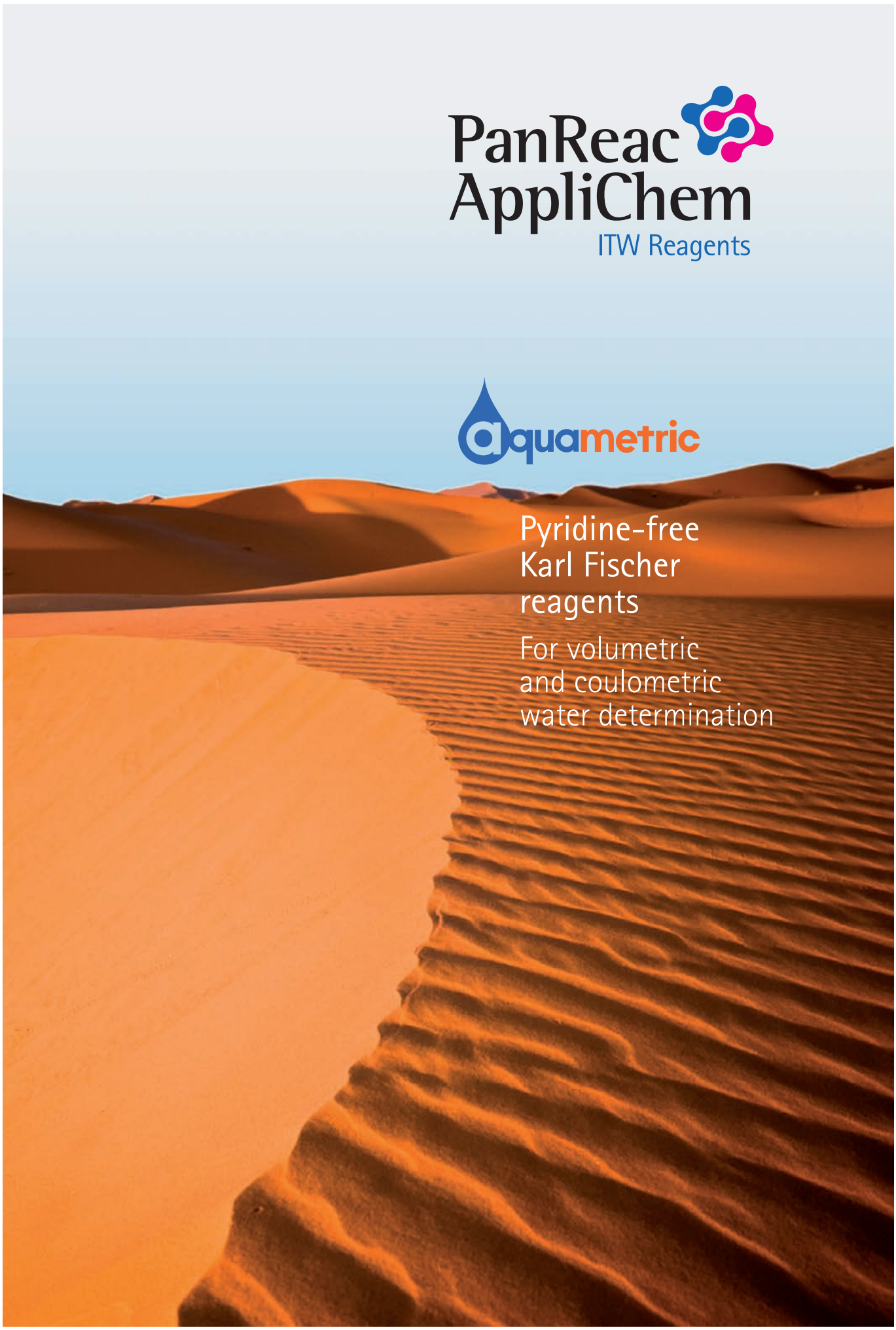
PanReac AppliChem
ITW Reagents

aquametric

Pyridine-free Karl Fischer reagents

For volumetric and coulometric water determination



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ITW Reagents

AQUAMETRIC is the range of pyridine-free Karl Fischer reagents from PanReac AppliChem for volumetric and coulometric determination of water. AQUAMETRIC is a complete solution for all laboratories that carry out water content of a sample as it also includes water standards, working mediums and dry solvents for some specific applications referring to sample solubilization.

