

EasyPlus™ Titration



Wine Analysis Made Easy
Swiss Precision for Your Analysis

METTLER TOLEDO

Titration for Your Samples

Full Package for Your Wine Analysis

Wine making has a long tradition and good wine needs care and extensive control. This is where METTLER TOLEDO supports you with its expertise in analytical instruments to ensure that your finest wines meet your quality standards. The EasyPlus™ Titrators provide the latest technology combined with solid Swiss quality and reliability for your wine analysis.

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.



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 Analyses with our Expertise in Titration

Combine your experience in the production of finest wines with our expertise in analytical instruments and corresponding applications. The EasyPlus™ Titrators are especially designed for routine applications with an intuitive and easy to use interface to meet your requirements in daily analysis.

From harvest season...



With the harvest season beginning, the selection of the finest types of grapes begins. To know exactly when the best time is to pick the grapes, it is essential to consider different criteria's like taste, color, berry flavor as well as pH and acidity. Use Easy pH to receive pH and acidity with a combined fast and reproducible analysis.

and production...



Use the EasyPlus™ Titrators to closely follow the fermentation process. Make sure that pH, acidity, sulfur dioxide and reducing sugars meet your requirements or to know exactly when further actions are needed. Use the Easy Ox Titrator to determine the free and total sulfur dioxide or the reducing sugar content in wine. Profit in your daily analysis from an intuitive user interface and user friendly operation with all the EasyPlus™ Titrators.

to maturation and finest wines



Tasting wines is very pleasant, but can't cover all aspects of the wine quality. Use the EasyPlus™ Titrators to survey the whole process of winemaking from the selection of the finest grapes to the final bottling of wine. Test your wine sample with the Easy Pro Titrator for pH, acidity, reducing sugars, chloride and free and total sulfur dioxide to meet the highest quality standards.



Application Note: pH and Acidity of Beverages by Equivalence Point Titration

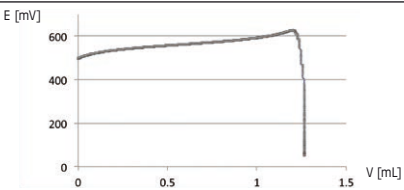
Sample	1 – 10 g beverage, in this application: 1 g white wine		
Preparation procedures	<ul style="list-style-type: none"> • Add approx. 1 – 10 g beverage into the titration beaker • Add 50 mL deion. water and start titration 		
Compound	Various inorganic and organic acids, $z = 1$		
Chemicals	<ul style="list-style-type: none"> • Deion. water • Standard: potassium hydrogen phthalate 		
Titrant	<ul style="list-style-type: none"> • Titrant: 0.1 mol/L NaOH or 0.01 M NaOH, depending on acid content of the beverage • Titer: potassium hydrogen phthalate, 0.07 – 0.12 g in 50 mL 		
Instruments	[X] Easy pH [] Easy Cl [] Easy Ox [X] Easy Pro [] Easy KfV		
Indication	• Potentiometric indication with pH glass electrode (EG11-BNC)		
Method	EQP / EP Titration type Sample ID Prestir duration Sample size entry Multiple determ.	EQP Direct None 10 s Weight Yes	Relevant EQP 1 Control Normal Stir Medium Predispense 0 mL Calculation Content [mmol/L] Initial pH
Results	Acidity ($n = 5$): 81.96 ± 1.090 mmol/L $s_{rel} = 1.33\%$	Initial pH ($n = 5$): 3.72 ± 0.05 pH $s_{rel} = 1.34\%$	
Waste	Neutralize aqueous solution before final disposal		
Comments	<ul style="list-style-type: none"> • Depending on acidity of the beverage the sample size and/or titrant concentration has to be modified (sample size range: 1 – 10 g, $c(\text{NaOH}) = 0.1$ or 0.01 mol/L) 		
Limits	Sample size limits (Min – Max): 1 – 10 g		

Quick Start

with Ready-to-use Applications

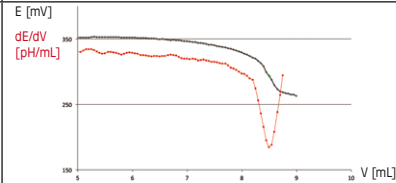
Together with the EasyPlus™ Titrators METTLER TOLEDO provides an innovative web-based platform for support and verification of the instruments with full access to a database of various applications for your daily analysis.

