

## **KF875 and KF-LAB MkII**

# **Karl Fischer Moisture in Oil Test Sets**



- **Coulometric Karl Fischer titrimetry**
- **KF875 optimized for insulating oil with an SG of 0.875, completely portable**
- **KF-LAB MkII offers greater flexibility, versatility and sample data input than the KF875; also completely portable**
- **KF-LAB MkII analyzes materials with an SG between 0.6 & 1.4, plus insulating oils with an SG of 0.875**

### **DESCRIPTION**

Over 20 years experience has led to the development of the Megger KF875 and KF-LAB MkII Coulometric Karl Fischer Test Sets designed to determine moisture in oil, to provide highly accurate results on-site. The KF875 and KF-LAB MkII are highly portable instruments, complete with integral printer and carrying case, are easy to use and provide highly accurate results.

### **APPLICATION**

Optimized for testing insulating oils with a specific gravity of 0.875, the Megger KF875 simply requires the operator to press one button and inject a 1ml sample into the test cell. The simple 'one touch' operation makes the KF875 so easy to use that it requires no specialist knowledge or training to use it effectively. Results are presented on the instrument display and on the integral printer in both micrograms of water and in milligrams per kilogram (parts per million, ppm).

The KF-LAB MkII allows the titration of samples with a range of specific gravities from 0.60 to 1.40 and also permits the use of different sample sizes. The KF-LAB MkII also has a default setting optimized for analyzing insulating oils with an SG of 0.875. This means it can be used to measure water content in a variety of different materials but is also easy to set up for transformer insulating oils.

The printer may be disabled if not required and results can be calculated in ppm, mg/kg, % and micrograms. For extra flexibility, the results may be calculated based on the weight of the sample or based on the volume and specific gravity of the sample.

### **FEATURES AND BENEFITS**

- **The KF875 and KF-LAB MkII are highly portable and designed specifically for outdoor use** - both units are supplied as standard with a printer, low drift cell and rugged carry case. Portability is further enhanced with flexible power options - both units can be powered from the mains supply, from the internal rechargeable battery or via a 12V car adapter.
- **Each unit eliminates inaccuracies with ACE Control System** - some Coulometric Karl Fischer sets are susceptible to inaccuracies due to changes in electrolysis cell resistance, which requires frequent checking of the titrator efficiency by analyzing known water content standards. The KF875 and the KF-LAB MkII remove this need by using the patent pending ACE (Automatically Compensated Errors) Control System. This guarantees that the electrolysis current produced and the count rate displayed are always correctly synchronized, regardless of changes to the electrolysis cell resistance.
- **Each unit uses Karl Fischer coulometric titrimetry** - the industry standard method for determining moisture content (ASTM D1533, BS EN 60814:1998, IEC60814:1997).
- **The KF875 and the KF-LAB MkII include rechargeable battery power** - allows accurate on-site measurements to be made on oil samples freshly obtained, eliminating any time deterioration of the oil sample.
- **The KF875 and the KF-LAB MkII may be powered by internal rechargeable batteries or from the supply** - allows field-testing and laboratory testing with the same equipment, providing standardization.
- **KF-LAB Mk II** includes free data capture and retrieval software.

