

VWR[®] Karl Fischer reagents

01. READY TO USE SOLUTIONS,
REAGENTS AND STANDARDS
FOR VOLUMETRIC AND
COULOMETRIC ANALYSES

02. FAST, STABLE
AND ACCURATE
ENDPOINTS

03. BUFFERED
SYSTEMS FOR
CONTROLLED PH

04. LONG-TERM
STABILITY AND SHELF
LIFE. EVERY BATCH
VERIFIED



VOLUMETRIC RANGE FOR HIGH WATER CONTENT ANALYSIS

Single-component reagents, two-component reagents, and reagents especially designed for aldehydes and ketones.

- Reliable: Fast and stable endpoints for accurate results time and time again
- Safe: Low toxicity and pyridine-free
- Consistent: Comparable to other leading brands



Volumetric one-component titrating reagents

Description	Cat. No. 500 ml pack	Cat. No. 1 l pack	Cat. No. 2,5 l pack
CombiNORM 1 for volumetric one-component KF titration (methanol-free) water equivalent 1 ml = 1 mg used with methanol (Cat. No. 85457.290)	-	85450.290	-
CombiNORM 2 for volumetric one-component KF titration (methanol-free) water equivalent 1 ml = 2 mg used with methanol (Cat. No. 85457.290)	-	85451.290	85451.320
CombiNORM 5 for volumetric one-component KF titration (methanol-free) water equivalent 1 ml = 5 mg used with methanol (Cat. No. 85457.290)	-	85452.290	85452.320
CombiNORM 5K reagent for volumetric one-component Karl Fischer titration in aldehydes and ketones (methanol-free) 1 ml = 5 mg used with Solvent K (Cat. No. 85464.290)	-	85463.290	85463.320
CombiNORM for volumetric one-component KF titration (working medium K)	-	85499.290	-
Combi solvent E for volumetric one-component KF titration (methanol-based working medium)	-	85454.290	85454.320
Keto solvent for volumetric one-component KF titration in aldehydes and ketones (working medium)	-	85459.290	-
K reagent for volumetric one-component KF titration in aldehydes and ketones (working medium) used with CombiNORM 5K (Cat. No. 85463.290)	-	85464.290	85464.320
KF reagent buffer for acids	85497.260	-	-
KF reagent buffer for bases	-	85498.290	-
Lipo solvent CM non polar for non polar substances, fats and oils (working medium)	-	85455.290	-
Lipo solvent HM non polar reagent for volumetric one-component KF titration in non polar substances, fats and oils (working medium)	-	85456.290	-
Methanol quick for accelerating volumetric one-component KF titration (working medium) used with CombiNORM	-	85457.290	85457.320

Volumetric two-component titrating reagents

Description	Cat. No. 1 l pack	Cat. No. 2,5 l pack
Solvent for volumetric two-component KF titration (working medium) used with all TitrANTs	85453.290	85453.320
Solvent (crude) for volumetric one- and two-component KF titration in oils (working medium)	85458.290	-
Solvent E reagent for volumetric two-component KF titration (ethanol-based working medium)	85460.290	-
Solvent CM reagent for volumetric two-component KF titration in oils (working medium)	85461.290	-
Solvent OIL reagent for volumetric two-component KF titration in oils (working medium)	85462.290	-
TitrANT 1 for volumetric two-component KF titration water equivalent 1 ml = 1 mg used with Solvent (Cat. No. 85453.290)	85465.290	-
TitrANT 2 for volumetric two-component KF titration water equivalent 1 ml = 2 mg used with Solvent (Cat. No. 85453.290)	85466.290	-
TitrANT 2E for volumetric two-component KF titration (ethanol-based) water equivalent 1 ml = 2 mg used with Solvent E (Cat. No. 85460.290)	85467.290	85467.320
TitrANT 5 for volumetric two-component KF titration water equivalent 1 ml = 5 mg used with Solvent (Cat. No. 85453.290)	85468.290	85468.320
TitrANT 5E for volumetric two-component KF titration (ethanol-based) water equivalent 1 ml = 5 mg used with Solvent E (Cat. No. 85460.290)	85469.290	-

COULOMETRIC RANGE FOR LOW WATER CONTENT AT PPM LEVEL

Both anolyte and catholyte solutions have been re-formulated to offer better performance. This improved formulation increases both the speed and accuracy of titration when determining water content at the microgram level.

