

Table 1- Characteristics of the UASB feed influent (Mean $\pm$ SD)

Parameter	Mean $\pm$ SD
pH	7.3 $\pm$ 0.25
COD _T (g l ⁻¹)	20.4 $\pm$ 1.7
COD _{sup} (g l ⁻¹)	19.1 $\pm$ 1.6
COD _{VFA} (g l ⁻¹)	14.6 $\pm$ 1.6
TS (g l ⁻¹)	18.6 $\pm$ 1.3
VS (g l ⁻¹)	11.4 $\pm$ 1.0
NH ₄ ⁺ -N (g l ⁻¹)	1.33 $\pm$ 0.10
TKN-N (g l ⁻¹)	1.58 $\pm$ 0.13
P _T (mg l ⁻¹)	100 $\pm$ 26

Table 2- Performance data of the UASB reactor at 25°C (Mean ± SD)

HRT (d)	OLR (g [COD] l ⁻¹ d ⁻¹)	COD _T rem (%)	COD _{sup} rem (%)	% VS rem	I [CH ₄] g ⁻¹ [COD]	I [CH ₄] g ⁻¹ [VS]	I [CH ₄] l ⁻¹ d ⁻¹	% CH ₄
2.0	9.17 ± 0.3	81.9 ± 1.6	83.7 ± 1.2	67.9 ± 2.7	0.28 ± 0.01	0.51 ± 0.03	2.57 ± 0.10	83.9 ± 0.0
1.50	12.9 ± 0.7	82.2 ± 1.1	82.7 ± 2.1	65.7 ± 4.2	0.28 ± 0.02	0.52 ± 0.05	3.63 ± 0.20	82.8 ± 0.6
1.25	17.0 ± 0.7	82.3 ± 0.8	83.5 ± 0.6	65.1 ± 3.9	0.28 ± 0.02	0.52 ± 0.08	4.75 ± 0.47	83.9 ± 1.3
1.00	20.7 ± 1.6	81.1 ± 3.0	82.7 ± 2.1	65.0 ± 2.2	0.28 ± 0.02	0.48 ± 0.04	5.73 ± 0.31	83.9 ± 1.4
0.80	26.4 ± 1.1	74.7 ± 2.0	75.8 ± 1.6	61.5 ± 3.8	0.26 ± 0.02	0.44 ± 0.03	6.73 ± 0.18	83.1 ± 0.6
0.65	34.8 ± 0.7	69.8 ± 3.1	73.1 ± 2.1	58.6 ± 3.2	0.24 ± 0.01	0.43 ± 0.02	8.36 ± 0.45	82.8 ± 0.4

Table 3- Concentration values of the UASB reactor effluent (Mean $\pm$ SD)

HRT (d)	pH	COD_T (g l⁻¹)	COD_{sup} (g l⁻¹)	COD_{VFA} (mg l⁻¹)	TS (g l⁻¹)	VS (g l⁻¹)	NH₄⁺-N (g l⁻¹)	TKN-N (g l⁻¹)	P_T (mg l⁻¹)
2.0	8.6 $\pm$ 0.2	3.41 $\pm$ 0.36	2.67 $\pm$ 0.24	16 $\pm$ 15	9.07 $\pm$ 0.18	3.44 $\pm$ 0.29	1.25 $\pm$ 0.05	1.33 $\pm$ 0.04	22 $\pm$ 4
1.50	8.5 $\pm$ 0.1	3.38 $\pm$ 0.23	3.09 $\pm$ 0.30	81 $\pm$ 62	9.15 $\pm$ 0.49	3.55 $\pm$ 0.40	1.37 $\pm$ 0.01	1.55 $\pm$ 0.01	14 $\pm$ 3
1.25	8.4 $\pm$ 0.1	3.68 $\pm$ 0.23	3.33 $\pm$ 0.12	75 $\pm$ 23	9.80 $\pm$ 0.40	4.21 $\pm$ 0.36	1.39 $\pm$ 0.03	1.56 $\pm$ 0.01	31 $\pm$ 7
1.00	8.5 $\pm$ 0.1	3.83 $\pm$ 0.74	3.31 $\pm$ 0.38	111 $\pm$ 99	9.69 $\pm$ 0.23	4.09 $\pm$ 0.31	1.28 $\pm$ 0.06	1.41 $\pm$ 0.07	23 $\pm$ 2
0.80	8.1 $\pm$ 0.1	5.34 $\pm$ 0.29	4.73 $\pm$ 0.38	1013 $\pm$ 368	10.5 $\pm$ 0.06	4.75 $\pm$ 0.04	1.35 $\pm$ 0.08	1.52 $\pm$ 0.03	23 $\pm$ 8
0.65	7.9 $\pm$ 0.1	6.65 $\pm$ 0.60	5.72 $\pm$ 0.43	1615 $\pm$ 335	11.1 $\pm$ 0.05	5.22 $\pm$ 0.03	1.42 $\pm$ 0.02	1.57 $\pm$ 0.05	30 $\pm$ 11