

# pH Meter

*pH-Meter*

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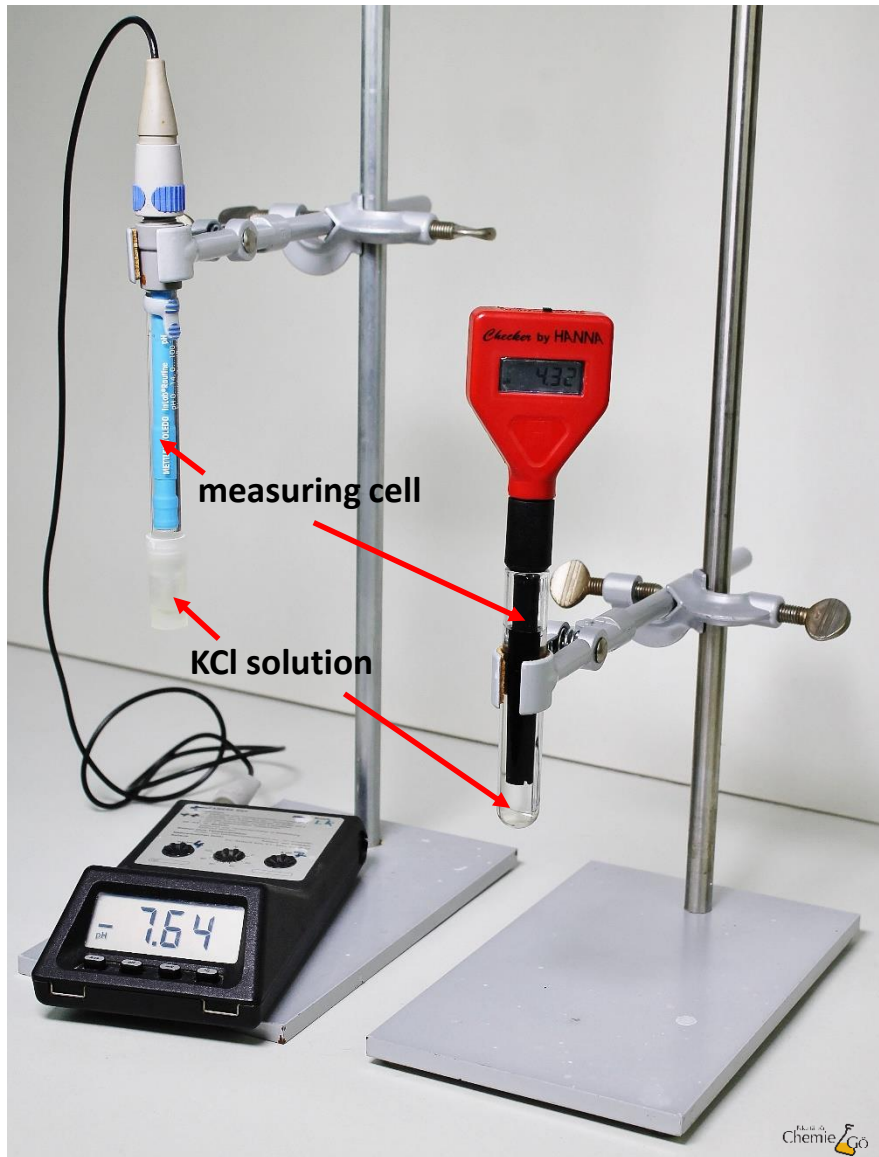


## pH Meter

By means of a pH meter, the pH value of a solution is determined and displayed.

pH meters come in different models (see picture).

- pH meter with a combination electrode (left)
- Pocket pH meter (right)



In the practical course, glass electrodes are used as measuring cells.

