◆ Verification Statement ◆ Verification Statement ◆ Verification Statement ◆

VERIFICATION STATEMENT

GLOBE Performance Solutions

Verifies the performance of

BIONEST SA-3, SA-3D, and BN-400 Wastewater Treatment Systems

Developed by Bionest Technologies Inc.
Shawinigan, QC, Canada

Registration: GPS-ETV_VR2026-10-30

In accordance with

ISO 14034:2016

Environmental Management — Environmental Technology Verification (ETV)

Yogendra Chaudhry, PhD
CEO
GLOBE Performance Solutions

October 30, 2026
Calgary, AB, Canada

Verification Body
GLOBE Performance Solutions
300-1055, West Hastings St. | Vancouver, BC| Canada | V61 2E9

Performance claim(s)

The BIONEST SA-3, the BIONEST SA-3D, and BN-400 are wastewater treatment systems for household use. The BN-400 and SA-3 models are equivalent in conception differing only by size of the bioreactor.

The BIONEST SA-3 system is a submerged fixed film bioreactor using a non-biodegradable media. The BIONEST SA-3 system is a stand-alone wastewater treatment system. The system was tested in compliance with NQ 3680-910/2000-06-16 M1 (2004-09-10) at a hydraulic capacity of 1,260 L/day. The system (at influent temperature ranging between 14.2-21.4oC, pH in the range of 7.3-8.3, with an average CBOD5 of 259 mg/l, TSS of 250.4 mg/l and Fecal coliforms of 3 161 246 CFU/100ml) was capable of reducing CBOD5 to less than 3 mg/l, TSS to less than 4 mg/L, and fecal coliform organisms to less than 5 000 CFU/100ml.

The BIONEST SA-3 was also tested under similar conditions in compliance with NSF/ANSI Standard 40 – Residential Wastewater Treatment Systems between March 14, 2005 and August 2005 and was capable of reducing TKN and TON concentrations to less than 2 mg/L.

The BIONEST SA-3D is a stand-alone wastewater treatment system with UV disinfection. The system was tested in compliance with NQ 3680-910/2000-06-16 M1 (2004-09-10) at a hydraulic capacity of 1,260 L/day. The system (at influent temperature ranging between 14.2-21.4oC, pH in the range of 7.3-8.3, with an average CBOD5 of 259 mg/l, TSS of 250.4 mg/l and Fecal coliforms of 3 161 246 CFU/100ml) was capable of reducing CBOD5 to less than 3 mg/l, TSS to less than 4 mg/L, and fecal coliform organisms to less than 5 CFU/100ml.

Testing completed under NQ 3680-910/2000-06-16 M1 (2004-09-10) was conducted at the Bureau de Normalisation du Québec Laboratory based in Québec city, Québec while testing under NSF/ANSI Standard 40 - Residential Wastewater Treatment Systems 04/10/2015/060 was conducted at the NSF facility in Waco, Texas.

Technology description and application

The Bionest system is a submerged fixed film bioreactor using a non-biodegradable media. The treatment train takes place in two tanks installed in series. The primary treatment uses a conventional two-compartment septic tank equipped with an effluent filter. The second tank is called the "bioreactor."

The wastewater flows to the bioreactor by hydraulic displacement from the primary treatment tank. Treatment in the bioreactor is achieved using a biological process of microbial culture, fixed to a synthetic media, in an aerobic condition. The media is a non-toxic polymer ribbon, engraved to facilitate the fixation of microbial culture, having a relative density of 1.04. A specific quantity of Bionest media is placed in the two compartments of the bioreactor. It is provided with a linear air pump and with fine bubble air diffusers. A recirculation pump is installed in the last compartment of the bioreactor and returns part of the effluent to the first compartment of the septic tank to provide de-nitrification.

The BIONEST SA-3, the BIONEST SA-3D the BN-400 are wastewater treatment systems for household use. The technology developed by Bionest is based on the well-established principle of biological digestion of residential sewage using sequential biological reactors operated under forced aerobic conditions.

The BIONEST SA-3D is a stand-alone wastewater treatment system with UV disinfection. The BIONEST SA-3 and the BN-400 systems are stand-alone wastewater treatment systems without UV disinfection. The BN-400 and the SA-3 models are equivalent in conception differing only by the size of the bioreactor. The hydraulic loading rate and the hydraulic retention time of the two models are virtually the same.

Verification

This verification was first completed in September 2007 and has been considered valid for subsequent renewal periods every three (3) years thereafter.

Two separate experiments were conducted and data was submitted to the verification process. The first set of data was obtained between August 2004 and February 2005 when testing the system for its efficiency to treat residential sewage water and to remove suspended solids, BOD5 and fecal coliform using the NSF/ANSI 40-2000 test protocol. Testing was completed at the BNQ facility in Québec city, Québec, and was intended to verify the conformity of the equipment with BNQ standard NQ3680-910/200-06016 M1 (2004-09-10).

The second experiment aimed at assessing the system's efficiency to treat residential sewage water and it's conformity with NSF/ANSI 40-2004 standard. The data submitted from this experiment was obtained by conducting additional sampling not included in the NSF standard. Samples were collected and analyzed to evaluate the equipment ability to reduce TKN and TON concentrations. This portion of the testing was completed between March and August 2005 at the NSF Wastewater Technology Test Facility located in Waco, Texas under environmental conditions closer to Canadian summer conditions than to winter conditions.

The original verification was completed by Centre National en Électrochimie et Technologies Environnementales Inc. (CNETE) using Canadian ETV's General Verification Protocol (March, 2000). This ETV renewal is considered to meet the equivalency of an ETV verification completed using the International Standard ***ISO 14034:2016 Environmental management – Environmental technology verification (ETV)***.

What is ISO14034:2016 Environmental management – Environmental technology verification (ETV)?

ISO 14034:2016 specifies principles, procedures and requirements for environmental technology verification (ETV) and was developed and published by the International Organization for Standardization (ISO). The objective of ETV is to provide credible, reliable and independent verification of the performance of environmental technologies. An environmental technology is a technology that either results in an environmental added value or measures parameters that indicate an environmental impact. Such technologies have an increasingly important role in addressing environmental challenges and achieving sustainable development.

For more information on the BIONEST SA-3, SA-3D and BN-400 please contact:

Bionest Technologies Inc.
55, 12e Rue, C.P. 10070
Shawinigan, QC
G9T 5K7 Canada
Tel: (819) 538-5662 / Toll-Free: 1 (866) 538-5662
Fax: (819) 538-5707
www.bionest.ca

For more information on ISO 14034:2016 / ETV please contact:

Globe Performance Solutions
300-1055 Hastings St W
Vancouver BC
V6E 2E9, Canada
Tel: (403) 906- 3178 | C: 7804467033
ychaudhry@globeperformance.com
www.globeperformance.com

Limitation of verification - Registration: GPS-ETV_2026-10-30
GLOBE Performance Solutions and the Verification Expert provide the verification services solely on the basis of the information supplied by the applicant or vendor and assume no liability thereafter. The responsibility for the information supplied remains solely with the applicant or vendor and the liability for the purchase, installation, and operation (whether consequential or otherwise) is not transferred to any other party as a result of the verification.