EasyPlus™ Titration

Food & Beverage Analysis Made Easy

Swiss Precision for Your Analysis

METTLER TOLEDO

Titrators for Your Samples
Full Package for Your F&B Analysis

The food and beverage industries are subject to regulations covering the whole production process for the benefit of food safety, consumer protections and (inter)national trade. This is where METTLER TOLEDO supports you with its expertise in analytical instruments to ensure that your finest products meet the quality standards for which you are looking. With the EasyPlus™ Titrators, METTLER TOLEDO provides the latest technology combined with solid Swiss quality and reliability for your analyses.

Affordable Swiss technology

Swiss engineering and the highest quality parts and materials make the compact and accurate titrator a perfect addition to any quality laboratory.

Quick start with iTitrate™ operation

Operation is simple with the Apps based user interface and intuitive system menu navigation; save training time and make daily tasks simpler and quicker.

Ready for your samples with iTitrate™ intelligence

The built-in intelligence requires only a few parameters to be set before the instrument is ready for titration.

Easy Pro

Easy KFV

Service and Support

Take advantage of our internet based service and support. Videos, FAQ's and a multitude of applications are just a click away.

▸ **www.mt.com/easyplustitration**

Ready for Your Samples
with our Expertise in Titration

Combine your experience in the production of food and beverages with our expertise in analytical instruments and corresponding applications.

pH and Acidity

pH and acidity are important characteristics of routine quality control. Whether you are analyzing honey, milk, edible oils, orange juice, vinegar, etc. use the new Easy pH to analyze pH and acidity in one analysis.

Chloride Content

The chloride (salt) content in food is regulated in many countries. Accurately test your sample for the exact chloride content with an intuitive user interface and simple operation offered by our new Easy Cl Titrator.

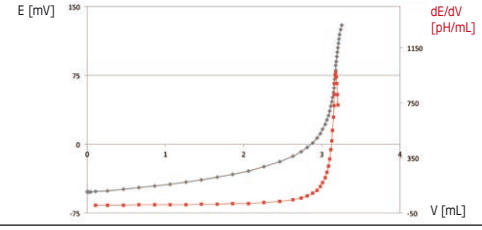
Water Content

Any excess of water may harm the quality of the product or shorten shelf-life. Use the new Easy KFV to determine the water content of your products or raw materials (e.g. coffee, butter, flour, sugar, etc.) accurately and safely.

Redox

Use the Easy Ox Titrator for redox titrations in your food samples. Determine the Vitamin C content in juices and other enriched products or check the peroxide values of fats and oils to know exactly when to replace them.

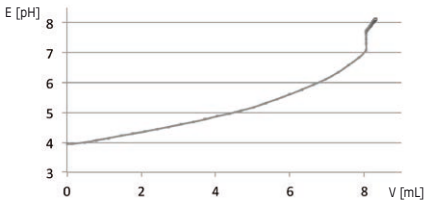
Application Note: Chloride in Snack Food by Precipitation Titration (Direct Method)

Sample	0.9 - 1.6 g snack food			
Preparation procedures	• Weigh 0.9 – 1.6 g grinded snack food into the titration beaker • Add 50 mL 0.02 M H_2SO_4 and start titration			
Compound	Chloride, M = 35.45 g/mol			
Chemicals	• 0.02 M H_2SO_4 • Standard: 0.1 M NaCl			
Titrant	• Titrant: $AgNO_3$, 0.1 mol/L • Titer: 5 mL 0.1 mol/L NaCl in 40 mL 0.02 mol/L H_2SO_4			
Instruments	[ ] Easy pH [X] Easy Cl [ ] Easy Ox [X] Easy Pro [ ] Easy KFV			
Indication	• Potentiometric indication with combined precipitation sensor (EM45-BNC)			
Method	EQP / EP	EQP	Relevant EQP	1
	Titration type	Direct	Control	Cautious
	Sample ID	None	Stir	Medium
	Prestir duration	10 s	Predispense	0 mL
	Sample size entry	Weight	Calculation	Content [%]
	Multiple determ.	Yes	Report	long
Results	Chloride content (n = 5): 1.37 ± 0.050% s_{rel} = 3.65%			
Waste	Neutralize aqueous solution before final disposal			
Limits	Sample size limits (Min – Max): 0.5 – 2.0 g			

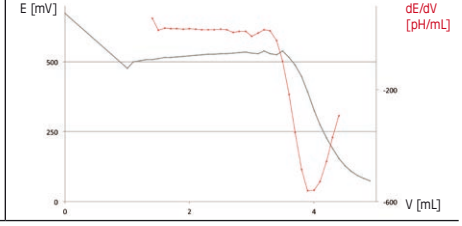
Quick Start
with our Ready-to-use Applications

Together with the EasyPlus™ Titrators METTLER TOLEDO provides an innovative web-based platform with full access to a database of various applications for your daily analysis.

