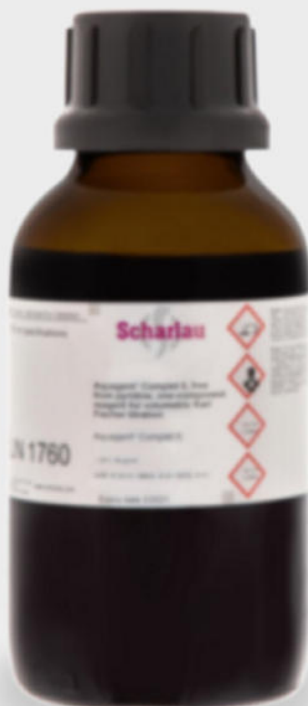




Application Note AN-K-073

使用 Scharlau Aquagent® 试剂进行容量卡尔费休滴定

Test measurements using Aquagent® Complet 5 and Methanol Fast

This Application Note summarizes a series of test measurements performed with an OMNIS KF Titrator and Karl Fischer reagents Aquagent® Complet 5 and Methanol Fast from Scharlau.

Three series of titer determinations using various water standards were carried out. The results obtained using different water standards were found to lie in a similar range. The

reproducibility of the results was determined to be very good.

Using an OMNIS titration system from Metrohm and the Scharlau Karl Fischer reagents, titer determinations can be carried out quickly without any decline in the reproducibility of results.

REAGENTS

AQ00151000 – Aquagent® Complet 5

AQ00111000 – Aquagent® Methanol Fast

STANDARDS

Three different water standards have been used for the tests performed in this study:

1. Water standard with a water content of approximately 10.0 mg/g («water standard 10»)

2. Sodium tartrate dihydrate with a water content of approximately 15.7%
3. Deionized water

EXPERIMENTAL

A 10-fold titer determination was carried out with both water standards and the deionized water.

The sample sizes were varied for water standard 10 (between 0.5 g and 4.0 g) as well as for the sodium tartrate dihydrate (between 0.077 g and 0.114 g). A constant sample size of 25 µg was

used for the deionized water.

The water standard 10 was added with a glass syringe. To add the sodium tartrate dihydrate, a weighing boat (6.2412.000) was used. The deionized water was injected into the titration cell with a microliter syringe.

RESULTS

The following table shows the results of three titer determination series using Aquagent®

Complet 5 and Methanol Fast reagents from Scharlau.

Table 1. Results of the titer determination series (n = 10) with three water standards.

Standard	Titer in mg/mL	s(abs) in mg/mL	s(rel) in %
1	5.3936	0.02248	0.09
2	5.3781	0.00485	0.16
3	5.3459	0.00873	0.42

CONCLUSION

The titer determinations were both fast and reproducible. The relative standard deviations were very low, especially for the water standard 10 and the sodium tartrate dihydrate.

Methanol Fast contains additives to accelerate the titration, therefore it is recommended to use the method parameters suitable for two-component reagents (Table 2).

Table 2. List of suitable method parameters for two-component reagents in OMNIS.

Parameter	Value
Dynamics	300 mV
Max. rate	max
Min. volume increment	min
Ipol	50 μ A
EP	250 mV

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CONFIGURATION



OMNIS KF

OMNIS 滴定仪 KF 提供了容量式卡尔·费休滴定法用完整套件。该套件中包含了电位分析终点滴定用带磁力搅拌器的 OMNIS Basic Titrator、带平衡的功能许可证 KFT、OMNIS Solvent Module 和容量式卡尔·费休滴定法用完整附件。

由于使用了 3S 试剂瓶适配器和 OMNIS Solvent Module,故此可以无接触完成试剂处理,故此能够在样品添加之后进行自动滴定,并且具有良好的安全性,从而实现了良好的用户友好性,让您受益匪浅。