

December 18, 2007

ORENCO SYSTEMS INC
 JASON CHURCHILL
 814 AIRWAY AVE
 SUTHERLIN OR 97470

Re: Description: SEWAGE TREATMENT APPARATUS (also see SEWAGE TANKS)
 Manufacturer: ORENCO SYSTEMS INC
 Product Name: ADVANTEX AX100
 Model Number(s): AX100 (2500 GPD Average Daily Flow)
 Product File No: 20070540

The specifications and/or plans for this plumbing product have been reviewed and determined to be in compliance with chapters Comm 82 through 84, Wisconsin Administrative Code, and Chapters 145 and 160, Wisconsin Statutes.

The Department hereby issues an approval based on the Wisconsin Statutes and the Wisconsin Administrative Code. **This approval is valid until the end of May 2013.**

This approval is contingent upon compliance with the following stipulation(s):

- Based on testing data submitted and reviewed by the department, this approval recognizes that when the actual flows are consistent with the manufacturer's hydraulic loading rate specifications stated above in the regarding block under Model Number(s), and recirc-blend tank influent strength does not exceed the levels listed in Table 1, this plumbing product will produce effluent not exceeding the performance levels indicated in Table 2.

Table 1
Recirculation-blend tank influent strength

	Average	Average Weekly Peak	Rarely Exceed
BOD5 (mg/L)	150	250	500
TSS (mg/L)	40	75	150
TKN (mg/L)	65	75	150
Oil & Grease (mg/L)	20	25	25
Fecal Coliform (cfu/100 ml)	1,000,000		

Table 2
AX100 filter effluent characteristics

	Average
BOD5 (mg/L)	10 (maximum)
TSS (mg/L)	10 (maximum)
Ammonia-N (mg/L)	10 (maximum)
Total Nitrogen (mg/L)	65% reduction* (minimum)
Fecal Coliform (cfu/100 ml)	10,000 (maximum)

* Expected Total Nitrogen reduction relative to recirc-blend tank influent

- The treatment system requires a primary septic tank connected to a downstream recirculation-blend tank. For multifamily residential systems, individual onsite septic tanks may be connected to a common recirculation-blend tank; similarly, non-residential systems serving multiple waste-generating units may utilize separate septic tanks for each waste-generating unit, connected to a common recirculation-blend tank.

- Septic tank sizing must be based on ch. Comm. 83 Wisconsin Adm. Code design flow requirements, using the hydraulic retention time factors specified by the manufacturer, as listed in the Primary Tank Sizing Chart contained in Document Number NDA-ATX-COMM-PKG-1, Rev. 1.1, copywriter 10/05 (entitled "AdvanTex Design Criteria").
- The septic tank effluent and the filtrate-return from the AX100 pod units must enter the recirculation-blend tank at the opposite end of the recirculating pump(s) that discharges to the AX100 pod units.
- The filtrate shall be proportioned between the recirculation-blend tank and the final discharge using a recirculating splitter valve or a recirculating ball valve specified by Orenco Systems, Inc.
- Volume of the recirculation tank must be at least 80% of the regulatory peak design flow. When this product is installed for denitrification, the volume of the recirculation-blend tank(s) must be at least 100% of the regulatory peak design flow.
- Recirculation ratios and timer settings must conform to manufacturer's recommendations contained in Document Number NDA-ATX-COMM-PKG-1, Rev. 1.1, copywriter 10/05 (entitled "AdvanTex Design Criteria")
- This product must be installed in conjunction with watertight septic and recirculation-blend tanks that have been approved by Orenco Systems, Inc. Each tank that is utilized in the installation of this product must pass a water tightness test after installation. The water tightness test must comply with s. Comm. 84.25 (2) of the Wis. Adm. Code.
- This product must be installed with associated equipment produced by Orenco Systems Inc., including ProSTEP pumping package, automatic distributing valves, and recirculating splitter valve or ball valve.
- The control panel must be an Orenco System Inc., remote telemetry control panel with phone connection, exception, except in cases where phone connection is not feasible.
- An Orenco Systems, Inc. representative must be present at the system start up.
- The installation of this product must comply with Orenco Systems, Inc. publication NIM-ATX-AX-2 Rev. 2.2, copyright 5/06 entitled AdvanTex-AX100 Treatment System Installation Guide.
- Any design that is not within the limits of this approval must be approved by Orenco Systems, Inc. and approved as an Individual Site Design by the Department of Commerce Division of Safety and Buildings.
- The residual pressure at the manifold must be set in accordance with specifications contained in Orenco Systems, Inc. publication NIM-ATX-AX-COMM-2 Rev. 1.2, copyright 4/07 entitled AdvanTex-AX100 Treatment System Installation Guide.

TABLE3 INSPECTION, MAINTENANCE AND PUMPING

PRODUCT/ (Models): ORENCO (AdvanTex AX100)

Initial/Startup Inspection/ Maintenance: Inspect at startup; inspect/maintain quarterly for first year, or more frequently as determined by local requirements or by system operator.

Routine Inspection/Maintenance: Inspect annually or more frequently as determined by local requirements or by system operator.

Ongoing Pumping Cycle And/Or Requirements: Check scum/sludge accumulation every 2 to 3 years at minimum; pump as necessary, or as per local requirements

Back-Wash Cycle Effluent Performance Levels: N/A

Effluent Performance Levels: BOD = 10 mg/L max.; TSS = 10 mg/L max.;

Ammonia-N = 10 mg/L max.; Total Nitrogen = 65% reduction ;

Fecal coliform = 10,000 cfu/100 mL max.

BOD5 Credit For Downsizing Distribution Area: YES

Fecal Credit For Reduction Of Vertical Separation: YES

Additional Comments: NONE

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This approval supersedes the approval issued on 10/9/2006 under product file number 20060367.

This approval letter shall be incorporated with your previously approved plans and/or specifications approved under product file number 20060367.

The department is in no way endorsing this product or any advertising, and is not responsible for any situation which may result from its use.

Sincerely,

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