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Calcium in Milk

Orion 4-Star pH/ISE
Benchtop Meter

Food & Beverage

The calcium content in milk is measured in accordance with quality control and nutrition facts labeling requirements. The FDA sets the "percent Daily Value" (%DV) for calcium in milk. The amount of calcium is listed on the nutrition facts panel on the package label.

The direct measurement of ions using Ion Selective Electrodes (ISE) is a well-established technique frequently used as a standard method of analysis in chemistry laboratories today.



Orion 4-Star pH/ISE for ISE measurement

Most people receive the major portion of their daily calcium intake from dairy foods. Calcium is vital for healthy teeth and bones and also plays a crucial role optimizing healthy functioning of nerves and muscle tissue. The Food and Nutrition Board of the National Academy of Sciences recently released new national recommendations for calcium, which listed increased levels for most age groups.

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® Calcium electrode (Cat. No. 9720BNWP), 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 set-up parameters and calibrations; 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 calcium in milk.

Orion 4-Star pH/ISE

The Orion 4-Star pH/ISE meter (Cat. No. 1115000) offers dual measurement capabilities at an affordable price. This new meter combined with the Orion ionplus® Calcium electrode (Cat. No. 9720BNWP) offers an optimum solution to meet pH and ISE measurement needs.

Orion 4-Star pH/ISE Specifications:

| Specifications | | Benefit |
|---|--|--|
| pH | | |
| 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 |
| ISE | | |
| 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 | |
| Special ISE Calibration Features | Linear point to point, selectable auto-blank non-linear, low concentration range | |
| Temperature | | |
| 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 | |
| Display | Custom backlit LCD, for easy viewing | Easy to read |
| Special GLP Software Features | | |
| # 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 |
| Power | Universal power adapter and battery power 4 x AA batteries | Data is secure |
| Regulatory and Safety | CE, CSA, UL, TÜV, FCC Class A limits | Meets all necessary regulations |
| Environmental Operating Conditions | | |
| Ambient Operating Temperature | 5 to 45 °C | |
| Relative Humidity | 5 to 85% Non-Condensing | |
| IP Rating | IP54, splashproof and dustproof | |
| Warranty | 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. |
|---|----------------|
| Calcium Application Package (includes all items listed below) | 1010134 |
| Star Series Method Note: Ionized Calcium in Milk | M-1403-E |
| 4-Star benchtop pH/ISE meter | 1115000 |
| Orion ionplus® Sure-Flow® Calcium electrode | 9720BNWP |
| 0.1 M Calcium as CaCl ₂ Standard | 922006 |
| Reference Filling Solution, Optimum Results™ A | 900061 |
| ISA (Ionic Strength Adjustor) for Calcium electrode | 932011 |
| Benchtop Electrode Stand | 1110001 |
| Benchtop Stirrer | 096019 |

Environmental Instruments
Water Analysis Instruments