

PRODUCT INFO



Aquagent® Complet 5 Aquagent® Methanol Fast

New
formulation



Karl Fischer titration has been the globally accepted method for water determination since the early 20th century. Karl Fischer titration is based on the Bunsen reaction, a two-phase reaction with a stoichiometric relationship between the I_2 consumed and the amount of water in the sample.



pH
5-7

ROH = alcohol, typically methanol
R'N = Nitrogen base

The first KF 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 basic compounds capable of performing the same function but being less toxic.

For this reason, pyridine-free Karl Fischer reagents, as well as our Aquagent®, contain imidazole rather than pyridine. Imidazole is a non-toxic base that has good buffering capacity and allows to obtain stable titration end points quickly.

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

Aquagent® Complet 5 one-component reagent is used to analyse samples with high water content, as 1 ml of this reagent titrates 5 ml of water.

This type of reagent has multiple advantages:

- They are easy to use
- Long shelf life
- Greater flexibility depending on the type of sample
- More economical
- Unlimited water capacity

Aquagent®: One-component reagents

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

NEW AQUAGENT® COMPLET 5 REAGENT

Scharlab has reformulated its one-component reagent and changed its manufacturing process, resulting in a new Aquagent® Complet 5 which is much more robust, versatile and stable.

This new, more robust manufacturing process allows us to guarantee greater consistency between batches and within the same batch. Within a single batch, the titer for all bottles remains constant, with very little variability.

Furthermore, internal studies demonstrate the versatility of the new formulation, obtaining excellent results even with very complex matrices. Scharlab's Aquagent® Complet 5 new formulation makes it possible to offer a much more stable product over time, with less titer variation, even in already opened bottles.

mg/ml*	Bottle
5.4451	N° 75
5.4430	N° 150
5.4420	N° 225
5.4462	N° 275

*Titer measured in different bottles from the same batch

	New AQ0015 formulation	Previous AQ0003 formulation
Recently opened bottle titer measurement (mg/ml)	5.4338	5.4709
Bottle titer measurement after two weeks (mg/ml)	5.4239	5.523
Variation	0.17%	0.96%

Scharlab recommends using Aquagent® Complet 5 with Aquagent® Methanol Fast as a solvent. Aquagent® Methanol Fast is a methanol-based solvent which contains certain additives that speed up reagent stabilisation and reduce measurement time without interfering in the result.

Description	Packaging	Reference
Aquagent® Complet 5	500 ml	AQ00150500
	1 l	AQ00151000
	2.5 l	AQ00152500
Aquagent® Methanol Fast	1 l	AQ00111000
	2.5 l	AQ00112500

In samples with very complex matrices, it is sometimes necessary to add matrix modifiers. Scharlab has a wide range of these additives. In case of doubt, contact us and we will advise you on choosing the best modifier for your matrix.

Description	Packaging	Reference
Aquagent® Buffer, acid	500 ml	AQ00090500
	1 l	AQ00091000
Dry formamide (max. 0.02% H ₂ O)	1 l	FO00281000



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