GCA100 Phosphorus total / Phosphate ortho

DOC312.53.94099

0.01–3.80 mg/L PO_4-P **GCA100 GaniChem P**

Scope and application: For wastewater, drinking water, boiler water, surface water and process analysis.

Test preparation

Test storage

Storage temperature: 15–25 °C (59–77 °F)

pH-Value

The pH of the water sample must be between pH 2–10.

Before starting

Special note

Take care that the **caps** of the reagent bottles (**blue, green, grey, orange** and **colorless**) are **not swapped**!

Important information for the evaluation!

Without hydrolysis, only the (dissolved) **orthophosphate** is measured. The result of the orthophosphate measurement can be expressed as:

a) mg/L **PO_4-P** (e.g. for process analysis)

b) mg/L **PO_4** (e.g. for analyses of drinking water or boiler water)

c) mg/L **P_2O_5** (e.g. for soil analyses)

With hydrolysis, **all of the phosphorus** is measured. The result of the total phosphorus measurement can be expressed as:

a) mg/L **PO_4-P** (e.g. for monitoring threshold values in wastewater)

b) mg/L **PO_4** (e.g. for analyses of drinking water or boiler water)

c) mg/L **P_2O_5** (e.g. for soil analyses)

Accessories for quality assurance:

GCS100 standard PO_4-P **2.0 mg/L**

GCS050 standard PO_4-P **0.2 mg/L**

GCZ100 zero solution

GCR100 cleaning solution

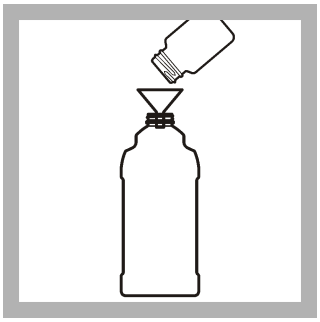
More detailed information is provided in the user manual for the **Ganimede** laboratory analyzer.

Review safety information and expiration date on the package.

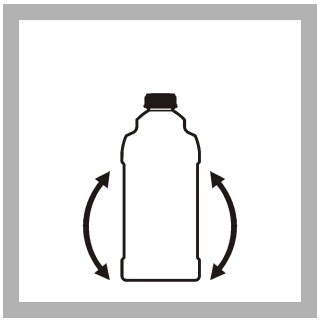
Review the Safety Data Sheets (MSDS/SDS) for the chemicals that are used. Use the recommended personal protective equipment.

Dispose of reacted solutions according to local, state and federal regulations. Refer to the Safety Data Sheets for disposal information for unused reagents. Refer to the environmental, health and safety staff for your facility and/or local regulatory agencies for further disposal information.

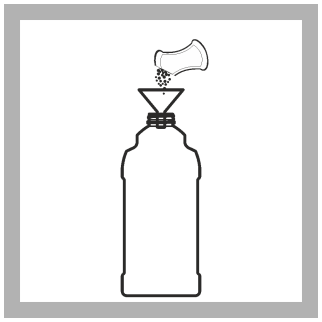
Procedure—Preparing the chemicals



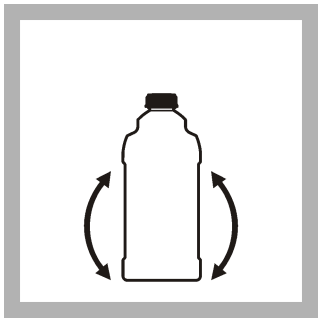
1. Open **digestion reagent A1** carefully and add the powder to **digestion solution A**.



