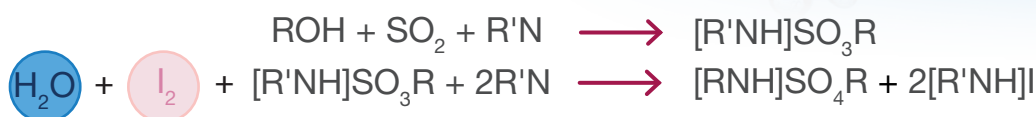


Aquagent® Volumetric range

In many occasions, it is of great importance to know the amount of water present in a sample. Water can influence the reactivity of the products, their stability, their expiry date, etc. Karl Fischer's titration is a worldwide accepted method for the determination of water since beginnings of the 20th century. It is based on Bunsen's reaction, a two-step reaction with a stoichiometric relation between the consumed I_2 and the amount of water in the sample.



ROH = Alcohol, usually methanol
R'N = Nitrogen base

pH
5-7

The first Karl Fischer reagents developed contained pyridine in their formulation, supposedly essential for the reaction. Later experiments showed that pyridine only acted as a buffer substance and could be replaced by other alkali compounds, capable of performing the same function, but being less toxic. For this reason, pyridine-free Karl Fischer reagents, such as our Aquagent®, contain imidazole instead of pyridine. Imidazole is a non-toxic base with good buffering capacity, allowing to quickly obtain stable endpoints from the titration.

Aquagent® Volumetric solutions

Volumetric titration is the method of choice for samples with a higher water content (0.1% - 100%). In this type of titration, the water content is determined from the volume of Karl Fischer reagent necessary to reach the endpoint of the reaction. This endpoint is indicated by an excess of iodine and is measured potentiometrically.

Volumetric titrations can be carried out with one-component or two-component reagents.

In a one-component volumetric Karl Fischer titration, all the substances necessary for the reaction are included in a single reagent. The one-component reagents are very easy to use and allow greater flexibility in the choice of the most suitable solvent for each type of sample. On the other hand, due to the reactivity of their components, the one-component reagents must be titrated frequently.

In the two-component volumetric Karl Fischer titrations, the reactants involved in the reaction are separated between the titrant and the solvent. The Aquagent® Solvent acts as a dissolution medium and contains part of the reagents. Being separated elongates the product shelf life and avoids the need to refactor frequently.

Aquagent® Volumetric one-component

- 💧 Easy to use
- 💧 Greater flexibility according to the sample
- 💧 Long shelf life
- 💧 Cheaper

Aquagent® Volumetric two-component

- 💧 Faster titrations
- 💧 More stable endpoint
- 💧 Less reagent consumption
- 💧 Greater stability over time

PRODUCT INFO

Chemical Products · Karl Fischer



Scharlab
THE LAB SOURCING GROUP

Scharlau standards for Karl Fischer

The Aquagent® Volumetric range is completed with Aquagent® standards, since in all titrations it is necessary to use certified standards to obtain reliable results. Our family of Aquagent® standards for volumetric titration offers:

Solid standards

Aquagent® Sodium tartrate dihydrate (traceable to NIST), stable, non-hygroscopic, with a water content of 15.66%.

Liquid standards

Aquagent® Standard solution 10.0 (traceable to NIST) for volumetric titrations, packaged in ampoules to maintain its optimal conditions until opening. Each ampoule contains enough standard for one titration.

Aquagent® Standard Solution 5.0 is suitable for routine reagent factorisations, as well as for equipment validation (larger containers).

Find the article number for the Aquagent® Volumetric range in the following table:

		DESCRIPTION	PACKAGING	ART. NUMBER
Aquagent® volumetric one-component	Reagents	Aquagent® Complet 2	500 ml	AQ00070500
			1 l	AQ00071000
			2.5 l	AQ00072500
		Aquagent® Complet 5	500 ml	AQ00150500
			1 l	AQ00151000
			2.5 l	AQ00152500
	Solvents	Aquagent® Complet 5K	500 ml	AQ00040500
			1 l	AQ00041000
		Methanol, dried (max. 0.005% H ₂ O), ExpertQ®	1 l	ME03041000
			2.5 l	ME03042500
		Aquagent® Methanol Fast	1 l	AQ00111000
			2.5 l	AQ00112500
	Additives	Aquagent® Medium K	500 ml	AQ00050500
			1 l	AQ00051000
		Aquagent® Buffer, acid	500 ml	AQ00090500
			1 l	AQ00091000
		Formamide, dried (max. 0.02% H ₂ O), ExpertQ®	1 l	FO00281000
Aquagent® volumetric two-components	Titrants	Aquagent® Titrant 2	500 ml	AQ00060500
			1 l	AQ00061000
		Aquagent® Titrant 5	500 ml	AQ00010500
			1 l	AQ00011000
	Solvents	Aquagent® Solvent	2.5 l	AQ00012500
			1 l	AQ00291000
		Aquagent® Solvent CM	2.5 l	AQ00292500
			1 l	AQ00081000
		Aquagent® Solvent Oil	2.5 l	AQ00082500
Aquagent® standards	Solids	Aquagent® di-Sodium tartrate dihydrate	1 l	AQ00101000
			25 g	AQ00300025
	Liquids	Aquagent® Standard solution 10.0	100 g	AQ00300100
			10 x 8 ml	AQ00200080
		Aquagent® Standard solution 5.0	100 ml	AQ00210100
			500 ml	AQ00210500

Further information:



PI-AQVEN22