

<b>I/A Tech Comparison</b>	
	1/11/22
SFR - Single Family Residence (330 permitted gpd, 165 gpd flow for cost effectiveness calculations)	
Influent - Assume septic tank discharges at 65 mg/L TN and drainfield takes out another 25%, so 50 mg/L TN is reasonable baseline for comparisons.	
<b>Basics</b>	
Manufacturer / Parent Company	Orengo Systems Inc
Model / Technology Name	AdvanTex AX20
<b>Background</b>	
Patent Year	Multiple patents ranging from 1996 to 1997
Years in production	21
<b>Approach</b>	
Category (Media filter, ATU, Mebrane, sequencing batch, drainfield, etc.)	Media Filter
<b>Positioning</b>	
Ideal applications	Domestic and commerical applications
Capacity Range	600 GPD per AX20, modular design allows for scaling system size, Larger AX100, and AX-MAX units also available for large scale applications
	AdvanTex is a modular technology that can be scaled up to 100,000 GPD configurations using the AX100 and AX-MAX units
<b>Performance</b>	
TN concentration output range category (<5 / <10 / <15 / <19 mg/L)	<19 mg/l
TP concentration output range category (<0.5/<1.0 mg/L)	N/A
kg N removed/year beyond Ref'd 50 mg/L	7.3 kg N/year*
	*Figure based on 50 mg/l TN starting point. Per published field research the actual number is between 65-70 mg/l. Information attached
<b>Approvals</b>	
Residential Permits	New England, NY & Eastern Canada ~ 10,000
MA	General approval, TN<19
RI	Class 1 for BOD, TSS & TN Approval
Other States	General approval in remaining NE states and NY. Provisional Approval in Suffolk & Nassau Counties NY for TN<19 mg/l
Commercial Permits	NE ~450-550
<b>Testing</b>	
Internal performance testing data - how many years / data points / sampling frequency?	N/A
Internal performance testing data - Range, mean, median BOD/TSS/TN values	N/A
3rd party testing data - how many years / data points / sampling frequency?	N/A
3rd party testing data - Range, mean, median BOD/TSS/TN/TP values	
3rd party testing source/organization (s)	NSF
<b>Cost</b>	
NEW SFR Construction (design+permit+equipment supply+install)	\$32,000
Monthly operating costs (electricity etc.)	\$8
Yearly O&M requirements	Yearly w/7-10 year pumpout @\$350/event
Yearly O&M costs (without sampling)	\$350
Yearly O&M costs (with sampling)	\$2,000
Expected system lifespan (range)	20+ years currently in field without replacement
Total Cost of system over over 20 years (design + install + operation + maintenance + repairs)	\$44,920
Beyond 20 years	Pricing can vary widely depending on application and installation conditions.
<b>Cost Effectiveness</b>	
Cost per kg N removed beyond ref'd 50mg/L - 20 year	MD = \$109.19/lb verified by MDE. Per our calcs \$307.67 per kn N removed/yr*

Beyond 20 years	*See line 28 above
<b>Retrofits</b>	
Ability to use tech in retrofit applications	Can be used with existing leach field
Expected capital cost of a retrofit for SFR	N/A
<b>Phosphorus Removal</b>	
Commentary	N/A
<b>Pitch</b>	
Unique aspects/advantages	High performance is maintained while being sustainable over the lifecycle of the system. Untreated effluent cannot be discharged to the disposal system. The system cannot be bypassed, guaranteeing only treated effluent is recharged into the water table.
Why Orenco?	20+ years experience in this market producing realistic, sustainable performance with a dependable service network in place.
<b>Clusters</b>	
Cluster potential?	Yes
Range (gal/day)	1,500-100,000 GPD
<b>Contact Point</b>	
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