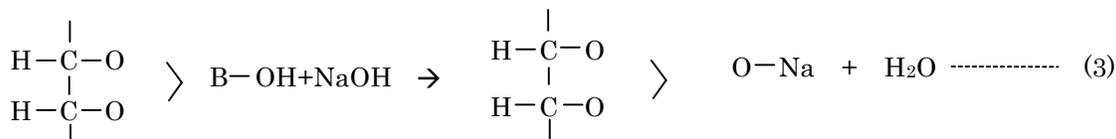
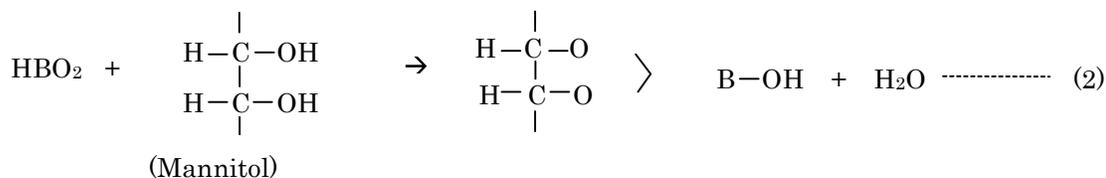
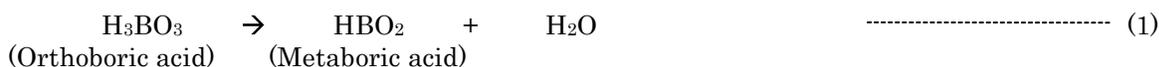


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|-------------------------------|------------|---|-------------|
| AQUACOUNTER Application Sheet | COM series | DATA No. J8 | 1st edition |
| Inorganic Acid | | Quantification of boric acid in plating solution | |

1. Measurement outline

Boric acid in plating solution is quantified by neutralization titration. Since boric acid is a weak acid, it cannot be titrated directly by neutralization titration. This section introduces an example of adding mannitol (D-Mannite) to the sample solution to form organic acid that is equivalent to boric acid in quantity and titrating by sodium hydroxide titrant.



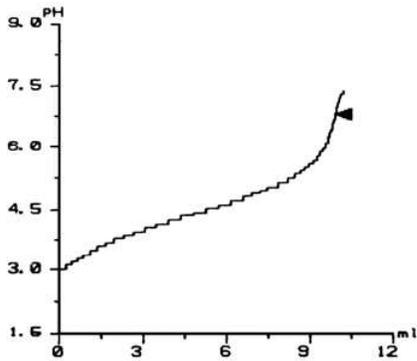
2. Reagents and Electrodes

| | | |
|---|---------------------|--|
| (1) Reagents | Titrant | 0.1mol/L sodium hydroxide titrant |
| | Mannitol | 5g used for 1 analysis |
| (2) Electrodes *standard accessories | Indicator electrode | *Glass electrode GE-101B to IE jack |
| | Reference electrode | *Reference electrode RE-201 to RE jack |

3. Measurement conditions example (for COM-1600S)

| | |
|--------------|------|
| (1) Method | Auto |
| (2) End Sens | 400 |
| (3) Mode | 4 |
| Pre Int | 0 |
| Del K | 9 |
| Del Sens | 0 |
| Int Time | 3 |
| Int Sens | 3 |
| Brt Speed | 2 |
| Pulse | 40 |

4. Measurement example



Measurement results on boric acid

| Sample No. | Sample volume (mL) | Titration value (mL) | Concentration (g/L) |
|------------------|--------------------|----------------------|---------------------|
| 1 | 2 | 9.896 | 30.8076 |
| 2 | 2 | 9.903 | 30.8294 |
| 3 | 2 | 9.884 | 30.7703 |
| 4 | 2 | 9.886 | 30.7765 |
| 5 | 2 | 9.883 | 30.7672 |
| Avg. | | | 30.7902 g/L |
| Std. Dev. | | | 0.027 g/L |
| C.V. | | | 0.088 % |

5. Outline

. About interfering components in measurement

(1) When acid is contained in sample

If acid is contained in the sample, it shall be titrated to the end point pH in advance to add mannitol and titrate again.

(2) When metal salt is contained

If metal salt for iron, etc. is contained, it will consume the titrant and form precipitation, and this method cannot be applied.

Key words

Boric acid, neutralization titration, mannitol

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