



## *Chemistry Software from the Spectroscopy Society of Pittsburgh*

The Spectroscopy Society of Pittsburgh (SSP) operates a Regional Distribution Center for Project SERAPHIM chemistry software and also distributes selected software from Dr. Victor Bendall, formerly of Eastern Kentucky University. Educators can obtain any of this chemistry software through the SSP for the cost of the blank media or free of charge by using their own media. The SSP pays Project SERAPHIM and Dr. Bendall a copying fee for the right to distribute the software in this way.

Check a SERAPHIM Catalog for descriptions of the programs available and the disk numbers. The most recent catalog was published in 1991 with a 1993 supplement. SERAPHIM no longer distributes this catalog. If you need one, write to the address below.

(See other side of page for Dr. Bendall's software programs)

### **IBM PC or COMPATIBLES**

There are 87 disks containing over 300 programs available for Windows computers (most are DOS-based programs). Identify the disk numbers that you want and send the proper number of 3.5" DD disks (or \$.50 per disk) to the address listed below. (Disk #4105A is no longer available.) Some programs do not work properly on the newer, faster PC Processors (See back side of this page for upgrades of some of the programs). See below to obtain all the programs on a single CD-R.

### **MACINTOSH**

There are 18 disks containing over 35 programs available for Macintosh computers. Identify the disk numbers that you want and send the proper number of Double Density 3.5" disks (or \$0.50 per disk) to the address listed below. (Most programs require MicroSoft Basic or HyperCard. Many programs do not work on PowerPC's). See below to obtain all the programs on a single CD-R.

### **CD-R's OR HIGH DENSITY (HD) 3.5" DISKS**

The IBM PC and/or Macintosh software can also be duplicated on CD-R's or High Density 3.5" disks. For CD-R's, simply send one blank CD-R (or \$1.00 if you want us to supply the blank CD-R. All the IBM and/or Macintosh software can be placed on one CD-R.) If using HD disks, send half the number of ordinary DD disks that would be required (or \$ 0.50 per disk if you want us to supply the disks).

Send Catalog requests and/or orders to:

**John A. Varine** (School P.O.'s accepted)  
**198 Myers Road**  
**Vandergrift, PA 15690**

**724 - 845 - 8779 (home phone) • 800-825-3221 Ext. 285 (voice-mail) • varine@pittcon.org (e-mail)**

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## ChemSimLab

Dr. Victor Bendall wrote many chemistry simulation programs for the original Project SERAPHIM PC collection. However, these programs were all written in DOS at a time when processors were much slower than they are today. As a result, the programs do not work very well with modern PC's. Dr. Bendall has updated these simulations for the Windows environment and they are now all available on a single CD titled ChemSimLab. Each simulation must be installed individually on a computer's hard drive and then will run without the CD. They each include teacher and student files/instructions. The titles and a short description of each simulation is below:

- BackTiter.** This simulation demonstrates the use of Back Titration to find the composition of a mixture.
- BombCal.** Here, the user determines the heat of combustion of an organic unknown using a simulated bomb calorimeter.
- Boyle.** This is a simulation of the famous experiment of Robert Boyle that showed the relationship between Pressure and Volume of a fixed mass of gas at constant temperature.
- BuCl.** This is a simulation of a determination of the Rate Law for the hydrolysis of t-Butyl chloride.
- Charles.** In this simulation, the relationship between Volume and Temperature of a fixed mass of gas at constant pressure is determined.
- Chloride.** This is the titration part of **Formula**. Students weigh a sample of potassium chlorate in the lab and heat it to constant weight as in **Formula**. Then, they use **Chloride** to titrate the residue to determine the Cl concentration.
- Conductivity.** What determines whether a substance is a good or bad conductor of electricity? This simulation allows the user to measure the conductivity of a variety of solids and liquids.
- Dumas.** This is the determination of the molecular weight of a volatile liquid by vapor density measurements.
- ElectroDep.** The equivalent weight of a metal is found by electrolysis of a metal salt, weighing the metal deposited and measuring the number of coulombs of electricity passed.
- Faraday.** This is an electrolysis of an aqueous solution where hydrogen and oxygen are generated and collected. From the data, a value for the Faraday can be determined.
- Formula.** The Empirical Formula of Potassium Chlorate is determined in this simulation.
- Graham.** The relative speeds with which different gases migrate along a tube are determined here.
- IceCal.** When zinc is reacted with acid, heat is liberated and, in this simulation, is used to melt ice.
- Osmom.** This is a discovery expt. The user can determine the factors that control the Osmotic Pressure of a solution.
- PaperChrom.** This simulation is of the procedure for separating a mixture of dyes by paper chromatography.
- Rast.** The determination of molecular weight by freezing point depression is the subject of this simulation.
- Reactivity.** The factors that affect the rates of reactivity of metals with acid are simulated in a qualitative manner.
- RGas.** A metal is dissolved in acid and the hydrogen gas that evolves is collected. From the volume of gas, the equivalent weight of the metal is calculated.
- SixSolut.** The student is shown six colorless solutions which each contain a different compound. They are asked to identify the dissolved substance in each solution by mixing them together and noting the results.
- Solubility.** The procedure for the determination of the solubility of sodium chloride in water is simulated. Like **PaperChrom**, this simulation is best suited as a pre-lab exercise before the true expt. is performed by the student.
- Transport.** The Transference Number of the proton is determined by the moving boundary method.
- Vinegar.** This is a simple titration experiment where the user determines the percentage of acetic acid in vinegar. The sample is weighed and titrated with standard sodium hydroxide.

## Ogre 2

OGRE2 is a completely revised version of a program originally written for DOS. It is intended to help first year Organic

Chemistry students with Synthetic Reactions and their Mechanisms. The program is keyed to numerous Organic Chemistry textbooks, but can also be used alone and organized by Functional Group. There is a total of 1300 questions in the test bank.

These two CD's can be obtained by either sending the blank CD-R's or \$1.00 for each to the address on the front side of this page. Once obtained, the programs can be freely installed on any computers at your institution. You, in effect, get a site license along with the CD's

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