

EXERCÍCIO TAGUCHI – Advanced Oxidation Process

Response Variable : Chemical Oxygen Demand (COD)

Table . Factors and levels for the orthogonal array

Notation	Factor	Level 1	Level 2
A	Retention time(h)	6	12
B	Pre-aeration time	without	15 minutes
C	Neutralization	In natura	pH 7.0
D	Floculant Agent Concentration $Al_2(SO_4)_3$ 10.0% m/m	5.0 mL	10 mL
E	Polyeletrolit concentration 1.0% m/m	5.0 mL	10.0 mL
F	Activated Carbon (g/L)	3.0	6.0
G	Activated Sludge (g/L)	3.0	6.0
H	Fenton concentration	2.5mL H_2O_2 30% v/v/ 3mL $FeSO_4$ 0.18M	15.0mL H_2O_2 30% v/v/ 18.0 mL $FeSO_4$ 0.18M
I	UV radiation time (min)	30	210
J	Ozone concentration (mg/L)	2	3

Table 2 . Taguchi L_{12} Orthogonal Array and Response Variables

Trials	F a c t o r										COD mg/L	COD	COD	Média	S/N ratio
	A	B	C	D	E	F	G	H	I	J					
1	1	1	1	1	1	1	1	1	1	1	24,225	24,500	23,225		
2	1	1	1	1	1	2	2	2	2	2	22,003	22,040	22,103		
3	1	1	2	2	2	1	1	1	2	2	14,756	14,956	15,150		
4	1	2	1	2	2	1	2	2	1	1	10,020	10,120	10,220		
5	1	2	2	1	2	2	1	2	1	2	21,746	22,046	21,946		
6	1	2	2	2	1	2	2	1	2	1	21,935	22,035	21,730		
7	2	1	2	2	1	1	2	2	1	2	20,435	21,000	20,830		
8	2	1	2	1	2	2	2	1	1	1	19,880	19,080	19,000		
9	2	1	1	2	2	2	1	2	2	1	18,311	18,390	18,450		
10	2	2	2	1	1	1	1	2	2	1	9,643	9,805	9,540		
11	2	2	1	2	1	2	1	1	1	2	8,741	8,940	8,343		
12	2	2	1	1	2	1	2	1	2	2	10,228	10,000	10,525		

Estudo em triplicata. COD é Demanda Química de Oxigênio – Menor é Melhor