

ASCE OXYGEN TRANSFER DETERMINATION

PROJECT: Colorite - Paddle Wheel			599 Waldron Rd.	
DATE: 21-Mar-06			LaVergne, TN 37086	
RUN: 2 - 1.9% NaCl			615/793-7547	
			FAX 615/793/5070	
	Initial	Mid Point	Final	
Barometric Pres. (PSIA)	14.271	14.282	14.296	C' Air Flow Device 1 (Annubar) NA
(mm Hg)	738.00	738.60	739.30	Air Flow Device 1 (SCFM) NA
Ambient Temperature (°F)	47.10	46.80	46.40	C' Air Flow Device 2 (Orifice) NA
Relative Humidity (%)	48%	48%	48%	Air Flow Device 2 (SCFM) NA
Line Pressure (PSIG)	0.000	0.000	0.000	
(In. Hg)	0.00	0.00	0.00	
Line Temperature (°F)	NA	NA	NA	
ΔH Air Flow Dev. 1 (Annubar)	NA	NA	NA	Average Air Flow (SCFM) NA
ΔH Air Flow Dev. 2 (Orifice)	NA	NA	NA	Effective Depth Correction (f) NA
ΔH Air Flow Dev. 3 (Annubar)	NA	NA	NA	Headloss (In. H ₂ O) 0.00
ΔH Air Flow Dev. 4 (Annubar)	NA	NA	NA	C* (mg/l) 9.73
Water Temp. (°C)	10.40	10.20	10.01	C _{smT} (Standard Methods, mg/l) 11.23
Orifice Diameter (in)		NA		C* ₂₀ Standard Conditions 8.10
Number Of Aeration Devices		1		Tank Volume (Ft ³) 1,529.8
Side Water Depth (ft)		4.42	(1.34 m)	(Gallons) 11,443.4
Air Release Depth (ft)		0.00	(0.00 m)	(m ³) 43.3
Tank Length (ft)		0.00	(0.00 m)	(Million Pounds) 0.095
Tank Width (ft)		0.00	(0.00 m)	#Na ₂ SO ₃ @ 160% Stoichiometric 12
Tank Diameter (ft)		21.00	(6.38 m)	Cobalt Concen. (mg/l) 0.100
Gear Reducer or Belt Efficiency		100.0%		Grams Cobalt Chloride 17.9
Motor Efficiency		80.0%		Total HP _{motor} av. 1.29
Power, HP _{wire} (60% Eff)		1.62	(1.21 kw)	TDS (mg/L) 1,000.00
Total HP _{wire} av.		1.62	(1.20 kw)	

NON-LINEAR REGRESSION RESULTS

Probe	K _{LaT}	K _{La20}	SOTR	SOTR/Dev	SAEmotor	SAE _{wire}	C*	Std. Err.
1	3.44	4.35	3.29	3.29	2.54	2.04	9.52	0.0979
2	3.47	4.37	3.41	3.41	2.64	2.11	9.81	0.0392
3	3.61	4.55	3.51	3.51	2.72	2.17	9.70	0.0576
4	3.31	4.18	3.28	3.28	2.54	2.03	9.88	0.1087
avg.	3.46	4.36	3.37	3.37	2.61	2.09	9.73	0.0758
Avg	3.46	4.36	3.38	3.38	2.61	2.09	9.76	Exclude Max&Min
TDS	3.46	4.36	3.37	3.37	2.61	2.09	9.73	
Corrected	/hr	/hr	#O ₂ /hr		#O ₂ /hr-HPm	#O ₂ /hr-WHP		

		OXYGEN TRANSFER					
	#VALUE!	L/s	#O ₂ /Hr:	3.37	1.530	:KgO ₂ /Hr	
			#O ₂ /Hr/Diff.:	3.37	1.530	:KgO ₂ /Hr/Diff.	
			#O ₂ /Day:	81.0	36.7	:KgO ₂ /Day	
			#O ₂ /Day/1000 Ft ³ :	53	0.85	:KgO ₂ /Day/m ³	

LINEAR REGRESSION RESULTS

Probe	K _{LaT}	K _{La20}	SOTR	SOTR/Dev	SAEmotor	SAE _{wire}	C*	Corr.Coeff.
1	3.55	4.47	3.35	3.35	2.59	2.07	9.42	0.9988
2	3.50	4.42	3.44	3.44	2.66	2.13	9.79	0.9996
3	3.71	4.68	3.59	3.59	2.78	2.22	9.67	0.9989
4	3.33	4.20	3.30	3.30	2.55	2.04	9.88	0.9951
avg.	3.52	4.44	3.42	3.42	2.65	2.12	9.69	0.9981
Avg	3.52	4.44	3.43	3.43	2.66	2.12	9.73	Exclude Max&Min
TDS	3.52	4.44	3.42	3.42	2.65	2.12	9.69	
Corrected	/hr	/hr	#O ₂ /hr		#O ₂ /hr-HPm	#O ₂ /hr-HPw		

EUROPEAN STANDARD

Probe	K _{LaT}	K _{La10}	SOTR	SOTR/Dev	SAE	C*	
1	3.50	3.48	1.49	1.49	1.23	9.52	
2	3.48	3.47	1.53	1.53	1.27	9.81	
3	3.66	3.64	1.59	1.59	1.32	9.70	
4	3.32	3.30	1.47	1.47	1.22	9.88	
avg.	3.49	3.47	1.52	1.52	1.26	9.73	
Avg	3.49	3.47	1.51	1.51	1.25	9.76	Exclude Max&Min
TDS	3.49	3.47	1.52	1.52	1.26	9.73	
Corrected	/hr	/hr	kg O ₂ /hr		kg O ₂ /hr-kw	mg/L	