

Chloride in Snack Chips/Crisps

Orion 4-Star pH/ISE
Benchtop Meter

Food & Beverage

A common measurement in snack food products is chloride, which is reported as % salt. The test is done in accordance with quality control and nutrition facts labeling requirements.

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.

Thermo Electron Corporation offers a wide range of meters, electrodes and consumables to accurately measure ISE levels in a variety of samples.



For instructions on ISE measurement using Orion products, download our Star Series meter information at www.thermo.com/water.



Orion 4-Star pH/ISE for ISE measurement


The addition of salt, NaCl, to snack foods serves many purposes. Salt brings out the natural flavors, textures, and great tastes of the food. It contributes to the color, aroma and appearance consumers expect. Recently many health conscious consumers are concerned about their salt intake when purchasing snack foods. In the 2000 Dietary Guidelines for Americans, the U.S. Department of Agriculture (USDA) and Health and Human Services recommended that we choose foods with less salt. Reducing salt in the diet may reduce high blood pressure and decrease the likelihood of heart or kidney disease and stroke.

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 password protected 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 a variety of substrates.

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
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 screen
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.
Chloride Application Package (includes all items listed below)	1010148
Star Series Method Note: Chloride (as % NaCl) in Snack Chips	M-1417-E
4-Star benchtop pH/ISE meter	1115000
Orion ionplus® Sure-Flow® Chloride electrode	9617BNWP
Chloride Activity Standard (100 ppm)	941707
Chloride Activity Standard (1000 ppm)	941708
Optimum Results™ B Reference Filling Solution, 5x60 mL	900062
ISA (Ionic Strength Adjustor) for chloride electrode, 475 mL	940011
5% NaCl Standard Solution (0.856 M)	941104
Benchtop Electrode Stand	1110001
Benchtop Stirrer	096019

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