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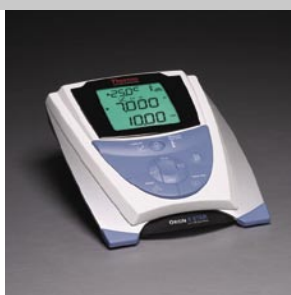
# Chloride in Infant Formula

Orion 4-Star pH/ISE  
Benchtop Meter

## Food & Beverage

Measurement by Ion Selective Electrode (ISE) is one of the most common analytical techniques used in chemistry laboratories today.

One common parameter measured using ISE methods is chloride, which is found in most infant formulas.



## Orion 4-Star pH/ISE for ISE measurement


Chloride is an essential mineral to help babies grow healthy and strong. The chloride content of cow's milk and soy formula has stimulated interest in the past 15 years because of serious health conditions induced by several infant formulas with deficient chloride concentrations. Studies have shown that inadvertent feeding of chloride deficient infant formula has resulted in failure-to-thrive, anorexia, weakness and some findings of slow development.

Many manufacturers use Thermo products everyday for purposes of research & development, quality control and product

labeling. Our meters, electrodes and solutions help to ensure the accuracy of ingredient content.

With the easy-to-use Orion 4-Star pH/ISE meter (Cat. No. 1115000) and Orion ionplus® Chloride electrode (Cat. No. 9617BNWP) pH and ISE measurements are fast and accurate. This rugged meter offers a full complement of GLP-related features and can store up to 10 methods; a valuable feature for busy multi-user labs. Orion products offer top quality meter features with proven electrode technology to provide a complete package needed to measure chloride in infant formula.

# Orion 4-Star pH/ISE

The  with the Orion ionplus® Chloride electrode (Cat. No. 9617BNWP) offers an optimum solution to meet pH and ISE measurement needs.

## Orion 4-Star pH/ISE Specifications:

| Specifications                            |  | Benefit  |
|---|--|--|
| <b>pH</b>                                 |  |  |
| Readout Range / Resolution                | -2.000 to 19.999 or 0 to 14 in aqueous solutions / 0.1,0.01,0.001                | Calibration point flexibility                  |
| Relative Accuracy                         | ± 0.002  | For exceptional accuracy                       |
| SMART STABILITY™ and SMART AVERAGING™     | Resolution dependent / automatic   | Optimized accuracy, precision & response time  |
| AUTO-CAL™ and/or Manual Calibration       | 1 to 5 points; US/NIST, DIN, and custom buffers recognized                       | Protocol compliance                            |
| <b>ISE</b>                                |  |  |
| Range / Resolution                        | 0 to 19900 / 1,2, or 3 significant digits  | Wide operating range/Increased accuracy        |
| Relative Accuracy                         | ± 0.2 mV or 0.05%, whichever is greater  |  |
| SMART STABILITY™ and SMART AVERAGING™     | Resolution dependent / automatic   | Optimized accuracy, precision, & response time |
| Units                                     | M, mg/L, %, ppb, or no units   | Choice of reporting units                      |
| # ISE Cal points                          | 1 to 5   |  |
| <b>Special ISE Calibration Features</b>   | Linear point to point, selectable auto-blank non-linear, low concentration range |  |
| <b>Temperature</b>                        |  |  |
| Range / Resolution                        | -5 to 105 °C / 0.1 up to 99.9 °C, 1.0 over 99.9 °C                               | Allows for temperature variations              |
| Relative Accuracy                         | ± 0.1 °C   |  |
| Temperature Compensation                  | Auto/Manual  |  |
| <b>Display</b>                            | Custom backlit LCD, for easy viewing   | Easy to read                                   |
| <b>Special GLP Software Features</b>      |  |  |
| # Of Data Logging Points                  | 200 points by time, stability or manual read with time/date stamp                | Expanded data storage available                |
| Calibration Log                           | Last 10 Calibrations   | Establish audit trail                          |
| User Method Storage                       | 10 Saved   | For easy retrieval of routine tests            |
| <b>Power</b>                              | Universal power adapter and battery power 4 x AA batteries                       | Data is secure                                 |
| <b>Regulatory and Safety</b>              | CE, CSA, UL, TÜV, FCC Class A limits   | Meets all necessary regulations                |
| <b>Environmental Operating Conditions</b> |  |  |
| Ambient Operating Temperature             | 5 to 45 °C   |  |
| Relative Humidity                         | 5 to 85% Non-Condensing  |  |
| IP Rating                                 | IP54, splashproof and dustproof  |  |
| <b>Warranty</b>                           | 36 months (from date of purchase)  | Reduces service cost                           |

Above data generated under optimal/controlled circumstances.

## Equipment needed for pH/ISE measurement using the Orion 4-Star pH/ISE meter:

| Description   | Orion Cat. No. |
|---|----------------|
| ISE Application Package (includes all items listed below)             | 1010147        |
| Star Series Method Note: Chloride in Infant Formula                   | M-1416-E       |
| 4-Star benchtop pH/ISE meter  | 1115000        |
| Orion ionplus® Chloride electrode                                     | 9617BNWP       |
| Chloride standard, 1000 ppm, 475 mL                                   | 941708         |
| Chloride standard, 100 ppm, 475 mL                                    | 941707         |
| Optimum Results B Reference Fill Solution 5x60 mL                     | 900062         |
| Ionic Strength Adjuster, 475 mL                                       | 940011         |
| Electrode Stand   | 1110001        |
| Benchtop Stirrer  | 096019         |
| <b>Also Available as an Accessory: ATC stainless steel body probe</b> | 927007MD       |

Environmental Instruments  
Water Analysis Instruments