

January 10, 2011

ORENCO SYSTEMS
GOVERNMENT RELATIONS
NICHOLAS NOBLE
814 AIRWAY AVE
SUTHERLIN OR 97479

Re: Description: SEWAGE TREATMENT APPARATUS (Tier 3- downsizing & vertical separation credit)
 Manufacturer: ORENCO SYSTEMS
 Product Name: ADVANTEX-TREATMENT SYSTEMS
 Model Number(s): AX20 and AX20-RT
 [multiple pass, packed-bed aerobic treatment for domestic-strength wastewater in gravity or dosed systems incorporating a Biotube effluent filter in a min. 1000 gal. primary tank; **the AX20-RT is housed in an 800 gal. AdvanTex Recirculating Treatment Tank**]
 Product File No: 20100454

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 DECEMBER 2012.**

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

- This product may not receive backwash discharge from a water softener. Water softener backwash discharge must be discharged in another method acceptable to chs. Comm 82 and 83, Wis. Admin. Code.
- Installation and servicing of this product must be in accordance with the manufacturer's instructions. A copy of the manufacturer's installation and servicing instructions must be given to the owner of the system.
- Plan review for the installation of this product must be obtained from the department in accordance with s. Comm 82.20 (1) of the Wis. Adm. Code.
- All processing tanks used with AdvanTex Treatment Systems must be approved by Orenco Systems Engineering Department.

Table 1
Recirculated-Blend Tank Influent* Strength

	Average	Average Weekly Peak	Rarely Exceed
BOD5 (mg/L)	130	200	300
TSS (mg/L)	40	60	150
TKN (mg/L)	65	75	150
Oil & Grease (mg/L)	20	25	25

* Influent is defined as primary sewage entering the recirculating tank from a septic tank (where separate tanks are used) or entering the recirculation compartment from the primary compartment where a two-compartment processing tank is used.

Table 2
AX20 & AX20-RT Treated Effluent Characteristics

	Average
BOD5 (mg/L)	10 (maximum)
TSS (mg/L)	10 (maximum)
Total Nitrogen (mg/L)	65% reduction* (minimum)
Fecal Coliform (cfu/100 ml)	1000 (maximum)

* Expected Total Nitrogen reduction relative to system influent.

- **TABLE 3 INSPECTION, MAINTENANCE AND PUMPING**
PRODUCT/ (Models): ORENCO (AdvanTex AX20)
Initial/Startup Inspection/ Maintenance: Inspect at startup;
inspect/maintain three to six months following
startup, 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 : N/A
Effluent Performance Levels: BOD = 10 mg/L max.; TSS = 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
- Based on testing data submitted and reviewed by the department, this approval recognizes
that when the influent strength does NOT exceed the levels listed in Table 1., this
device is expected to produce effluent not exceeding the performance levels indicated in
Table 2.
- For AX20, this product may only serve one- or two-family dwellings. The number of AX20 filter units
and required tank/tank capacity must be in accordance with specifications contained in Orenco
Systems, Inc. document number NDA-ATX-2 Rev. 4.3, copyright 11/05 entitled "AdvanTex
Design Criteria for Residential Applications."

**For AX20-RT, this product may only serve one- or two-family dwellings. The number of AX20-RT filter
units and required tank/tank capacity must be in accordance with specifications contained in Orenco
Systems, Inc. document number NIM-ATX-AXRT Rev. 1.0, copyright 1/10 entitled "AdvanTex
AX20-RT Treatment Systems, Residential Applications,, Installation Manual."**

- **TABLE 3 INSPECTION, MAINTENANCE AND PUMPING**
PRODUCT/ (Models): ORENCO (AdvanTex AX20, AX20-RT)

Initial/Startup Inspection/ Maintenance: Inspect at startup; inspect/maintain three
to six months following startup, 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: N/A
Effluent Performance Levels: BOD = 10 mg/L max.; TSS = 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: State-approved primary tank must be approved by Orenco representative
Backwash fro salt-type residential water softener prohibited
- **With UV disinfection**, this devices is expected to produce an effluent quality with a maximum monthly average
value for BOD5 of less than or equal to 30 mg/L, TSS of less than or equal to 30 mg/L TSS and F.O.G. of less
than 30 mg/L and fecal coliform of less than or equal to 10,000 cfu/100mL.

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- Additional information is included as attachment(s) to this letter; see attachment A, B and C.

This approval supersedes the approval issued on 12/18/2007 under product file number 20060366.

This approval letter shall be incorporated with your previously approved plans and/or specifications approved under product file number 20060366.

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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