



NC DEPARTMENT OF
**HEALTH AND
HUMAN SERVICES**

ROY COOPER • Governor
MANDY COHEN, MD, MPH • Secretary
BETH LOVETTE, MPH, BSN, RN • Acting Director
Division of Public Health

July 11, 2019

Mr. R.C. Zellers, PE
ABC Polymer Industries, LLC
545 Elm St
Helena, AL 35080

Subject: Approval to use FiberForce 1000 HP Structural Fibers in Precast Concrete Tanks

Dear Mr. Zellers:

The On-Site Water Protection Branch has reviewed your request to use FiberForce 1000 HP structural fibers as an alternative reinforcement schedule to six-inch by six-inch No. 10 gage wire for precast concrete tanks approved in North Carolina. This review was completed pursuant to the provisions of Rule 15A NCAC 18A .1954(c). It appears that the FberForce 1000 HP structural fibers will be capable of meeting these requirements and are hereby approved for use in precast concrete tanks based on the following information:

- a. An August 16, 2016, report from Thomas Kolden, PE, with Element Materials Technology specifying the minimum average residual strength of 232 psi using at least 4 pounds of FiberForce 1000 HP in a 4,000 psi concrete design mix at 28 days when tested in accordance with ASTM C-1399;
- b. The specification data sheet "FiberForce 1000 HP" which specifies the fiber mixing requirements; and
- c. A January 21, 2019, report from Testing, Engineering, & Consulting Services, Inc, specifying the minimum fiber length.

Tanks utilizing FiberForce 1000 HP are to be manufactured with concrete having at least 4,000 psi compressive strength and a minimum of 4 lb/cubic yard concrete mix of FiberForce 1000 HP structural fibers.

Individual tank manufacturers who propose to utilize FiberForce 1000 HP structural fibers in place of six-inch by six-inch No. 10 gage wire must submit the following information to the On-Site Water Protection Branch:

- a. Tanks to be modified using the macro-fibers;
- b. Approved fiber(s) proposed to be used;
- c. Method to be used to mix the fibers evenly throughout the concrete;
- d. Signature indicating they have read and agree to follow the fiber manufacturers guidelines;
- e. Minimum strength of the tanks using fibers shall be 4000 psi at 28 days;
- f. Tanks utilizing macro-fibers for reinforcement may be removed from the yard at 4000 psi;
- g. Results of initial vacuum test using macro-fibers and tank manufacturers concrete design mix.

This includes:

NC DEPARTMENT OF HEALTH AND HUMAN SERVICES • DIVISION OF PUBLIC HEALTH

LOCATION: 5605 SIX FORKS RD, RALEIGH NC 27609
MAILING ADDRESS: 1642 MAIL SERVICE CENTER, RALEIGH NC 27699-1642
www.ncdhhs.gov • TEL: 919-707-5854 • FAX: 919-845-3972

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- i. Names of all present to witness testing, including one approved third-party person and one OSWP Branch or county health department staff member present;
- ii. The largest tank that can be made from each form shall be tested initially. (Two of each tank shall be manufactured and both shall be tested); and
- iii. Documentation showing that a vacuum of five (5) inches of mercury was pulled on the tanks and that the five inches was held for two minutes, without a loss of > 0.5 inch mercury. Deflection must not be greater than L/240 as measured during the vacuum testing. During the test, the tank manufacturer or their representative can seal the tank if it is found to be leaking. (Leaking that can be patched includes around the mid-seam of a tank, the top seam of a tank, around the riser, or around the pipe penetration seal. Leaks that **cannot** be patched include cracks in the walls, top, or bottom of the tank that produce a lack of vacuum.) The tank must be brought back up to 5 inches of mercury and held for two minutes.

This approval applies only to tanks constructed in accordance with their approved plans and specifications. If the tank is found to be out of compliance, an Operation Permit will not be issued for the installed wastewater system.

All approvals are subject to modification, suspension, or revocation if the Department determines that the approval is based on false, incomplete, or misleading information or as necessary to protect public health, safety, and welfare [NC G.S. 130A-343(c)]. Approvals are also subject to suspension or revocation if subsequent experience with the system results in altered conclusions about system performance or design [15A NCAC 18A .1969(k)(2)(A)].

All tank manufacturers having North Carolina state approval of septic or pump tanks are subject to periodic, unannounced inspections of their tanks and manufacturing process by state and local environmental health officials. Tanks found not in compliance with their state-approved plans or state sewage rules (15A NCAC 18A .1900, et seq.) may be permanently identified as being unacceptable for use in North Carolina on-site wastewater systems and the manufacturer of such tanks may face suspension or revocation of state approval for their tanks.

If you have any questions pertaining to this approval or if we may be of further service, please feel free to contact me at 919-707-5878 or trish.angoli@dhhs.nc.gov.

Sincerely,

Tricia Angoli, PE
On-Site Wastewater Engineering