a manual test, SOLIDBIONOX is usually slug fed, periodically.

Safety

- RECIRCULATING COOLING WATER MAY ONLY BE USED AS DRIVE WATER IF THE FEEDER IS INSTALLED ON HVAC SYSTEMS. ALL OTHER SYSTEMS MUST USE FRESH WATER AS DRIVE WATER.
- NEVER CONNECT THE FEEDER TO A POTABLE WATER SUPPLY.
- This feeder cannot be used on cooling systems where contact with organics, metals, ammonia or reducing agents are possible. Contact with these materials may result in over-pressurization and vessel failure.
- Do not get SOLIDBIONOX or 7346 TAB in eyes, skin or clothing. Avoid contact with skin. Prolonged or frequently repeated skin contact may cause allergic reactions in some individuals. Wash

thoroughly with soap and water after handling. Remove contaminated clothing and wash before reuse.

- Be sure to wear the personal protection equipment listed on the Material Safety Data Sheets (MSDS) whenever handling SOLIDBIONOX or 7346 TAB tablets or servicing the feeders.
- USE CAUTION WHEN RETURNING THE FEEDER TO SERVICE. To avoid a high-pressure water surge (water hammer) that may rupture the tank, always open the discharge isolation valve first. Slowly, partially open the inlet isolation valve. Wait until the tank is filled before completely opening the valve.
- USE CAUTION WHEN REMOVING FEEDER LID. If necessary, release the pressure in the feeder by slowly opening the drain valve.
- Close inlet and outlet isolation valves before opening feeder.
- Do not close inlet and outlet valves at the same time except to refill the feeder with pellets.
- Do not stand over the top of the feeder. DO NOT INHALE FUMES. Keep face away from feeder when bleeding pressure or venting.
- FLUSH WITH FRESH WATER FOR AT LEAST 15 MINUTES PRIOR TO USE OR SERVICING
- Each feeder is specifically designed only for use with Nalco 7346TAB or SOLIDBIONOX as labeled. DO NOT LOAD FEEDER WITH ANY OTHER CHEMICALS.
- DO NOT MIX CHEMICALS IN THE SAME FEEDER.
- Under no circumstances use other forms of concentrated chlorine or bromine. Fire and/or explosion may result.
- Never use oil or grease to lubricate the lid. Oil in contact with oxidizers may result in a fire.
- Feeder and piping should be protected from freezing.
- Do not expose the feeder to ambient temperatures above 100°F (38 °C) or pressures over 100 psig (6.9 bar).
- Piping and fittings must be schedule 80 PVC or better to prolong life in direct sunlight.
- The solenoid valve on the feeders require approximately 3 psi (2 bar) minimum to operate. It may not open or close properly if the water pressure is too low. If a negative water pressure condition exists when the cooling tower is shut down a check valve must be installed on the inlet line.

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