

SAMPLING METHOD MA4

SAMPLING OF WATER FOR CHEMICAL AND/OR BACTERIOLOGICAL TESTS

- 1 **SCOPE**

The method describes the procedure which should be followed when samples of water are taken for chemical and/or bacteriological tests. The tests and requirements are described in SABS 241-1971.
- 2 **APPARATUS**
 - 2.1 **Containers for samples for chemical tests**

Clean glass bottles with a capacity of approximately 2 l with close-fitting clean stoppers or covers, preferably also of glass.
 - 2.2 **Containers for samples for bacteriological tests**

Only suitable sterilized containers supplied by the test laboratory may be used.
- 3 **SAMPLE SIZE**
 - 3.1 **Samples for chemical tests**

At least 10 l per sample.
 - 3.2 **Samples for bacteriological tests**
 - 3.2.1 **Volume and number of samples:** Each samples must consist of at least 250 ml and the minimum number of samples that may be taken at one place will depend on the number of users to be served. (No more than one sample per day may be taken.)
- 4 **METHOD**
 - 4.1 **Samples for chemical tests** (see notes 6.1 and 6.2)
 - 4.2 **Preparation of glass bottles**

Clean the bottles and their stoppers or covers thoroughly before use. If possible the bottles should be washed with a nitric acid solution and then thoroughly rinsed out with water to remove the acid. Half-fill each bottle with the water from which a sample is to be taken, shake thoroughly and then empty it. Repeat this procedure three more times before starting to take the sample.

 - 4.1.2 **Sampling**
 - 4.1.2.1 From a tap: Turn the tap on fully and allow the water to flow for two minutes before taking the sample. To prevent unnecessary aeration while the sample is being taken, turn the tap while the sample is being taken,
 - 4.1.2.2 From the borehole or well: If samples are being taken from a borehole or well it is preferable to take them from a pump outlet pipe through which water has been pumping continuously for at least 24 hours. Thereafter follow the method described in paragraph 4.1.2.1 above.
 - 4.1.2.3 From a stream, lake or fountain: Remove the stopper from the sample container and completely immerse the container in the water, holding it at the base. Allow it to fill by holding it pointing upstream in running water or moving it slowly forward in standing water. Do not disturb the sediment or collect any of it in the sample. If walking in the water cannot be avoided, the sampler should keep walking upstream while taking the samples. If it is necessary to use a boat to obtain a sample at a suitable depth from a lake or dam, the boat should be propelled with as little disturbance as possible to the sampling site. The sample container can then be attached to a suitable rod and be carefully filled by immersing it in the water and moving it slowly forward as described above. As soon as the container is full, it should be closed with the stopper and must then be properly labeled as described in paragraph 4.1.2.1.
 - 4.2 **Samples for bacteriological tests**
 - 4.2.1 **General**

Only containers supplied by the test laboratory and which are sterile and suitable for immediate use may be used. Before each sample is taken the sampler must wash his hands thoroughly. While the sterile sample container is being handled no surface of the cover or stopper which may come into contact with the sample or with the inside surface of the cover may come into contact with the hand or any other object; under no circumstances may the covers be laid down.

4.2.2 **Sampling from a tap or pump**

Allow the water to glow for at least two minutes so that the pipe supplying the tap is thoroughly flushed out, then stop the flow and wash the mouth of the tap or pipe with a spirit burner (or other suitable type) until it is really hot. Open the tap to its fullest and allow the water to flow again until the tap has cooled down. Now fill the container with water from the running tap until it is full and close with the stopper or cover to form a tight seal. Label the sample clearly with the name of the sender, the date and time of sampling, and any special identifying mark.

4.2.3 **Sampling from a stream, reservoir or dam**

Hold the box of the container in one hand, remove the cover with the other hand and immediately immerse the container about 300 mm below the surface of the water. In running water the container must be held with its mouth pointing upstream and in standing water it must be moved so that no water which has come into contact with the hand gets into the container. Once the container has been filled, remove it from the water and seal it tightly with the stopper or cover. Label the container clearly with the name of the sender, the date and time of sampling and any special identifying mark.

5 **REPORTING**

Every sample must be accompanied by a report containing the following particulars:

Name and address of the organization or person requesting the tests.

Name and number of the farmer, plot or erf and the magisterial district.

Type of test required (bacteriological or chemical or both).

Date and time at which the sample was taken.

Date and time at which the sample was dispatched.

Name of sampler.

Description of the place at which samples were taken, i.e. the storage container (reservoir, tank, etc.), well, borehole, spring or stream, as applicable.

The date on which the last rain fell and whether it was heavy or not.

Whether the water has an unpleasant smell or taste.

The approximate number of persons who receive (use) water from the source or supply.

6 **NOTES**

6.1 Samples must be sent to the laboratory as soon as possible, since immediate chemical analysis (or stabilization) of the samples is essential.

6.2 The water should be sampled at least four times every year at the following times:
at the beginning of the rainy season;
in the middle of the rainy season;
at the end of the rainy season;
in the middle of the dry season.

REFERENCE

SABS

241-1971