



State of Delaware
Department of Natural Resources & Environmental Control
Division of Water Resources
Ground Water Discharges Section

Innovative and Alternative System Approval

ISSUED TO: Premier Tech Aqua
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FROM: Jason Baumgartner – Environmental Scientist
Ground Water Discharges Section

FOR: Ecoflo Coco ECDn 500, 600, 865, 1000, 1100

APPROVAL DATE: September 5, 2019

In accordance with the Regulations Governing the Design, Installation, and Operation of On-Site Wastewater Treatment and Disposal Systems (Regulations), an application dated October 1, 2018, had been submitted by Premier Tech Aqua, for approval of the Ecoflo Coco ECDn advanced treatment unit as an Innovative & Alternative On-Site Wastewater Treatment Units.

Based on the review of the application, the Department hereby grants approval of the use of the Ecoflo Coco ECDn advanced treatment unit as an Innovative & Alternative On-Site Wastewater Treatment Unit subject to the conditions, limitations, and requirements set forth herein:

1. Product Description

To be treated, the wastewater first flows into a Primary tank where a primary treatment, gross solids sedimentation, takes place. The Ecoflo® Coco ECDn Model Series is based on a pre-denitrification approach: The ammonia is first

converted into nitrates inside the Ecoflo® Coco filtering media (nitrification); then, nitrates are recirculated in a Primary tank and transformed in gaseous nitrogen (denitrification).

The wastewater entering the Ecoflo® Coco Filter is directed to the tipping bucket and evenly distributed onto distribution plates. These plates include channels and orifices that uniformly distribute the primary tank effluent over the surface of the filtering media. Distributed wastewater trickles downward into the filtering media where microorganisms, naturally attached onto the filtering media, degrade the contaminants through their metabolic reactions. A fraction of the treated wastewater is returned to the Primary/anoxic tank via the pumping station provided for that matter and the remaining fraction is directed toward the final disposal. The recirculation ratio is approximately two (2) times the daily flow (2Q).

The various models have the treatment capacities shown in the following table:

Model	Capacity (gallons per day - gpd)
ECDn 500	500
ECDn 600	600
ECDn 865	865
ECDn 1000	1000
ECdn 1100	1100
ECDn-500 P/C - PACK	500
ECDn-600 P/C - PACK	600

2. Claim

Approval is based on information submitted by the Manufacturer indicating the specified models will routinely provide effluent quality not exceeding 30 mg/l of BOD₅, 30 mg/l of TSS, and 20 mg/l of Total Nitrogen (TN) assuming influent loading does not exceed the treatment capabilities of the units.

This unit has been NSF 40 and 245 certified.

3. Use and Design Criteria

- a. The Premier Tech Aqua Ecoflo ECDn unit may be installed for new and replacement systems with conventional and innovative and/or alternative disposal systems.
- b. An on-site wastewater treatment and disposal system permit application incorporating a Premier Tech Aqua Ecoflo ECDn unit shall be designed in accordance with the Regulations, and manufacturer's specifications. The design shall be completed by a DNREC Class C Design Engineer unless

otherwise approved by the Department. The permit application shall include proper unit specifications.

- c. A septic/primary tank must precede the Ecoflo ECDn system. The septic tank must incorporate an effluent filter as specified by the manufacturer.
- d. The Premier Tech Aqua Ecoflo ECDn unit shall not be installed within areas subject to traffic loads unless specially designed on a case by case basis in accordance with the Regulations.
- e. The manufacturer is responsible for providing the Department a list of all local distributors and their associated contact information. This list must be kept current and shall be submitted to the Department on a yearly basis.

4. Installation Procedures

- a. The Premier Tech Aqua Ecoflo ECDn unit shall be installed by a DNREC Class E System Contractor under the supervision of a manufacturer's representative, or by a DNREC Class E System Contractor who has been certified for unit installation. Proof of certification shall be provided in writing to the Department.
- b. Start up of the system and initial operational checks shall be conducted by the Class E System Contractor (trained by the manufacturer), Design Engineer, and a Ground Water Discharges Section (Large System Branch) representative. If the Class E System Contractor is not certified, a manufacturer's representative shall perform the operational checks of the system at start up. If the manufacturer's representative can not be on site at the time of start up, they must provide final start up approval to the Department in writing.

5. Operation and Maintenance

- a. The Premier Tech Aqua Ecoflo ECDn unit shall be operated and maintained in accordance with the manufacturer's specifications. In accordance with the NSF approval, the manufacturer is responsible for maintaining this certification.
- b. The manufacturer or manufacturer's representative shall comply with all Department mandated requirements as specified in permit conditions. This shall include operation and maintenance requirements.

6. Sampling and Approval

The Department reserves the right to sample any unit at any time.

7. General Conditions

- a. Use of the system for wastes other than residential shall be on a case by case basis.
- b. In the event that the product fails to perform as claimed by the applicant, and it is found that the system is installed and working as designed, and there is no toxicity in the waste; the use of the units for new installations shall cease. Use of the units shall not resume until such time the applicant and the Department have reached an acceptable agreement for resolving the situations.
- c. Any changes that deviate from the specifications as submitted with this approval shall be approved by the Department prior to use.