The use of AQUAMETRIC provides:

- More safety due to pyridine-free reagents
- More productivity obtaining fast, clear and reproducible endpoints
- More accuracy
- Greater reagent titre stability

All range of AQUAMETRIC reagents are manufactured by Panreac quality assurance ISO 9001:2008

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VOLUMETRIC TITRATIONS

1 Component reagents

In one component reagents all the necessary reagents are present (iodine, sulphur dioxide and imidazole) and dissolved in diethyleneglycol mono-ethyl ether. They are the most common reagents used for the volumetric determination of water. **AQUAMETRIC Composite 2** for low and medium water content samples. **AQUAMETRIC Composite 5** for high water content samples, being the most used. The working medium used with these reagents is dry methanol. Fill the burette with AQUAMETRIC Composite 2 or 5 and dissolve the sample into the titration vessel with dry methanol. The endpoint is determined by titration according to the usual method. The advantage to use one component reagents is that they give more flexibility in the use of the appropriate solvent to dissolve the sample, having the necessary reagent in only one solution.

General use

Titrant

AQUAMETRIC Composite 2

Code	Package		Unit/Box
285813.1611	1000 mL		6

AQUAMETRIC Composite 5

Code	Package		Unit/Box
285812.1610	500 mL		6
285812.1611	1000 mL		6
285812.1612	2.5 L		4

Solvent

Methanol according to Karl Fischer

Code	Package		Unit/Box
171091.1611	1000 mL		6
171091.1612	2.5 L		4

Ketones and aldehydes

Titrant

AQUAMETRIC Composite 5K

Code	Package		Unit/Box
285814.1611	1000 mL		6

Solvent

AQUAMETRIC Working Medium

Code	Package		Unit/Box
285821.1611	1000 mL		6

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VOLUMETRIC TITRATIONS

2 Component reagents

In the two component reagents, the ingredients are separate what gives more stability and better shelf life.

The **AQUAMETRIC Titrant solution** contains iodine dissolved in methanol. The rest of necessary compounds (imidazole and sulphur dioxide in methanol) are in the working medium **AQUAMETRIC Solvent**, normally used with **AQUAMETRIC Titrant**. Fill the burette with AQUAMETRIC Titrant 2 or 5 and fill the vessel with AQUAMETRIC Solvent. The endpoint is determined by titration according to the usual method.

The advantages are the reduction of the reaction times and more accuracy in the results being possible to calculate the factor less frequently.

General use

Component 1

AQUAMETRIC Titrant 2

Code	Package		Unit/Box
285816.1611	1000 mL		6

AQUAMETRIC Titrant 5

Code	Package		Unit/Box
285815.1611	1000 mL		6
285815.1612	2.5 L		4

Component 2

AQUAMETRIC Solvent

Code	Package		Unit/Box
285817.1611	1000 mL		6
285817.1612	2.5 L		4

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WORKING MEDIUM FOR SPECIFIC APPLICATIONS

Sugars

1 Component reagents

Formamide AQUAMETRIC KF dry
(use with AQUAMETRIC Composite)

Are added to the titrant medium up to 50% to facilitate the solubility of the sample (sugars) in the solvent, which in this case is methanol.

Code	Package		Unit/Box
281956.1611	1000 mL		6

Oils and fats

2 Component reagents

AQUAMETRIC Solvent CM
(use with AQUAMETRIC Titrant 2/5)

Mixture ready to use. Use directly as a working medium following the generalized procedure as a solvent for two components.

Code	Package		Unit/Box
285819.1611	1000 mL		6
285819.1612	2.5 L		4

Oils

1 Component reagents

AQUAMETRIC Solvent Oil B
(used industrial oils, use with AQUAMETRIC Composite 5)

Mixture ready to use. Use directly as a working medium following the generalized procedure as a solvent for one component.

