



# Fisher Chemical Aqualine Reagents

Your solution for water content determination by Karl Fischer titration

Coulometric titration Volumetric titration Water standard



### **Aqualine Reagents**

Our Fisher Chemical™ Aqualine™ Karl Fischer reagents portfolio is designed to meet the needs of the analytical chemist by providing accurate water content determination using volumetric or coulometric titration with unique benefits.

### Aqualine coulometric range: for low water content at ppm level

Fisher Chemical Aqualine coulometric reagents are ideal for use in coulometric Karl Fischer titrations for detecting low concentrations of water. Our Aqualine analyte and catholyte solutions have been re-formulated to offer better performance. The improved formulation increases both the speed and accuracy of titration when determining water content at microgram level.

#### **Highlights:**

- Fast Reach the endpoint quickly
- Convenient Long product shelf-life
- · Reliable Very stable endpoint



#### Aqualine coulometric range performance

Our Aqualine coulometric reagents contain a different base than Sigma-Aldrich™ HYDRANAL™ Coulomat A and Mitsubishi Chemical AQUAMICRON™ AX reagents. When compared to these reagents in terms of water recover and titration, Fisher Chemical™ Aqualine™ Electrolyte A displayed a more stable endpoint.

#### **Speed titration performance**

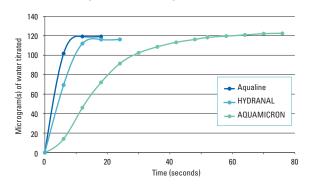


Figure 1: The speed of titration of a 1mL injection of methanol with Aqualine Electrolyte A was measured. A comparison was made versus HYDRANAL™ Coulomat A and AQUAMICRON™ AX reagents. Results indicate that Aqualine coulometric reagents are fast and accurate with a stable endpoint.

#### Aqualine water standard

We offer a series of long shelf-life Aqualine water standard reagents, which support the calibration of the Karl Fischer titrator instrument. Our water standard reagents are packaged in glass ampoules for your convenience.





### Aqualine volumetric range: for high water content analysis

For the Karl Fischer titration by volumetry, we offer you the choice between single component reagents, two component reagents and reagents especially designed for aldehydes and ketones. Our Aqualine reagents for Karl Fischer titration by volumetry perform identically to other Karl Fischer reagents on the market.

#### **Highlights:**

- Reliable Fast and stable endpoints ensure reliable and accurate results
- Safe Low toxicity and pyridine free
- Convenient Available as a one or two component solution

#### Aqualine volumetric range performance

When compared to Sigma-Aldrich<sup>TM</sup> HYDRANAL<sup>TM</sup> Composite 5 in terms of water recovery and speed titration, Fisher Chemical<sup>TM</sup> Aqualine<sup>TM</sup> Complete 5 showed identical results. The Aqualine volumetric range of products formulation is based on the HYDRANAL<sup>TM</sup> formulation using imidazole as base.

#### Water recovery performance

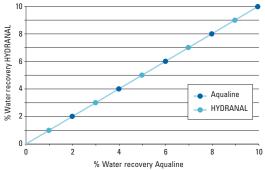


Figure 2: % Water recovery titration using THF solvent containing varying levels of water with Aqualine Complete 5 was performed. The comparison was made versus HYDRANAL™ Composite 5 using the same automated volumetric moisture meters without altering instrument setup. Results indicate that water content measurements were identical for both.

#### Speed titration performance

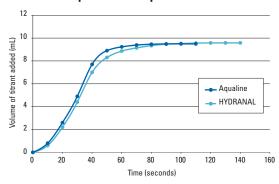


Figure 3: The speed of titration of 50μg water with Aqualine Complete 5 was recorded. The comparison was made versus HYDRANAL™ Composite 5 using the same automated volumetric moisture meters without altering instrument setup. Aqualine Complete 5 demonstrated faster and more stable endpoints versus HYDRANA™ equivalent reagents.