|                      | <b>KAF LAB MkII</b>  | <b>KF 875</b>                      |
|----------------------|--|------------------------------------|
| Titration method     | Coulometric Karl Fischer Titration   |                                    |
| Electrolysis control | Patented "ACE" control system  |                                    |
| End point detection  | AC polarisation  |                                    |
| End point indication | Visual display/ print out/ acoustic beep   |                                    |
| Type of sensor       | Two pin platinum electrode   |                                    |
| Measuring range      | 1 $\mu\text{g}$ - 10 mg water  |                                    |
| Moisture range       | 1 ppm - 100%   | 1 ppm - 100 ppm                    |
| Max. sensitivity     | 0.1 $\mu\text{g}$  |                                    |
| Max. titration speed | 2 mg per minute  |                                    |
| Max. current         | 400 ma   |                                    |
| Drift compensation   | Automatically controlled   |                                    |
| Precision            | 10-100 $\mu\text{g}$ $\pm 3 \mu\text{g}$ , 100 $\mu\text{g}$ - 1 mg $\pm 5 \mu\text{g}$ , above 1 mg $\pm 0.5\%$ |                                    |
| Method storage       | 10 programmable methods  | Preset method                      |
| Sample ID number     | User programmable  | Not available                      |
| Display format       | $\mu\text{g}$ , mg/kg, ppm, %  | mg/kg, ppm                         |
| Analogue output      | Built-in printer   |                                    |
| Print format         | $\mu\text{g}$ + mg/kg, ppm, %  | $\mu\text{g}$ + mg/kg, ppm         |
| Data logging         | USB, RS232 and results manager software  | RS232 and results manager software |
| Indicator housing    | N/A  |                                    |
| Probe housing        | N/A  |                                    |
| Calculation modes    | Weight/weight<br>Weight/dilution ratio<br>Volume/volume<br>Volume/density<br>User programmable                   | Volume/density<br>Preset values    |
| Statistics           | Up to 99 runs  | Preset up to 99 runs               |
|                      | User programmable  |                                    |
| Start delay time     | 0-30 mins. selectable  | Preset                             |
| Min. titration time  | 0-30 mins. selectable  | Not available                      |
| Language             | English, Francias, Espanol, Portugues, Deutsch, Magyar   | English                            |
| Stirrer speed        | Microprocessor controlled  |                                    |
| Calendar / clock     | Analysis time & date print out   |                                    |
| Keypad/user controls | Non tactile membrane/display prompted menu   |                                    |
| Display              | 40 character alphanumeric backlit display  |                                    |
| Printer              | 42 character high speed thermal printer  |                                    |
| Carry case           | Standard   |                                    |
| Power supply         | 90-264 VAC, 47-63 Hz 12 V DC car adapter/internal battery  |                                    |
| Power consumption    | 45 W   |                                    |
| Battery life         | 8 hours running time   |                                    |
| Battery charging     | 14 hours after average use   |                                    |
| Battery low          | Display & print out indication   |                                    |
| Humidity             | 5% to 95% RH   |                                    |
| Storage temperature  | -10 to +85 °C  |                                    |
| Dimensions           | 250 x 245 x 120 mm   |                                    |
| Weight               | 3 kg (without carry case)  |                                    |

## Reagents

Reagents and other consumable chemicals for coulometric Karl Fischer Titration are available from many different suppliers throughout the world.

Megger recommends the use of:

Part numbers for “Hydranal coulomat” Reagents are:

| Part no.    | Description  |
|-------------|--|
| RH-34807    | Hydranal coulomat A anode reagent - 500 ml bottle                    |
| RH-34840-25 | Hydranal coulomat CG cathode reagent - 1 x 25 ml vial                |
| RH-34840-50 | Hydranal coulomat CG cathode reagent - 1 x 10 pack of 50 ml ampoules |

Part numbers for “Hydranal” water standards are:

| Part no. | Description   |
|----------|---|
| RH-34828 | Hydranal water standard 1.00 - 10 pack of 4 ml ampoules |
| RH-34847 | Hydranal water standard 0.10 - 10 pack of 4 ml ampoules |

Details of a local agent where these products can be obtained are available on the Sigma-Aldrich website [www.sigmaaldrich.com](http://www.sigmaaldrich.com)

## ORDERING INFORMATION

| Item (Qty)  | Cat. No. |
|---|----------|
| KF-LAB MkII Laboratory Coulometric Karl Fischer Test Set    | 6111-774 |
| KF875 Coulometric Karl Fischer Test Set for insulating oils | 6111-636 |
| <b>Supplied Accessories (also available as spare items)</b> |          |
| Titration Vessel  | 6121-527 |
| Detector electrode  | 6121-528 |
| Generator electrode   | 6121-529 |
| Drying tube   | 6121-530 |
| Carrying Case   | 6121-537 |
| Power Pack  | 6121-585 |
| Car adapter   | 6121-539 |
| Injection septa (10)  | 6121-531 |
| Glass syringe (1 ml)  | 6121-532 |
| Luer needle   | 6121-533 |
| Bottle of Molecular sieve                                   | 6121-534 |
| Stirrer bar   | 6121-535 |
| Funnel  | 6121-536 |

### UK

Archcliffe Road, Dover  
CT17 9EN England  
T (0) 1 304 502101  
F (0) 1 304 207342

### UNITED STATES

4271 Bronze Way  
Dallas, TX 75237-1019 USA  
T 1 800 723 2861  
T 1 214 333 3201  
F 1 214 331 7399

### OTHER TECHNICAL SALES OFFICES

Norristown USA, Toronto  
CANADA, Mumbai INDIA, Trappe  
FRANCE, Sydney AUSTRALIA,  
Madrid SPAIN and the Kingdom of  
BAHRAIN.

### ISO STATEMENT

Registered to ISO 9001:2008 Cert. no. Q 09250  
Registered to ISO 14001:2004 Cert. no. EMS 61597  
**KF875\_KFLABMK2\_DS\_en\_V14**  
[www.megger.com](http://www.megger.com)  
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