

\$100. Suction lysimeter components or complete assemblies are manufactured by TIMCO Manufacturing Company*; Soil Moisture, Incorporated*; and other soil-water specialty companies. Plate 4 illustrates the components of a soil solution sampler and the necessary sample extraction pumps.

Sample Preservation

Grab and soil solution samples are collected manually and, therefore, require little in the way of sample preservation in the field. Essentially all that is required is that the samples be kept cool (4°C) during transportation from the field to the laboratory. This is easily accomplished by placing samples in an ice chest or cooler filled with ice.

Autosamplers were originally designed to collect numerous samples automatically over a variable length of time. Each sample, therefore, has a different length of time that it remains in the sampler between collection and pick-up times.

Additionally, autosampler capacities are generally up to 24 samples, enabling the sampler to operate over long time periods prior to pick-up. Thus, autosamplers require more sophisticated means of maintaining the viability of collected samples.

Preservation begins in the field with the appropriate shelter. The shelter should protect the autosampler from direct sunlight while ensuring adequate ventilation. Refrigerated shelters are available for instances where the time between sampling and pick-up is considerable. In other cases, a ventilated shelter will suffice if ice is placed in the autosampler base where the sample bottles are stored. Ice melts and, therefore, there is a limitation as to how effective the method is.

The autosamplers are designed with insulated bases such that with uncontained ice, the samples will be kept 14°C below ambient air temperature for 24 hours. After 48 hours the samples will be 5°C lower than ambient air temperature. Samples

Table 1: Required water sample containers, preservation techniques, and maximum storage times as suggested by the EPA (1984).

Parameter	Container ¹	Preservation	Maximum Storage Time
Ammonia	P, G	Cool, 4°C, H ₂ SO ₄ to pH<2	28 days
Color	P, G	Cool, 4°C	48 hours
Hardness	P, G	HNO ₃ to pH<2, H ₂ SO ₄ to pH<2	6 months
pH	P, G	None	Analyze immediately
Kjeldahl and organic N	P, G	Cool, 4°C, H ₂ SO ₄ to pH<2	28 days
Nitrate	P, G	Cool, 4°C	48 hours
Nitrate-Nitrite	P, G	Cool, 4°C H ₂ SO ₄ to pH<2	28 days
Nitrite	P, G	Cool, 4°C	48 hours
Phosphorus (Total)	P, G	Cool, 4°C H ₂ SO ₄ to pH<2	28 days
Turbidity	P, G	Cool, 4°C	48 hours

¹Polyethylene (P) or Glass (G).