



CBOD₅ Strength and Loading Rates

The Hoot Aerobic System was tested in 2001 according to the ANSI/NSF Standard 40, 2000 at Baylor University in Waco, Texas. The Standard calls for a range of 30 Day Averages of CBOD₅ strength to fall between 100 and 300 mg/L.

The influent sewage strength in CBOD₅ for the H-500A system during the 6 month test ranged from 63 to 377 with an average strength of 196 mg/L.

Designers can use the following chart to determine the appropriate system to choose for the sewage strength of the influent. The Average column is what the system was tested at and should be used to determine the system needed.

$$(\text{GPD}) (\text{Strength in mg/L}) (.00000834) = \text{lbs of CBOD}_5 \text{ per day}$$

System	Low (100) mg/L	Texas (140) mg/L	Average (196)* mg/L	Peak (300) mg/L
500	0.42	0.58	0.82	1.25
600	0.50	0.70	0.98	1.50
750	0.63	0.88	1.23	1.88
1000	0.83	1.17	1.63	2.50

All numbers are in lbs. of CBOD₅ per day.

The higher the strength in CBOD₅, the higher the TSS levels will be as well. Although the correlation of non-digestable solids to CBOD₅ strength is not exact, it should be used as a comparison. Systems with higher TSS levels will build up solids that need to be pumped out at more frequent intervals. For example, a system with a 200 TSS average will need to be pumped out at an interval twice as regularly as a system that is loaded at 100 TSS strength.

The State of Texas requires ALL non residential applications of Aerobic Plants to be sized with 140 CBOD₅ average as the influent to the aerobic plant. According to State Law, influent strength MUST be reduced to 140 Average to use the system at its maximum daily rated capacity. As a general rule, a standard pre-treatment or septic tank provides a 25% reduction of CBOD₅ strength, so 140 CBOD₅ following the pre-treatment would be a 186 CBOD₅ mg/L. average influent, from the pipe, close to our Average influent strength.