



NC DEPARTMENT OF  
**HEALTH AND  
HUMAN SERVICES**

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Division of Public Health

March 12, 2021

Mr. Carl Labbe  
Sika Corporation  
4019 Industry Dr  
Chattanooga, TN 37416

Subject: Approval to use Sika Fibermesh 650 Structural Fibers in Precast Concrete Tanks

Dear Mr. Labbe:

The On-Site Water Protection Branch (OSWP) has reviewed your request to use Sika Fibermesh 650 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 Sika Fibermesh 650 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. December 19, 2006, report from N. Banthia, Professor with The University of British Columbia specifying the minimum average residual strength of at least 175 psi using 4 pounds of Sika Fibermesh 650 with a minimum 4,000 psi concrete design mix at 28 days when tested in accordance with ASTM C-1399;
- b. UL listing revised December 7, 2007, specifying the minimum fiber length as 1.5 inches; and
- c. The product data sheet "Sika® Fibermesh®-650" which specifies the fiber mixing requirements

Tanks utilizing Sika Fibermesh 650 structural fibers 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 Sika Fibermesh 650 structural fibers.

Individual tank manufacturers who propose to utilize Sika Fibermesh 650 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, Raleigh, NC 27609  
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- i. Names of all present to witness testing, including one approved third-party person and one OSWP 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. Tanks shall be watertight and may be subject to a watertightness test, per local and state environmental health guidelines.

All approvals are subject to suspension or revocation if OSWP determines that the approval is based on false information, the product has been subsequently altered, or subsequent experience with the product results in altered conclusions about the performance or design [15A NCAC 18A .1954(e)].

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.

Please feel free to contact me at 919-707-5878 or [trish.angoli@dhhs.nc.gov](mailto:trish.angoli@dhhs.nc.gov) if you have any questions or if we can be of further assistance to you.

Sincerely,

Tricia Angoli, PE  
On-Site Wastewater Engineering