Cinética da Redução do Corante Azul de Toluidina Pelo Ião Sulfito

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1 Cálculos Pre-laboratoriais

TB^+

$$V_{Mae} = \frac{mL_{Mae}}{2.0 * 10^{-4}\,mol_{TB^+}} \frac{2.0 * 10^{-5}\,mol_{TB^+}}{mL_{Sol}}\, 20\,mL_{Sol} = 2.0\,mL_{Mae}$$

Na_2SO_3

$$V_{Mae} = \frac{mL_{Mae}}{0.20\,mol_{Na_2SO_3}} \frac{x\,mol_{Na_2SO_3}}{mL_{Sol}}\, 20\,mL_{Sol} = 100\,x\,mL_{Mae}$$

$M_{Na_2SO_3}$	0.02	0.04	0.06	0.08	0.10
mL_{Mae}	2	4	6	8	10

NaCl

$$\boldsymbol{V_{Mae} = \frac{0.48999 - 3\,c_{Na_2SO_3}}{0.03}\,mL_{Mae}}$$

$$\frac{mL_{Mae}}{0.60\,mol_{NaCl}} \frac{c_{NaCl}mol_{NaCl}}{mL_{Sol}}\, 20\,mL_{Sol} = \frac{c_{NaCl}}{0.03}\,mL_{Mae}$$

$$I = 0.49 = \frac{1}{2}\sum_{i=1}^{n} c_n\,z_n^2 = \frac{1}{2}\begin{pmatrix} 2.0*10^{-5} & *(+1)^2+ \\ +c_{Na_2SO_3}*2 & *(+1)^2+ \\ +c_{Na_2SO_3} & *(-2)^2+ \\ +c_{NaCl} & *(+1)^2+ \\ +c_{NaCl} & *(-1)^2 \end{pmatrix} \begin{matrix} (TB^+) \\ (Na^{2+}) \\ (So^{2-}) \\ (Na^{1+}) \\ (Cl^{1-}) \end{matrix} \implies$$

$$\implies c_{NaCl} = 0.48999 - 3\,c_{Na_2SO_3} \qquad \therefore\ \frac{0.48999 - 3\,c_{Na_2SO_3}}{0.03}\,mL_{Mae}$$

$M_{Na_2SO_3}$	0.02	0.04	0.06	0.08	0.10
mL_{Mae}	14.33	12.33	10.33	8.33	6.33

Volumes usados

Solução	TB^+/mL	Na_2SO_3/mL	NaCl/mL	H_2O/mL
1	2	2	14	2
2	2	4	12	2
3	2	6	10	2
4	2	8	8	2
5	2	10	6	2

Volume Total: 20 mL