



METTLER TOLEDO

DL39 & DL32 Coulometers

DL38 & DL31 Karl Fischer

volumetric titrators

Stromboli KF sample changer



From 1 ppm to 100%
Karl Fischer water content determination

METTLER TOLEDO

Volumetric water content determination made easy: METTLER TOLEDO DL38 & DL31



The volumetric Karl Fischer DL38 and DL31 titrators have been designed for a wide range of water content applications – determinations from a few 100 ppm to 100% water, quickly and precisely. Compared to the routine DL31 titrator, the DL38 offers numerous additional features such as a method memory for fifty user methods, statistical functions as well as more sophisticated calculation possibilities.

Quick start

The Hello menu function gets you off to a quick start. Within a short time you have even performed your first analysis. The system guides you step by step through the setup, explains the different functions and starts your first titration.

Wide range of applications

The METTLER TOLEDO Karl Fischer titrators cover the entire range of water content determinations:

- water content determination in liquids
- water content determination in solids with external extraction/dissolution
- water content determination in solids with homogenization performed directly in the titration vessel, with appropriate accessories (DL38/DL31)

- water content determination through heating the sample (using a DO307 oven)
- bromine index and bromine number determination

Expert guide

Even inexperienced users feel immediately at home with the straightforward easy-to-use operation of the instrument:

- a context-sensitive help function explains the various menu operations
- pictogram keys allow the quick and intuitive use of accessory functions.

A single keystroke

With the DL38 and DL39, you can start your three most frequently used titration methods with a single keystroke directly from the start-up screen.

Learn titration

The learn titration helps you optimize volumetric titrations with the DL38 and DL31. The titrators automatically determine the optimum parameters for the particular application.

Comprehensive documentation

The printouts from METTLER TOLEDO titrators present a complete overview of the experimental details including all the information required by GLP such as date, time, user, etc. – so that years later you can understand everything you did years before. The DL38 and DL39 can even print out the titration curves.

Coulometric water content determination made easy: **METTLER TOLEDO DL39 & DL32**

The METTLER TOLEDO DL39 and DL32 coulometers are ideal for water contents in the range 1 ppm to 5%. The DL32 is optimized for simple routine determinations, while the DL39 offers additional possibilities such as statistical functions, a method memory for fifty user methods and more sophisticated calculation functions. The DL39 is also ready-equipped for upgrade to a fully automated system.



PC software included

Although the METTLER TOLEDO Karl Fischer titrators themselves are very powerful, connecting a personal computer further enhances their application possibilities. The new LabX light software is therefore supplied with instrument. LabX light makes it easier for you to edit and manage methods and offers numerous possibilities for the reevaluation and statistical analysis of data.

Network capability and security

The optional LabX professional software allows you to manage all your titration data via a computer network. Methods and results are stored on a central server and can be accessed by authorized persons via PCs on which LabX professional is installed. Besides this, LabX professional

provides all the functions needed to comply with FDA 21 CFR part 11, such as digital signature and audit trail. The User Manager allows you to manage access rights properly.

DL39 & DL32 coulometers: with or without diaphragm

The DL32 and DL39 are available with two different coulometer cells – with or without a diaphragm. For most applications, we recommend the cell without the diaphragm because it is almost maintenance-free.

Due to its innovative design, this diaphragm-free cell from METTLER TOLEDO can even be used for the determination of water in oils.

The version of the cell with a diaphragm is recommended for applications such as the determination of water in substances

containing ketones. It is also recommended if the best possible accuracy is required.

Environmentally friendly

Due to optimized titration parameters, all METTLER TOLEDO Karl Fischer titrators can be used with ethanol-based Karl Fischer reagents.

Karl Fischer water content determination fully automated: **METTLER TOLEDO DL39 & Stromboli**



Titrate more efficiently

Titration with automatic titrators offers numerous advantages such as improved reproducibility of results and simplified working procedures. But to perform analyses really efficiently means that sample changing has to be automated. This then allows laboratory staff to concentrate on other important tasks while the titration samples are processed.

The combination of a DL39 with the Stromboli Karl Fischer sample changer enables 15 samples to be titrated in unattended operation.

Plug and Play

Just connect Stromboli to the titrator using the cable supplied and switch on both instruments. You are now ready for your first measurement. Stromboli is controlled by the titrator. It does not have any operating elements and does not require special installation or configuration.

Easy sample handling

The 25 ml-sample vials are designed for quick and easy handling: you simply add the sample and place a rubber seal on top of the vial. If you are working with hygroscopic samples, you place a foil between the vial and the seal. Once the analysis has been completed, you can easily remove the seal and reuse both seal and sample vial. You need no special tools and nothing is wasted.

Gas or air

The oven can be operated with a laboratory gas supply or with an optionally available air pump. The drying unit ensures that the gas entering the instrument is perfectly dry.

Clear display

Stromboli displays the actual and the preset oven temperature in large blue illuminated numerals on the upper side of the instrument.

