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Novel Ultraclean PRISTINE® water sampler

Novel Ultraclean PRISTINE® water sampler for the GEOTRACES Program

After 3 decades Go Flo PVC samplers, better ultra clean PVDF plastics, titanium and improved design now are available in the 21th century.

Novel butterfly-valve type ultraclean samplers have been developed and constructed using ultraclean PVDF plastic manufactured in an ultraclean factory in Austria (www.georgfischer.at). The samplers are closed when passing through the ocean surface and next open at subsurface. The opening is very large for excellent flow-through during downcast and up cast. Teflon valves for sub sampling are placed at lowest position to ensure draining complete sampler including settling particles. The top valve can be connected to gas pressure for pressure filtration at bottom sub sampling valve.



The 24 samplers of 27 Litres each are mounted on an all-titanium frame deployed with a new Kevlar hydrowire cable with internal signal cables. This allows for the rapid ultraclean sampling of the deep oceans for concentrations of trace metal elements aluminum, manganese, iron, cobalt, copper, nickel, zinc, silver, cadmium, platinum and lead (Fe, Mn, Al, Co, Cu, Ni, Zn, Ag, Cd, Pt, Pb), as well as the stable isotope systematics of several such trace metals, notably iron, copper, zinc, cadmium and lead (Fe, Cu, Zn, Cd, Pb). Almost all of these trace metal elements are involved in the ocean biological cycle, several directly as bio-essential trace element for every living organism (notably Fe, Mn, Co, Cu, Ni, Zn) and many others by mechanisms yet to be unraveled in the GEOTRACES program.

