



### Maintaining Moderately Low Temperatures For Long Runs

by Ross C. Pitcher, David C. Fry, and David N. Greeley, Hoffmann-La Roche, Nutley, N.J.

In the absence of some form of temperature control, our VXR-500 spectrometer runs at about 26.4, but we typically perform experiments at 20-25. We have rigged up a simple, maintenance-free device to deliver cooled nitrogen to the probe, which may be of general interest.

The cooling chamber is a seven liter dewar with a clamp lid (Lab-Line Instruments), which is filled with 60:50 aqueous diethyl glycol. Three holes have been drilled in the lid. Into one hole is inserted a cold finger (Cole Palmer Immersion Cooler VLT-60A); the other two serve as entry and exit ports for a coil of copper tubing, through which the nitrogen travels. The connection between the dewar and the probe is made via five feet of 5/8" insulated rubber tubing. Within this tube is a T-valve, to permit bypass of the cooling chamber if desired. The apparatus has run unattended for almost a year, without a significant build-up of ice.

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