Application Note: Free and Total SO₂ in Beverages by Endpoint Titration with a Polarized Redox Sensor

Sample	Beverage containing SO ₂ , in this application note: 50 mL white wine		
Preparation procedures	<ul style="list-style-type: none"> Free SO₂: To 50 mL sample add 5 mL KI solution 10% (w/v) and 5 mL H₂SO₄ 20% (w/v). Start titration. Total SO₂: To 50 mL sample add 5 mL NaOH 5 mol/L. Wait 15 minutes, then add 5 mL KI solution 10% (w/v) and 8 mL H₂SO₄ 20% (w/v). Start titration. 		
Compound	Sulphur dioxide (SO ₂), M = 64.06 g/mol, z = 2		
Chemicals	<ul style="list-style-type: none"> 10% (w/v) potassium iodide (KI) solution 5% (w/v) H₂SO₄ Standard: ascorbic acid, M = 176.13 g/mol 		
Titrant	<ul style="list-style-type: none"> Iodine (I₂), c (1/2 I₂) = 0.02 mol/L Titer: 0.01-0.03 g ascorbic acid was added to 50 mL deion. water. Subsequently 5 mL H₂SO₄ 20% (w/v) is added and titration started 		
Instruments	<input type="checkbox"/> Easy pH <input type="checkbox"/> Easy Cl <input checked="" type="checkbox"/> Easy Ox <input checked="" type="checkbox"/> Easy Pro <input type="checkbox"/> Easy KFV		
Indication	Polarized indication with double pin platinum sensor (EM43-BNC)		
Method	EQP / EP Titration type Sample ID Prestir duration Sample size entry Multiple det.	EP Direct White wine 10 s Fixed volume Yes	Endpoint value 100 mV Control Cautious Stir Medium Predispense 0 mL Calculation Content [mg/L] Report long
Results	Free SO ₂ content (n = 5): 17.14 ± 0.113 mg/L s _{rel} = 0.66% Total SO ₂ content (n = 5): 29.90 ± 0.410 mg/L s _{rel} = 1.37%		
Waste	Neutralize aqueous solution before final disposal		
Comments	<ul style="list-style-type: none"> The free SO₂ content is located in the range of 5 to 20 mg/L. For low free SO₂ content it is recommended use the cautious titration control modus (control band of 300 mV) The total SO₂ content can increase up to 50 – 60 mg/L. In this case a smaller control band in the titration control is recommended (control band of 100 – 200 mV) 		



Application Note: Reducing Sugars According to Rebelein (Sample Determination)

Sample	4 mL red wine				
Preparation procedures	<ul style="list-style-type: none">• Add 5 mL of Fehling solution A and Fehling solution B into a glass titration beaker.• Add 40 mL of deionized water to the solution and boil the mixture for exactly 2 minutes.• Add 10 mL of 10% H₂SO₄ and 10 mL of 10% KI to the titration.• Titrate the solution with 0.1 M Na₂S₂O₃				
Compound	Reducing sugar as D(+)-Glucose (C ₆ H ₁₂ O ₆), M = 180.16 g/mol, z = 1				
Chemicals	<ul style="list-style-type: none">• 5 mL Fehling solution A and 5 mL Fehling solution B• 40 mL deionized water• 10 mL 10% H₂SO₄ solution• 10 mL 10% KI solution				
Titrant	• Titrant: Na ₂ S ₂ O ₃ , 0.1 mol/L				
Instruments	<input type="checkbox"/> Easy pH <input type="checkbox"/> Easy Cl <input checked="" type="checkbox"/> Easy Ox <input checked="" type="checkbox"/> Easy Pro <input type="checkbox"/> Easy KfV				
Indication	• Potentiometric indication with combined precipitation sensor (EM40-BNC)				
Method	EQP / EP	EQP	dVmin	0.05 mL	
	Titration type	Back	dVmax	0.05 mL	
	Sample ID	None	dE (value acquis.)	0.5 mV	
	Prestir duration	10 s	dt	2 s	
	Sample size entry	Fixed volume	t(min)	5 s	
	Multiple determ.	Yes	t(max)	15 s	
	Relevant EQP	1	Stir	Medium	
	Control	User defined	Calculation	Rebelein [g/L]	
	dE	8 mV/mL	Report	long	
Results	Reducing sugars (n = 5): 4.25 ± 0.104 g/L s _{rel} = 2.45%				
Waste	Heavy metal waste				

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

Subject to technical changes.

© 06/2017 METTLER TOLEDO

All rights reserved. 30081693A

Marketing Titration / MarCom Analytical