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Rhizon - an excellent pore water sampler for low maintenance collection and filtration of small volume samples

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Rhizon samplers were originally designed as micro-tensiometers for soil science for seepage water sampling in the unsaturated zone some ten years ago. We have introduced these samplers for the use in marine sediments and in saturated groundwater environments for direct pore water sampling.

Rhizons consist of a small microporous polymer tube (2.5mm diameter) supported by a stabilizing wire that is connected to a PVC-tube and a standard luer-lock connector. By attaching vacuum to this connector (syringe, vacuumtube or peristaltic pump) small volumes of pore water samples may be extracted from sediments without further maintenance. As a side effect of the 0.1 micron pore width of the polymer tube, the samples are automatically filtered. We successfully used these samplers for high resolution sampling from closed sediment cores. The Rhizons were inserted through 3mm holes in the liner walls. By this method very high resolution pore water profile samples may be taken without disturbance of the sediment structure. Since samples are collected in directly attached syringes or vacuumtubes, contact with ambient oxygen is avoided for anoxic environments, thus eliminating both, the need for glove box sampling and eliminating the need for cumbersome pressure filtration. Recently other Rhizon models with carbon fibre support and microporous tube diameters down to 1mm have been presented.