Overview

Microbial life has been discovered in cores recovered from as deep as 1 km below the seafloor. The Microbiology laboratory enables microbiologists to investigate this deep biosphere. The laboratory contains an anaerobic chamber with rock splitting and other sampling equipment for taking uncontaminated samples from the cores, a laminar flow hood for preparing uncontaminated samples for study, and facilities for incubating samples. There is also an epifluorescence microscope available for sample examination. Pressure vessels and -86°C freezers allow storage of samples under controlled conditions for future shore-based study. The ship also has facilities for conducting tracer experiments to quantify the extent of downhole contamination of the core by drilling fluid pumped down from the seafloor.

List of Instruments

- Agilent 6890 gas chromatograph with Micro-ECD (electron capture detector) and Gerstel headspace autosampler
- Boekel slide moat incubator, Fisher P/N 05-450-31
- CoyLab hard-shell anaerobic chamber with customized vinyl sleeve for core sections
- CoyLab soft-shell anaerobic chamber with vinyl sleeve and automatic airlock
- Fisher ISOTEMP low-temperature incubator (undercounter)
- Fisher ISOTEMP 220 water-bath incubator, P/N 15-462-20 (desktop)
- Fisher water bath
- Fisher oven
- Fisher vacuum pumps P/N 01-092-29
- FORMA 926 upright freezer (-86°C)
- Gas Analyzer, Oxygen/Hydrogen, Model 10
- High Pressure Equipment Co. reactors, gauges, connectors, and pump
- Homogenization flask, P/N 33994-666
- Homogenizer shaft assembly for macro open blade
- Homogenizer, Cyclone IQ2 P/N 33994-537
- Hydraulic rock trimmer, P/N 13H4000
- Isotemp Hybridization Incubator, P/N 13-247-30
- Labconco 37500-01 laminar flow hood
- LC Pump 301 macro stainless steel head (to meter tracer in drill water)
• Luminometer TD-20/20 without injector system
• MARVEL 6CRF lab refrigerator
• Rigaku LN60 liquid nitrogen generator
• OI Analytical Aurora 1030 total organic carbon (TOC + N) analyzer with dry combustion and wet combustion capability
• Tuttnauer 3870EA front-load autoclave (desktop)
• Vortex Mixer, Thermolyne Max Mix 11, P/N 12-814-5
• Welch 8915 vacuum pump
• Yamato SM510 top-load autoclave (floor)
• Zeiss Axioplan epifluorescence microscope
• SPOT microscope cameras
• Please note that proprietary manuals may be available upon request and subject to limited use

GC-PFT: Agilent 6890 Gas Chromatograph with micro-ECD

• GC2 User Guide (pdf)
• GC2-PFT User Guide 378P

Liquid Scintillation Counter - Wallac 1414

• Liquid Scintillation Counter User Guide

PFT Tracer pump

• MBIO tracer pump User Guide

SybrGold Virus and Bacteria direct Count Protocol

• SybrGold Virus and Bacteria Direct Count Protocol