2. Close digestion solution A and **shake vigorously** several times.

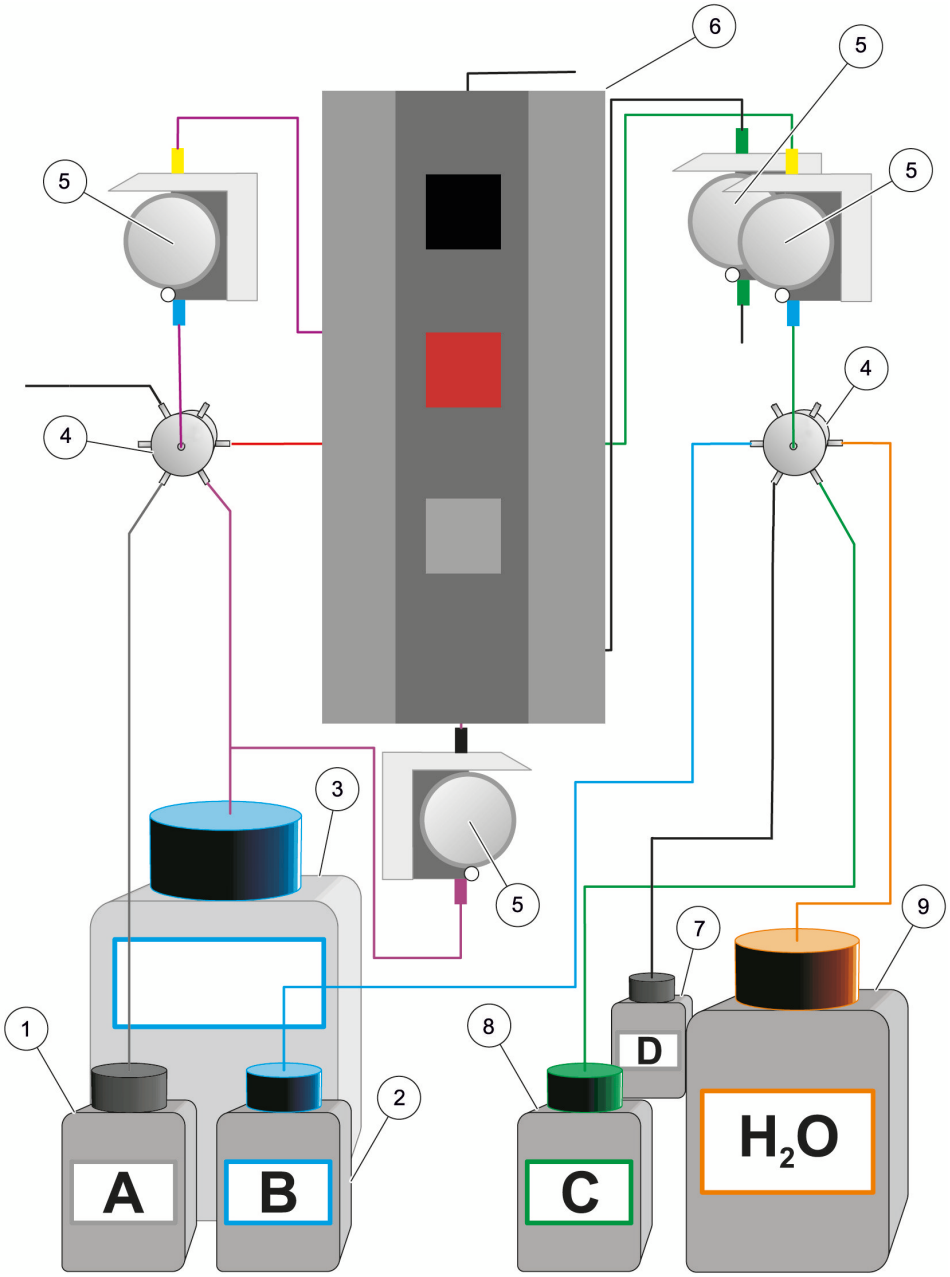


3. Open **reduction reagent C1** carefully (e.g. with scissors) and add the powder to **reduction solution C**.



4. Close **reduction solution C** and shake vigorously several times until the reagent is completely dissolved.
The prepared solutions can be kept for **7 days** at room temperature.

Procedure—Positioning the reagents in Ganimede P



1 Digestion solution A	6 Safety cover
2 Color solution B	7 Acid solution D
3 Waste bottle	8 Reduction solution C
4 Valve	9 Distilled water
5 Pump	

1. Open the Ganimede device door.
2. Screw the **waste bottle** into place and connect it to the appropriate cap in the instrument.
3. Screw all **reagent bottles** into place in succession, connecting them to the caps with the **same color**.

Procedure—Removing the used reagents from Ganimede P

1. Open the Ganimede device door.
2. Remove the reagent bottles one after another, closing them with the **original caps** with the **same color**.
3. Close the **waste bottle** with the **original cap**.
4. Replace **all reagent bottles** (containing any residual amounts of reagent) in the original package and return them **with the waste bottle** to the manufacturer.

Interferences

The ions listed in the table have been individually checked against the given concentrations and do not cause interference. The cumulative effects and the influence of other ions have not been determined.

Interference level	Interfering substance
5000 mg/L	SO_4^{2-}
2000 mg/L	Cl^-
1000 mg/L	K^+, Na^+, Ca^{2+}
500 mg/L	Mg^{2+}, NO_3^-
50 mg/L	Co^{2-}, Fe^{3+}, Zn^{2+}, Cu^{2+}, Ni^{2+}, Cr^{3+}, I^-, NO_2^-, Cd^{2+}, NH_4^+, Al^{3+}, Hg^{2+}, Pb^{2+}, Mn^{2+}
25 mg/L	Ag^+, SiO_2
10 mg/L	Fe^{2+}
5 mg/L	Cr^{6+}

The measurement results must be subjected to plausibility checks (dilute and/or spike the sample).

Summary of method

Phosphate ions react with molybdate and antimony ions in an acidic solution to form an antimonyl phosphormolybdate complex, which is reduced by ascorbic acid to phosphormolybdenum blue.

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09/2020, Edition 1