Data Sources in Physical Chemistry

An important part of the job of preparing a report on laboratory work in physical chemistry is a comparison of results with literature values, where available. In the case of the physical chemistry teaching lab, such literature values should always be available; the problem is locating them. To that end we have several useful reference sources in the lab. These include a recent copy of the CRC Handbook of Chemistry and Physics, and a version of the same on two of the lab computers. We also have a thermal and physical properties CDROM data base program (TAPP) on the newest PC in the lab. These programs are relatively easy to use and provide both numerical data and references to the original literature (where the raw data can be found).

In addition to the "standard" CRC Handbook, the CRC publishes a number of other handbooks, copies of which are available in the Science Library. Among those that may be useful in Chemistry 236 are Properties of Organic Solvents, Thermochemical Data and Structures of Organic Compounds, and Thermochemistry of Organic Compounds in the Gas State (Vols. I and II). Another source of data on common organic solvents that I have found useful is Organic Solvents, by J. A. Riddick, et al. (QD61 .T4). The Science Library also has CDROM data base programs on Properties of Organic Compounds, and on the huge organic treatise, Beilstein. For binary solutions, the 4-volume work by Timmermans — Physico-chemical Constants of Binary Systems — is quite useful.

Many of these sources (and many others) are listed in your lab text, in Appendix D (pp. 746-752). Particularly important among these is Landolt-Bornstein, which can unfortunately be hard to bring to bear on a specific question. Use the large paper "map" that accompanies these volumes to locate those which may be relevant to your problem. (Ask the librarian for help if you cannot locate this map.)

Finally, you should always be sure to check out the references that are specifically cited in your lab text or in the Class Pak. Often these will provide the quickest source of data for your comparisons.