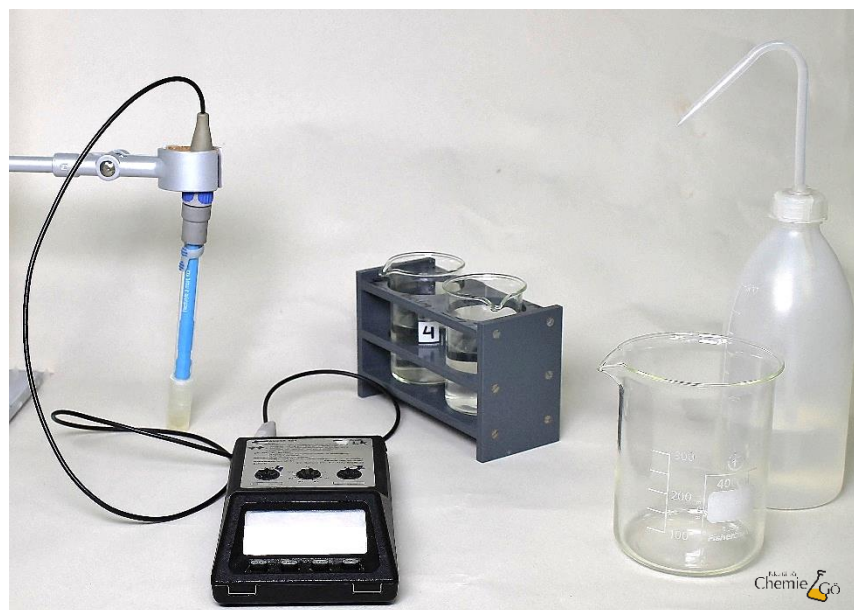
To prevent damage, the measuring cell must be handled carefully (**NO** stirring).

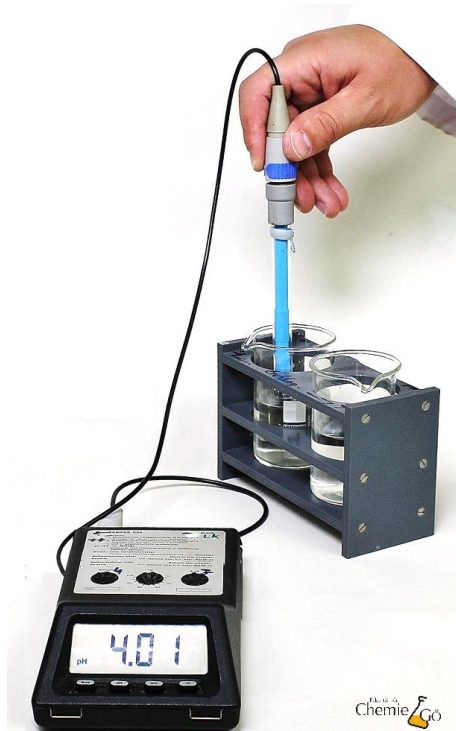
When not in use, the measuring cell of the pH meter is stored in a 3 M KCl solution. It may not dry up as the diaphragm of the measuring cell has to be kept at neutral potential and and conductive.

Before use, the pH meter must be calibrated.

For the calibration, buffer solutions of known pH value are used.

- pH = 4 / pH = 7 (low pH value)
- pH = 7 / pH = 9 (high pH value)



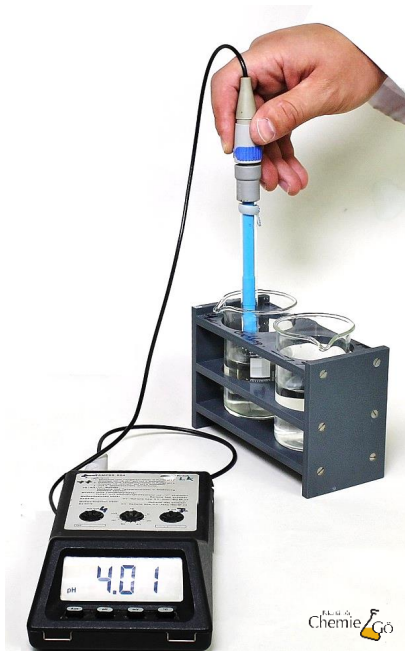


If a low pH value is expected for the sample, the pH meter is calibrated with buffer solutions of  $\text{pH} = 4$  /  $\text{pH} = 7$ .

