

Collection of Ground Water Samples from Domestic and Municipal Water Wells for Dissolved Gas Analysis Using Gas Bottles

These instructions are based on sampling protocol created by Anthony Gorody, adopted by the Colorado Oil and Gas Conservation Commission, and are reproduced here with their permission.

The basic technique is to fill a white 5 gallon bucket with source water and then fill the 1 liter sample collection bottle fully immersed in the bucket.

When sampling from a pressurized water system, it is recommended to use an outdoor spigot or other source which bypasses any water treatment systems (i.e. water softeners, etc.).

To collect a sample for isotopic and chromatographic analysis from water that is not effervescent, using 1L bottle with septum cap:

After purging the well, fill the 5 gallon bucket with water. Attach a nozzle and 12" length of ¼ inch diameter tubing to the end of the 5/8 inch hose connected to a faucet. Make sure that the flow rates through the tubing are low. Remove the cap of the 1 L bottle and fill it with water. Once the bottle filled, immerse it in the 5 gallon bucket full of water, keeping the tubing at the bottom of the bottle. Place the bottle at the bottom of the bucket under a head of water, and keep water flowing at a low rate until another 2 volumes of water have been displaced from the bottle. Then slowly lift the tubing out of the bottle and immediately cap it under water. No air should be allowed into the 1 L bottle. When finished, tape the cap to the bottle around the neck, pack the bottle upside down in ice, and ship it overnight. If using dissolved gas containers supplied by Isotech, ice is not necessary, as we have included a bactericide capsule which will eliminate bacterial degradation of the sample.

To collect a headspace gas sample from an effervescent water well:

Fill the bottle with water. Submerge the bottle into the 5 gallon bucket filled with well water and invert it. Insert the ¼ inch tubing into the bottle, increase the flow rate to 2-3 gpm and allow the bubbling gases to displace water in a headspace until 1/4 to 1/2 of the water in the bottle has been displaced. Seal the container under water with the septum and screw cap, tighten it securely. When finished, tape the cap to the bottle around the neck, pack the bottle upside down in ice, and ship it overnight.

Please note Isotech's receiving hours of **Monday thru Friday** 8:00 am to 4:30 pm.

Ship samples to:

Isotech Laboratories, Inc.
1308 Parkland Court
Champaign, IL 61821

These instructions have been provided to simplify the collection of samples for dissolved gas analysis. Although we try to foresee and avoid problems in the field, it is never possible to predict every situation. If you encounter any difficulties, or if any additions or changes in these instructions would be beneficial, please let us know. Isotech Laboratories, Inc. makes no warranty as to the applicability and/or safety of the procedures described herein.