- Fast: Reach the endpoint quickly and consistently
- Convenient: Long product shelf life
- Reliable: Very stable endpoint

For analytical chemists who need accurate water content – every time

Coulometry reagent	Pk (ml)	Cat. No.
Anolyte solutions		
AG for cells with and without diaphragm	1000	85470.290
A preferred for cells with diaphragm	500	85472.260
E (ethanol-based) for cells with and without diaphragm	500	85473.260
AD for cells without diaphragm	500	85474.260
AG-H for applications with long chained hydrocarbons, for cells with and without diaphragm	500	85475.260
A OVEN for use with oven, for cells with and without diaphragm	500	85476.260
OIL for applications with oils, preferred for cells with diaphragm	500	85477.260
K for applications with ketones, preferred for cells with diaphragm	500	85478.260
Catholyte solutions		
CG	50	85471.130
CG-K for applications with ketones	50	85479.130



STANDARDS FOR WATER DETERMINATION BY THE KARL FISCHER METHOD

These standards are ideal for Karl Fischer coulometry and Karl Fischer titrations.

This range of standards is split into three parts

- Water standards for KF coulometry
- Water standards for KF titration
- Water standards in liquid petroleum conform to ASTM D1744, E1064, D4377

Water standard	Pk	Cat. No.
Coulometric standards		
1% - 1 g contains 10,0 mg H ₂ O	10x4 g	85487.004
Volumetric standards		
0,5% - 1 ml methanol contains 5,0 mg H ₂ O	250 ml	85488.230
1% - 1 ml methanol contains 10,0 mg H ₂ O	500 ml	85489.260

Standards for coulometric and volumetric Karl Fischer titrations	Pk	Cat. No.
Karl Fischer water standard in liquid petroleum		
60 µg/g	10x5 ml	85482.005
	10x2 ml	85483.002
	10x5 ml	85483.005
100 µg/g	5x20 ml	85483.020
	10x2 ml	85484.002
	10x5 ml	85484.005
1000 µg/g	5x20 ml	85484.020
	10x2 ml	85485.002
	10x5 ml	85485.005
5000 µg/g	10x5 ml	85485.005
	5x20 ml	85485.020



Solid standard for Karl Fischer and Karl Fischer oven	Pk	Cat. No.
di-Sodium tartrate dihydrated, secondary standard for Karl Fischer	100 g	85692.100
Lactose standard 5%, solid water standard for coulometric/volumetric KF titration and KF oven method	10 g	85449.100

Troubleshooting working medium variations: Influence of C-Solvent

Karl Fischer titration can be applied to a wide variety of substances, but differences in sample properties and solubility can influence the Karl Fischer reaction. However, there are number of ways to adjust the working medium to improve solubility of the sample, enabling direct Karl Fischer titration.

Here are some ideas...

- Pyridine is a good polar solvent, also acts as basic solvent for neutralisation of acids, but is foul smelling
- Imidazol can be used to neutralise acids for strong acidic samples
- Toluene and xylene improve oil solubility
- Addition of formamide improves solubility of polar materials like proteins, carbohydrates and inorganic salts, that are either insoluble or dissolve only slightly in methanol
- Acetonitrile is a good polar solvent
- N Methylpyrrolidone dissolves polymers and can be used up to 40% of the volumetric working medium
- Addition of long chain alcohols or chloroform can improve the solubility of fats, oils and long chain hydrocarbons

Setting science in motion to create a better world



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