Code	Package		Unit/Box
286154.1611	1000 mL		6

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COULOMETRIC TITRATIONS

The iodine required for the reaction with the water in the sample is generated in situ (in the titration beaker) using a reagent solution containing iodide. The coulometric method is used with water content in the sample of less than 0.1% or absolute quantities of water in the titration beaker of less than 1 mg. The reagent does not need to be standardised, as coulometry is an absolute method. For standard coulometric determination (units with a diaphragm), two reagent solutions, an anolyte and a catolyte, are required. The anolyte is inserted into the anode space of the cell and the catolyte into the cathode space.

Coulometry with diaphragm

Anolyte

AQUAMETRIC Coulomat A
(use with AQUAMETRIC Coulomat C)

Code	Package	Unit/Box
286181.1610	500 mL	6

Catolyte

AQUAMETRIC Coulomat C
(use with AQUAMETRIC Coulomat A)

Code	Package	Unit/Box
286182.1606	25 mL	6

The AQUAMETRIC range is completed with:

MOISTURE STANDARDS

To determine the titre of the AQUAMETRIC Karl Fischer reagents. Reference substances are traceable against SRM of NIST. Certificate of analysis is included on each sale unit. The ampoules have a long shelf life without water absorption and they are for one calibration.

Karl Fischer Water Standard 1,00 mg/g
1 g contains 1,00 ± 0,005 mg H_2O
(for coulometric titrations)

Code	Package	Unit/Box
395459.2527	10x10 mL	6

Karl Fischer Water Standard 5,00 mg/g
1 g contains 5,00 ± 0,02 mg H_2O
(for volumetric titrations)

Code	Package	Unit/Box
396883.2527	10x10 mL	6

Karl Fischer Water Standard 10,0 mg/g
1 g contains 10,0 ± 0,1 mg H_2O
(for volumetric titrations)

Code	Package	Unit/Box
395458.2527	10x10 mL	6

Sodium Tartrate
2-hydrate standard for volumetry, ACS

Code	Package	Unit/Box
241719.1521	10x1,5 g	6
241719.1608	100 g	6

DRY SOLVENTS

Some samples are difficult to dissolve in methanol and it is necessary to use different solvents. The range of PanReac AppliChem Dry Solvents allows the use of specific solvents that guarantee a very low water content and low blank values during the titration.

Dry solvents	Code	Package	
Acetone dry (max. 0,01% water)	481007.1611	1000 mL	
Acetonitrile dry (max. 0,005% water), ACS	481881.1611	1000 mL	
	481881.1612	2.5 L	
Dichloromethane dry (max. 0,005% water) stabilized with amylene, ACS, ISO	481254.1611	1000 mL	
	481254.1612	2.5 L	
Diethyl Ether dry (max. 0,0075% water) stabilized with ~ 6ppm of BHT, ACS, ISO	482770.0311	1000 mL	
N,N-Dimethylformamide dry (max. 0,01% water), ACS, ISO	481785.1611	1000 mL	
	481785.1612	2.5 L	
Ethanol absolute dry (max. 0,02% water)	481086.1611	1000 mL	
Methanol dry (max. 0,005% water), ACS, ISO	481091.1611	1000 mL	
2-Propanol dry (max. 0,01% water), ACS, ISO	481090.1611	1000 mL	
Pyridine dry (max. 0,01% water), ACS	481457.1611	1000 mL	
Tetrahydrofuran dry (max. 0,0075% water) stabilized with ~ 300 ppm of BHT, ACS	483537.1611	1000 mL	
	483537.1612	2.5 L	
Toluene dry (max. 0,005% water), ACS, ISO	481745.1611	1000 mL	
Trichloromethane dry (max. 0,005% water) stabilized with ~ 50 ppm of amylene, ACS	483101.1611	1000 mL	

Package symbols

- Glass bottle
- Aluminium bottle
- Glass tube with stopper and screw top
- Glass or plastic ampoule

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