

# Working and calibration set GAK 1400

**The set consisting of:** 5x GPH 4.0 ; 5x GPH 7.0 ; 5x GPH 10.0 ; 3x GPF 100 ; 1x KCl 3M ; 1x GRL 100

## Operating information:

### Please observe the safety instructions of the contained chemical substances

(Note: the appropriate material safety data sheets are available on our homepage)

### How to prepare a calibrating solution:

- Fill 2 plastic bottles with 100 ml distilled water (eg battery water) each. 100 ml will cover the entire cylindrical area, ie approx. 55 mm as of bottle base.
- Open pH 7 capsule (green) carefully (turn one half of the capsule while pulling and make sure not to spill any solution); put content (including both capsule parts) into one of the bottles.
- Put content of pH 4 capsule (orange) (resp. pH 10), including both capsule parts, in the second bottle.

The capsule shell will colour the liquid with the respective characteristic colour:

orange = pH 4.0; green = pH 7.0, blue = pH 10.0

Make sure to prepare buffer solutions in time as they can only be used after 3 hours. Shake well before use.

Eventually the capsules won't resolve totally. The residues can stay in the liquid without any negative effect, or they can be removed after colouring the liquid.

The buffer solutions have a limited operational life of 3 - 4 months and should be renewed after this period. The capsules itself are practically stable for an unlimited time and should be kept in reserve.

### General maintenance and measuring instructions for pH combi-electrodes:

Make sure to observe the following points to maintain optimum capacity and accuracy of electrode as long as possible:

- **Important!** Make sure to always keep pH-glass diaphragm in a slightly moist condition. If electrode is not used, the pH-glass diaphragm has to be immersed into a 3 mol/l KCl solution for storage. Drying out of the pH-glass diaphragm will affect both its capacity and sensitivity. In order to wet it throughout, put glass diaphragm in a 3 mol KCl solution for 24 hours.
- Check liquid level of reference electrolyte at regular intervals; if necessary top up with 3 mol/l KCl solution through filling hole using a syringe or pipette.
- As they will influence the measurements, any deposits that may accumulate on the measuring membrane or diaphragm have to be removed regularly. When conducting measurements in cheese, milk and other products containing proteins, a special cleaning agent GRL100 (pepsin solution) has to be used for cleaning of the electrode.
- Dirty electrodes have to be cleaned. You will find suitable cleaning agents for the pH-glass diaphragm in the following table:

#### Contamination

Various deposits  
Inorganic coatings  
Metal compounds  
Oil, grease  
Biological coatings containing proteins  
Resin-lignines  
Highly resistant deposits

#### Cleaning agent

Light cleaning agent  
Commercial liquids for cleaning of glass  
1 mol/l HCl solution  
Special cleaning agents or solvents  
1 % pepsin enzyme in 0.1 molar HCl solution  
Acetones  
Hydrogen superoxide, sodium hypochloride



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