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8
Anexos

8.1
Estudos preliminares para otimização das condições para a geração de vapor quando emprega-se a tiouréia como pré-redutor.

Valores mínimo, máximo e ponto central (0) das variáveis empregadas nos estudos preliminares na identificação das variáveis significativas na determinação de As, Sb e Se por VG-ICP OES.

Fator	Variável	Mínimo (-)	(0)	Máximo (+)
1	Vazão da amostra, mL mim^{-1}	0,5	0,75	1,0
2	Vazão do $NaBH_4$, mL min^{-1}	1,0	1,5	2,0
3	Vazão do gás de arraste, L min^{-1}	0,5	0,6	0,7
4	Concentração do HCl, mol L^{-1}	5,0	6,0	7,0
5	Concentração da tiouréia, mol L^{-1}	0,01	0,02	0,03

Matriz de planejamento para estudos preliminares na identificação das variáveis significativas na determinação de As, Sb e Se por VG-ICP OES.

Experimentos	**1**	**2**	**3**	**4**	**5**	**SBR**		
						As	**Sb**	**Se**
1	-	-	-	-	+	52,4	17,5	15,4
2	+	-	-	-	-	169,2	49,6	31,5
3	-	+	-	-	-	56,2	32,8	10,6
4	+	+	-	-	+	127,5	83,7	22,5
5	-	-	+	-	-	44,9	14,6	15,5
6	+	-	+	-	+	86,7	34,9	33,7
7	-	+	+	-	+	30,7	16,1	10,1
8	+	+	+	-	-	190,7	45,5	22,5
9	-	-	-	+	-	64,2	30,6	12,3
10	+	-	-	+	+	446,5	63,6	25,3
11	-	+	-	+	+	51,8	29,8	10,0
12	+	+	-	+	-	290,3	121,3	25,7
13	-	-	+	+	+	55,4	13,3	12,3
14	+	-	+	+	-	98,6	32,0	18,4
15	-	+	+	+	-	31,7	19,5	9,3
16	+	+	+	+	+	62,5	49,0	18,2
17	CP	CP	CP	CP	CP	77,7	38,4	27,0
18	CP	CP	CP	CP	CP	221,7	36,7	20,2
19	CP	CP	CP	CP	CP	126,4	44,3	22,1

Gráficos de pareto gerados nos estudos preliminares para a otimização da geração de vapor para os elementos As, Sb e Se, em tiouréia: (1) Vazão de amostra (mL min^{-1}), (2) Vazão do $NaBH_4$ (mL min^{-1}), (3) Vazão do gás de arraste (L min^{-1}), (4) Concentração do HCl (mol L^{-1}), (5) Concentração de tiouréia (mol L^{-1}).