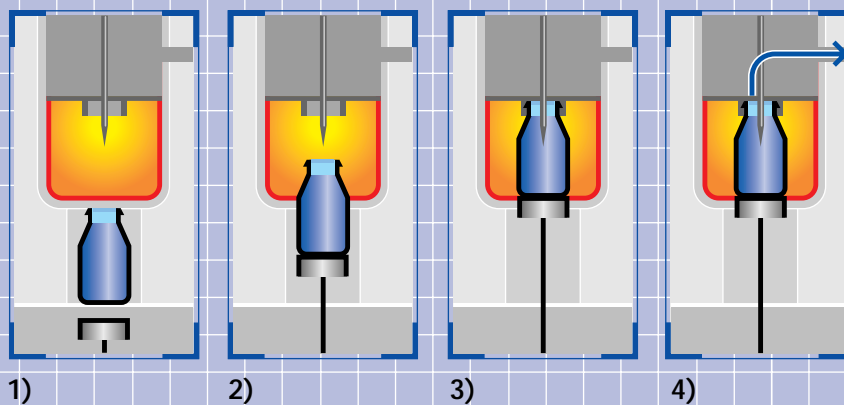


DL39 titrator with Stroboli, drying unit and optional air pump

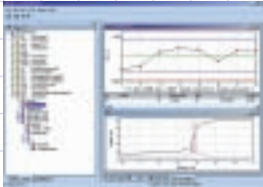
Clever mechanism

The robust design of Stroboli's sampling mechanism ensures a trouble-free processing of samples and ease of operation.

The samples are filled into the sample beakers, sealed and placed on the sample turntable. Start the series on the titrator (1). The first sample moves into the oven at the preset temperature (2). The film is pierced by the glass capillary (3). The water evolved from the sample is transferred to the titrator via the gas flow. The specially designed rubber cap ensures that no vapors can escape (4). After titration, the sample is transferred back into the rack.



Karl Fischer titration system accessories



LabX software

PC-based control of the titrator with comprehensive data management functions.



Homogenizer

Homogenization directly in the titration vessel



Thermostatable vessel

Double-walled beaker with inlet/outlet. Allows titrations at non-ambient temperatures.



D0307 oven

For water determinations in hardly soluble solids or in substances which would react with the Karl Fischer reagents. The D0307 is easy to use and gives highly reproducible results.



TBox

DL38 & DL39



DL 31/38

DL 32/39



Stroboli

Karl Fischer sample changer

Coulometric cell with diaphragm

Coulometric cell without diaphragm



Burettes with volumes of 1, 5 or 10 ml



DM143-SC sensor



GA42 compact printer

Air pump for Stroboli



inkjet printer

DL38/31 ———

DL39/32 ———

DL39 ———

Feature comparison and specifications		Volumeter DL31	DL38	Coulometer DL32	DL39
Application	Water content measurement range	>100 ppm	>100 ppm	1 ppm – 5%	1 ppm – 5%
	Solid, liquid and gaseous samples	■	■	■	■
	Bromine index and bromine number determination		■		■
	Can be automated with Stromboli				■
	Number of user methods	1	50	1	50
	Predefined Mettler methods		10		5
	Titrant memory/KF standard memory	10/10	20+5/20	–	–
Titration	Standby titration for automatic conditioning	■	■	■	■
	Drift stop for endpoint recognition (absolute and relative, tmax, delay)	■	■	■	■
	Autostart: Automatic start after sample addition		■		■
	Drift determination	■	■	■	■
Evaluation	Number of results/calculations per method	1	3	1	3
	Calculation with external extraction/dissolution		■		■
	Statistics for up to 60 samples including tolerance range check, deletion of outliers		■		■
	Recalculation of results		■		■
	Printout of curves: V-t (C-T), E-t, Drift-t		■		■
Quality management	User list with alphanumeric identification	■	■	■	■
	Routine mode with limited user rights		■		■
	Titrator identification with alphanumeric ID and serial number	■	■	■	■
	Titrant data: batch number, expiry date, date of last concentration determination, concentration limits	■	■	–	–
	KF standards: batch number, water content	■	■	–	–
	Methods: name of the author, Date of the last modification	■	■	■	■
	GLP compliant documentation	■	■	■	■
Auxiliary functions	Burette: manual dosing, manual rinsing	■	■	–	–
	Pump: to dispense solvent and siphon off the titrated solution	■	■	■	■
	Stirrer: manual on/off, stirrer speed in %	■	■	■	■
User interface	Hello menu tutorial function	■	■	■	■
	Context-sensitive help	■	■	■	■
	Guided method development	■	■	■	■
	Six languages: English, German, French, Spanish, Italian, Russian	■	■	■	■
Interfaces	Voltametric sensor input for DM143-SC double-pin platinum electrode	■	■	■	■
	Input for coulometric cell			■	■
	TTL I/O control inputs/outputs		■		■
	Serial balance connection	■	■	■	■
	Serial computer connection	■	■	■	■
	GA42 printer connection	■	■	■	■
	Parallel printer connection (inkjet, matrix or laser printers)	■	■	■	■
Hardware	Volumetric titration stand with 150 ml glass beaker	■	■	–	–
	Coulometric titration stand with 200 ml glass beaker	–	–	■	■
	Coulometric glass cell with or without diaphragm	–	–	■	■
	Removable magnetic stirrer	■	■	■	■
	Integrated membrane pump	■	■	■	■
	Backlit graphic display	■	■	■	■

Standard equipment:

DL38/31

- DL38/31 titrator with built-in burette drive
- Removeable DV1005 (5 ml) burette
- DM143-SC KF sensor
- Titration vessel with plugs and tubing
- Magnetic stirrer with stirrer bar
- 2 brown glass bottles for titrant and waste
- Tubing and small parts
- Instruction manual
- LabX light software

DL39/32

- DL39/32 titrator
- Coulometric cell, with or without diaphragm, DM143-SC
- Titration vessel
- Magnetic stirrer with stirrer bar
- 2 brown glass bottles for titrant and waste
- Tubing and small parts
- Instruction manual
- LabX light software

Stromboli

- Stromboli sample changer
- 20 sample vessels including caps
- Drying unit
- Cable to titrator
- Tubing and small parts
- Instruction manual



DL38/31



DL39/32



Stromboli

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