By contrast, if high pH values should be measured, the calibration is done with buffer solutions of  $\text{pH} = 7$  /  $\text{pH} = 9$ .



After the measurement, the measuring cell is rinsed with purified water.

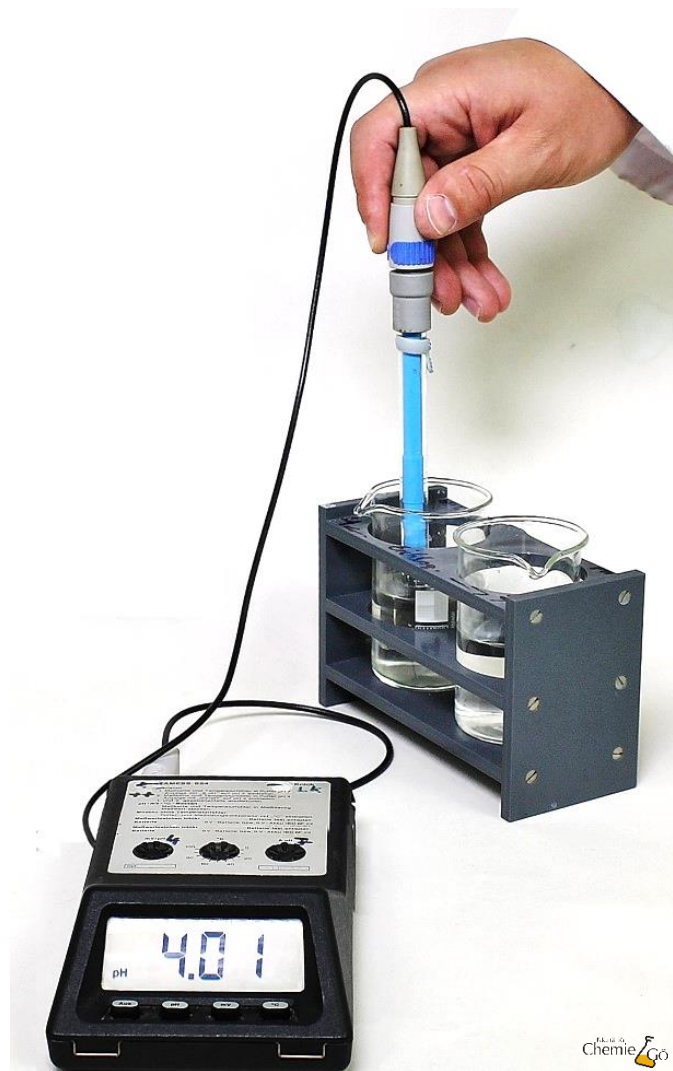


## Calibration of the pH meter:

Example for a low pH value ( $\text{pH} < 7$ )

1. Measurement of buffer  $\text{pH} = 4$
2. Adjustment of the value at the pH meter with the wheel
3. Cleaning of the measuring cell with purified water
4. Measurement of buffer  $\text{pH} = 7$
5. Adjustment of the value at the pH meter with the wheel
6. Cleaning of the measuring cell with purified water
7. Repetition of steps 1-3





For pH measurements of acidic solutions ( $\text{pH} < 7$ ) the following order should be followed:

$\text{pH} = 4$  /  $\text{pH} = 7$  /  $\text{pH} = 4$

For pH measurements of basic solutions ( $\text{pH} > 7$ ):

$\text{pH} = 9$  /  $\text{pH} = 7$  /  $\text{pH} = 9$

After calibration of the measuring cell it should be stored in a KCl solution.





For the measurement of the pH value, the calibrated measuring cell is immersed in the sample solution and the value is read off.

After the measurement, the measuring cell is rinsed with purified water and placed in the storage solution (KCl solution).