

The new 6.0256.100 flat membrane electrode: A masterpiece from Metrohm!

You certainly have been dreaming about an electrode that is perfectly suited for the fully automatic titration of small volumes. With the new 6.0256.100 flat membrane electrode, Metrohm has made your dreams come true.

The new design: The result of years of experience

The new flat membrane electrode is not just a normal electrode but a masterpiece! The attractive flat membrane electrode «Made in Switzerland», skillfully realized by the glassblowers of Metroglas, our daughter company, embodies Metrohm's decades of experience and profound knowledge. The electrode has a ground-joint diaphragm, which forms a ring around the pH glass membrane on the plane electrode base. This new shape has proved to be extremely advantageous.

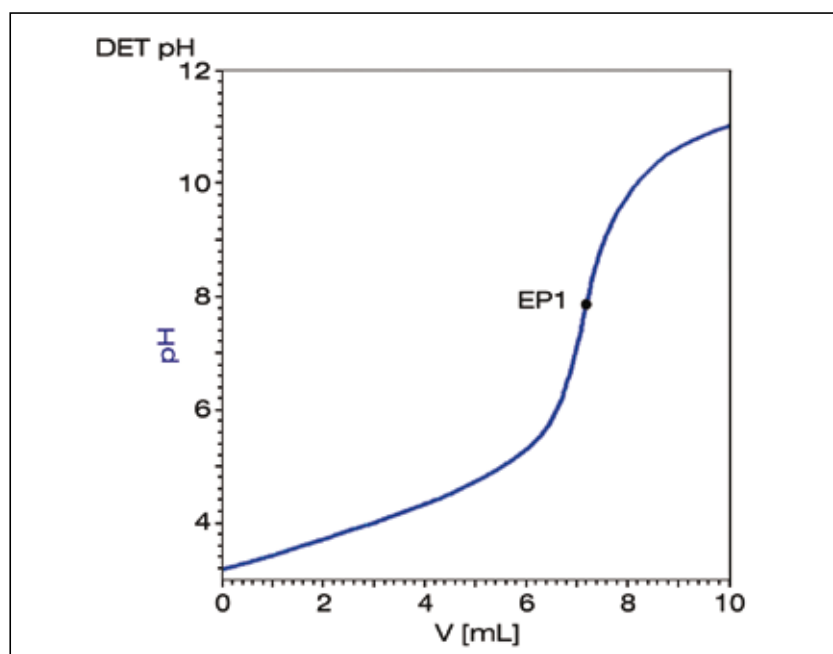
Predestined for fully automatic titration

The new design gives the flat membrane electrode the following outstanding features:

- The sleeve-like ground-joint diaphragm ensures a constant and symmetrical reference electrolyte flow.
- The electrode shaft and the electrode tip are completely made of glass. This means that there are no cavities in which sample solution could collect. As a result, there are no interfering memory effects.
- The electrostatic charge, which produces noisy measurements, has been minimized.
- The electrode can now also be used for titrations.
- As the electrode can be cleaned without any problems, it can also be used in combination with a sample changer.
- The minimum immersion depth is only 1 mm.
- As the glass membrane is in the immediate vicinity of the diaphragm, an excellent repeatability of the titration results is achieved.



Predestined for the fully automatic titration of small volumes: the new 6.0256.100 flat membrane electrode with a fixed ground-joint diaphragm.



Titration curve, recorded with the new flat membrane electrode

Excellent repeatability and extremely low measuring error

The new geometry with the ring-shaped ground-joint diaphragm around the pH glass membrane gives an excellent repeatability and reduces the measuring error to an absolute minimum. This can be clearly seen from the table below.

Titration of wine samples with sodium hydroxide ($c(\text{NaOH}) = 0.1 \text{ mol/L}$) using a sample changer. The endpoint was detected with two conventional pH electrodes and two 6.0256.100 flat membrane electrodes. With the flat membrane electrodes, the measuring errors are extremely low.

	Conventional pH electrodes		6.0256.100 flat membrane electrodes	
	pH electrode 1	pH electrode 2	Flat Membrane Electrode 1	Flat Membrane Electrode 2
Mean value	5.151 mL	5.102 mL	5.141 mL	5.140 mL
Standard deviation	0.0163 mL	0.0201 mL	0.0092 mL	0.0073 mL
Relative standard deviation	0.316%	0.394%	0.180%	0.143%

The «Long Life» reference system from Metrohm:

The flat membrane electrode is also equipped with the «Long Life» reference system from Metrohm. The silver chloride coating of the silver wire of the reference electrode is connected to the reference electrolyte via a highly effective diffusion barrier. Therefore, the reference electrolyte contains only low concentrations of complexed silver ions, which considerably reduces the risk of the diaphragm becoming blocked.

Thanks to this unique system from Metrohm, the response time to changes in pH and temperature is extremely short.

The storage solution: Fantastic results straight away!

All combined pH glass electrodes with $c(\text{KCl}) = 3 \text{ mol/L}$ as reference electrolyte, including the flat membrane electrode, should be stored in the patented Metrohm storage solution 6.2323.000 when not in use. The optimal composition of this storage solution guarantees that the pH glass electrode is always ready for use.

Fields of application

- pH surface measurements in the paper, textile and food industries
- pH measurement of soil samples (aqueous suspensions)
- Fully automatic titrations with a sample changer
- Titration of small volumes

Technical specifications

pH range	1...11
Temperature range	0...70 °C
Shaft length	142 mm
Shaft diameter	12 mm
Shaft material	glass
Min. immersion depth	1 mm
Electrode head	Metrohm plug-in head G
Membrane glass	special glass
Membrane shape	plane
Diaphragm	fixed ground-joint
Reference electrolyte	$c(\text{KCl}) = 3 \text{ mol/L}$
Electrolyte flow	5...30 $\mu\text{L/h}$
Reference system	«Long Life» (LL)