#### Comparative tests on actual samples

			line	HYDRANAL	
Sample	Working medium	Titration time min (std dev)	Water content % (std dev)	Titration time min (std dev)	Water content % (std dev)
Acetic acid (water added)	Methanol	3:23 (0:12)	1.51 (0.00)	3:59 (0:15)	1.50 (0.01)
Triethylamine	Methanol	1:24 (0:17)	1.39 (0.01)	0:55 (0:08)	1.37 (0.01)
Dichloroacetic acid	Methanol + Imidazole	1:11 (0:13)	1.90 (0.01)	1:04 (0:05)	1.90 (0.01)
Vegetable oil	50% Methanol + 50% Xylene	1:39 (0:28)	0.03 (0.00)	1:43 (0:18)	0.03 (0.00)
Shower gel	Methanol	2:01 (0:02)	81.09 (0.06)	2:34 (0:08)	80.84 (0.04)
Acetone	Ketosolver	1:50 (0:13)	1.01 (0.01)	1:53 (0:02)	1.02 (0.01)
Hand cream	50% Methanol + 50% Chloroform	1:24 (0:08)	84.80 (0.03)	1:27 (0:06)	84.62 (0.07)
Coffee	50% Methanol + 50% Formamide	5:30 (0:01)	5.44 (0.01)	5:04 (0:21)	5.40 (0.19)
Chocolate	50% Methanol + 50% Chloroform	4:26 (0:31)	1.75 (0.02)	6:07 (2:12)	1.65 (0.02)

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## **Select the suitable Fisher Chemical Aqualine reagent for your Karl Fischer titration**

Product code	Product description	Pack size
Anolyte solutions		
These contain metha	nol and chloroform as solvents	
K/2500/08	Aqualine Electrolyte A – For general use in conventional cells with a diaphragm	500ml
K/2510/08	Aqualine Electrolyte AD – For use in fritless (diaphragm-free) cells	500m
These contain metha	nol as a solvent	
K/2515/08	Aqualine Electrolyte AD-G – For use in fritless (diaphragm-free) cells	500m
K/2520/08	Aqualine Electrolyte AG – For general use in conventional cells with diaphragm	500m
This contains methar	ol and pentan-1-ol as solvents	
K/2530/08	Aqualine Electrolyte AG-H – For samples with high level of hydrocarbon content	500m
Catholyte solution		
K/2560/04	Aqualine Electrolyte CG – For general use in conventional cells with a diaphragm, contains methanol as a solvent	25m
Aqualine wa	ter standard	
K/2740/99	Aqualine Standard 0.2 – 0.2 mg/ml H <sub>2</sub> 0 standard	10 x 4m
K/2710/99	Aqualine Standard 1.0 – 1 mg/ml H <sub>2</sub> O standard	10 x 4m
K/2730/08	Aqualine Standard 5.0 – 5 mg/ml $H_2^{-0}$ standard	500m
K/2720/99	Aqualine Standard 10.0 – 10 mg/ml H <sub>2</sub> O standard	10 x 8m
K/2760/45	Aqualine Water Standard-KF oven – For use in KF oven technique, contains 5.55 ±0.05% water	10
K/2770/48	Aqualine Sodium-tartrate Dihydrate Standard – Primary standard for volumetric analysis, contains 15.66 ±0.05% water	100
J/9000/PB08	Aqualine Water Solution – 1ml = 5 mg H <sub>2</sub> 0 in Methanol	500m
Aqualine vol	ımetric range: for high water content analysis	
Single component	eagents	
K/1900/15	Aqualine Complete 1 – Water equivalent 1mg H <sub>2</sub> O/ml	1
K/1950/15	Aqualine Complete 2 – Water equivalent 2mg H <sub>2</sub> O/ml	1
K/1950/17	Aquamo complete 2 Tratel equivalent 2mg 1120/mil	2.5
K/2000/15	Aqualine Complete 5 – Water equivalent 5mg H <sub>2</sub> O/ml	1
K/2000/17		2.5
K/2350/08	Aqualine Buffer – Buffer for use with acidic samples	500m
Reagents for aldeh		4
K/2250R/15	Aqualine Complete 5K – Water equivalent 5 mg H <sub>2</sub> 0/ml	1
K/2300R/15 <b>Two component re</b> a	Aqualine Matrix K - Matrix K should be used in conjunction with Complete 5K	1
K/2150/15	yens ————————————————————————————————————	1
K/2150/15 K/2150/17	Aqualine Titrant 2 – Water equivalent 2 mg H <sub>2</sub> O/ml	2.5
K/2200/15		1
K/2200/17	Aqualine Titrant 5 – Water equivalent 5 mg H <sub>2</sub> 0/ml	2.5
K/2100/15		1
K/2100/17	Aqualine Solvent	2.5
K/2110/15		1
K/2110/17	Aqualine Solvent CM – Solvent for samples with high hydrocarbon content	2.5
All aur Agualina aglu	tions are pyridine free	

#### To place an order, contact your local distributor.



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