Application Note: pH and Acidity of Beverages by Endpoint Titration

Sample	1 - 10 g beverage, in this application: 5 - 10 g pineapple juice			
Preparation procedures	• Calibrate the pH glass electrode with METTLER TOLEDO buffers 4.01, 7.00 and 9.21. • Put 1 – 10 g beverage, depending on its acidity, into the titration beaker.			
Compound	Various inorganic and organic acids			
Chemicals	---			
Titrant	• Sodium hydroxide, NaOH, c (NaOH) = 0.1 mol/L • Titer: potassium hydrogen phthalate, 0.07 - 0.12 g			
Instruments	[X] Easy pH [ ] Easy Cl [ ] Easy Ox [X] Easy Pro [ ] Easy KFV			
Indication	• pH glass electrode (EG11-BNC)			
Method	EQP / EP Titration type Sample ID Prestir duration Sample size entry Multiple determ.	EP Direct Water 10 s Weight Yes	Endpoint value Control Stir Predispense Calculation Report	8.1 pH Normal Medium 0 mL Content [g/L] long
Results	Acidity (n = 5): 5.08 ± 0.008 g/L s_{rel} = 0.16%	Initial pH (n = 5): pH 3.93 ± 0.05 s_{rel} = 1.27%		
Waste	Neutralize aqueous solution before final disposal			
Comments	• Depending on the acidity of the beverage, also sodium hydroxide of higher concentration can be used such as 0.5 mol/L NaOH. • Also juice concentrates can be measured with this method. In this case use 0.5 mol/L NaOH in order to minimize the titrant consumption and to speed up the titration.			
Limits	Sample size limits (Min – Max): 1 – 10 g			

Application Note: Vitamin C Content in Beverages

Sample	Beverages containing Vitamin C, in this application: orange juice			
Preparation procedures	• Add 5 mL orange juice with a 5 mL Rainin pipette into the titration beaker • Add 50 mL deionized water • Adjust pH to 3.0 with 2% (w/v) oxalic acid			
Compound	Vitamin C, M = 176.12 g/mol, z = 2			
Chemicals	• 2% (w/v) oxalic acid • Standard: 0.01 mol/L Vitamin C			
Titrant	• Titrant: 2,6-dichlorophenolindophenol, DPI, c (1/2 DPI) = 0.01 mol/L • Titer: 5 mL 0.01 mol/L Vitamin C, pH adjusted to 3.0 with 2%			
Instruments	[ ] Easy pH [ ] Easy Cl [X] Easy Ox [X] Easy Pro [ ] Easy KFV			
Indication	• Polarized indication with double pin platinum sensor (EM43-BNC)			
Method	EQP /EP	EQP	Relevant EQP	1
	Titration type	Direct	Control	Normal
	Sample ID	None	Stir	Medium
	Prestir duration	10 s	Predispense / Wait time	1 mL / 5 s
	Sample size entry	Fixed volume		
	Multiple determ.	Yes	Calculation	Content [mg/100 mL]
Results	Vitamin C content (n = 5): 57.03 ± 1.31 mg/100 mL s_{rel} = 2.30%			
Waste	Neutralize aqueous solution before final disposal			
Comments	• Vitamin C and DPI are not stable at air. Prepare fresh daily • Use only fresh opened beverage bottles for Vitamin C analysis			
Limits	Sample size limits (Min – Max): 1 – 10 mL			

Get the Extra Plus

Help & Expertise

Do you need application know-how to titrate a specific sample? Do you want best practice titration tips or require technical support expertise? Simply visit our Titration Application Library and quickly find comprehensive help for your daily tasks.

Performance Verification

EasyPlus™ verification is made easy with our performance verification kit. Receive the prepared standard solution appropriate for your type of titration and simply run three analyses. Submit your results at the dedicated webpage with your EasyPlus Titration registration to receive an unbiased performance verification statement confirming your titrator's accuracy.

Maintenance

Our technical service engineers provide the necessary expertise for troubleshooting and preventive maintenance ensuring a faultlessly operating titrator. Using the comprehensive maintenance service avoids unexpected repair costs and downtime. Our specialists inspect, service and test your titrator to ensure top performance and reliability.

www.mt.com/easyplustitration

For more information

METTLER TOLEDO Group
Analytical
Local contact: www.mt.com/contact