



NC DEPARTMENT OF
**HEALTH AND
HUMAN SERVICES**

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MARK BENTON • Chief Deputy Secretary for Health

KELLY KIMPLE • Acting Director, Division of Public Health

August 19, 2024

Mr. Gregory Zito
NYCON
300 Ben Fairless Dr
Fairless Hills, PA 19030

Subject: Approval to use NYCON XL-200 Macro Structural Fibers in Precast Concrete Tanks

Dear Mr. Zito:

The On-Site Water Protection Branch has reviewed your request to use NYCON XL-200 macro 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 15A NCAC 18E .1403(b)(3). It appears that the NYCON XL-200 macro 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. A July 3, 2013, report from Allyn Luke with the New Jersey Institute of Technology Civil Engineering Concrete Laboratory specifying a minimum average residual strength of 211 psi using at least 5 pounds of NYCON XL-200 in a 4,000 psi concrete design mix at 28 days when tested in accordance with ASTM C-1399;
- b. The specification data sheet "XL-200" which specifies the fiber mixing requirements; and
- c. An August 7, 2024, report from SGS TEC Services specifying the minimum fiber length.

Tanks utilizing NYCON XL-200 macro structural fibers are to be manufactured with concrete having at least 4,000 psi compressive strength and a minimum of 5 lb/cubic yard concrete mix of NYCON XL-200 macro structural fibers.

Individual tank manufacturers who propose to utilize NYCON XL-200 macro 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 Road, Building 3, Raleigh, NC 27609
MAILING ADDRESS: 1642 Mail Service Center, Raleigh, NC 27699-1642
www.ncdhhs.gov • TEL: 919-707-5874 • 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 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 in accordance 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 18E .1406.

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 15A NCAC 18E 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 919-218-2580 or trish.angoli@dhhs.nc.gov.

Sincerely,

Tricia Angoli, PE
On-Site Wastewater Engineering