

water samples: ^{13,14}C

General: the sample bottles must be thoroughly rinsed first with the sample to be analysed. Use glass sample bottles which can be thoroughly closed. Avoid a large head space. Label the bottles with a clear and unambiguous number.

Sampling

¹³C: For mass spectrometer analysis an amount of 0.10 mmole (2.5 ml) CO₂ is required. In general natural water contains more than 1 mmole dissolved carbon per litre, so that an amount of 100 ml is sufficient. To make a duplicate determination possible 0.3 litre water is requested in one bottle.

¹⁴C: For AMS analysis an amount of 2 mg carbon (0.17 mmole/4 ml CO₂) is required.

In general natural water contains more than 1 mmole dissolved carbon per litre, so that an amount of 200 ml is sufficient. To make a duplicate determination possible 0.5 litre water is recommended.

Sample conservation and mailing

Under normal conditions, growth of organic material will occur quickly, which causes large changes in the isotope ratios as well as in the pH value. In addition, CO₂ exchange with the atmosphere occurs easily and quickly. Therefore it is necessary to take the following precautions:

- a. the bottles have to be fully filled and perfectly closed;
- b. the bottles have to be made of glass (when they are stored for more than one day);
- c. the samples have to be kept in the dark and preferably at a low temperature (0-5°C);
- d. the samples have to be sterilised by adding 5 drops of a I₂-KI solution per 100 ml sample. This I₂-KI solution can be prepared by dissolving 1.5 g I₂ and 3 g KI in 100 ml demineralised water. Another possibility is 2 à 3 drops of a HgCl₂ solution (8 gr. HgCl₂ in 100 ml water).