



MERIT LABORATORIES, INC.

2680 EAST LANSING DRIVE
PHONE: 517-332-0167
FULL SERVICE ANALYTICAL TESTING

EAST LANSING • MICHIGAN • 48823
FAX: 517-332-6333
FIELD SERVICES • CONSULTING • TRAINING

Collection Procedure for Volatiles in Drinking Water Analysis by EPA Method 524.2

Sample Collection and Dechlorination

◆ Collect all samples in triplicate. If samples, such as finished drinking water, are suspected to contain residual chlorine, add about 25 mg of ascorbic acid per 40 mL of sample to the sample bottle before filling (sample containers provided by Merit are already preserved with ascorbic acid). If analytes that are gases at room temperature (such as vinyl chloride) are not to be determined, sodium thiosulfate is recommended to reduce the residual chlorine. Three milligrams of sodium thiosulfate should be added for each 40 mL of water sample.

Note: If the residual chlorine is likely to be present >5 mg/L, a determination of the amount of the chlorine may be necessary. Diethyl p-phenylenediamine (DPD) test kits are commercially available to determine residual chlorine in the field. Add an additional 25 mg of ascorbic acid or 3 mg of sodium thiosulfate per each 5 mg/L of residual chlorine.

◆ When sampling from a water tap, open the tap and allow the system to flush until the water temperature has stabilized (usually about 10 min). Adjust the flow to about 500 mL/min and collect triplicate samples containing the desired dechlorinating agent from the flowing stream.

◆ When sampling from an open body of water, partially fill a 1-quart wide-mouth bottle or 1-L beaker with sample from a representative area. Fill triplicate sample bottles containing the desired dechlorinating agent with sample from the larger container. Fill sample bottles to overflowing, but take care not to flush out the rapidly dissolving dechlorinating agent. No air bubbles should pass through the sample as the bottle is filled, or be trapped in the sample when the bottle is sealed.

Sample Preservation

◆ Adjust the pH of all samples to < 2 at the time of collection, but after dechlorination, by carefully adding five drops of 1:1 HCl for each 40 mL of sample. Seal the sample bottles, Teflon face down, and mix for 1 min. Exceptions to the acidification requirement are detailed below.

Note: Do not mix the ascorbic acid or sodium thiosulfate with the HCl in the sample bottle prior to sampling.

◆ When sampling for THM analysis only, acidification may be omitted if sodium thiosulfate is used to dechlorinate the sample. This exception to acidification does not apply if ascorbic acid is used for dechlorination.

◆ If a sample foams vigorously when HCl is added, discard that sample. Collect a set of triplicate samples but do not acidify them. These samples must be flagged as "not acidified" and must be stored at 4°C or below. These samples must be analyzed within 24 hr of collection time if they are to be analyzed for any compounds other than THMs.

◆ The samples must be chilled to about 4°C when collected and maintained at that temperature until analysis. Field samples that will not be received at the laboratory on the day of collection must be packaged for shipment with sufficient ice to ensure that they will arrive at the laboratory with a substantial amount of ice remaining in the cooler.