KYOTO ELECTRONICS MANUFACTURING CO.,LTD.

TIQ-99200enL

**Application Memo**

# Quantitative Determination of Styrene in Latex

| | |
|---|---|
| Industry | Plastics & rubber |
| Instrument | Automatic potentiometric titrator |
| Measurement method | Oxidation-reduction titration |
| Standards | |

## 1. Overview

After adding Methanol and 15% sulfuric acid to the prepared sample, it is titrated with 0.1mol/L potassium bromate/potassium bromide solution until the color changes to yellow. The blank value is calculated from the titration volume of the titrant. After adding 10% potassium iodide, it is titrated with 0.1mol/L sodium thiosulfate solution. The endpoint is the maximum inflexion on the titration curve. The styrene concentration is calculated from the blank value and the titration volume of the sodium thiosulfate solution.

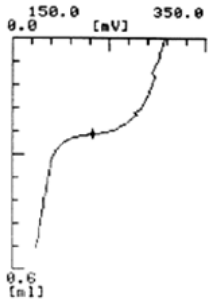
## 2. Apparatus

| | |
|---|---|
| Main unit | Automatic potentiometric titrator (preamplifier STD) |
| Electrode | Platinum electrode<br>Ceramic reference electrode |

## 3. Reagents

| | |
|---|---|
| Titrant | 0.1mol/L potassium bromate/potassium bromide solution<br>0.1mol/L sodium thiosulfate solution |
| Solvent | Methanol |
| Additive | 15% sulfuric acid, 10% potassium iodide |

## 4. Example




—Titration curve—

—Measurement results—

| | Sample size (g) | Titer $KBr\text{-}KBrO_4$ (mL) | Blank value | Titer $Na_2S_2O_2$ (mL) | Styrene concentration (%) |
|---|---|---|---|---|---|
| 1 | 22.119 | 18.387 | 1.8028 | 0.2512 | 0.4179 |
| 2 | 22.168 | 18.761 | 1.8395 | 0.1647 | 0.4276 |
| 3 | 22.188 | 18.811 | 1.8444 | 0.1979 | 0.4276 |
| 4 | 22.189 | 18.753 | 1.8472 | 0.1180 | 0.4301 |
| 5 | 22.168 | 18.624 | 1.8261 | 0.1299 | 0.4253 |
| Average | | | | | 0.4257 |
| SD | | | | | 0.0047 |
| RSD(%) | | | | | 1.1 |

Please feel free to contact us for any further information.

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