

## 1.0 Introduction and product overview

1.1 The PERM•NET software makes use of the standard Windows 2000 Graphical User Interface. All systems and modules are selectable and configurable from the Interface. System Icons can be accessed from the custom toolbar and the individual systems may be operated in a window or minimized. (The Aromatran systems will operate only in full screen mode.) Commercial software may be run while the permeation systems run in the "minimized" or "windowed" state.

1.2 The PERM•NET system employs a single high speed computer and custom software packages which allow the user to attach up to 10 various module types to a single communication port. The various modules must still conform to the "Master/Satellite" connection but may be "daisy chained" in any order with a total communication cable length of up to 500 feet.

1.3 The custom software enables the operation to obtain transmission rates (TR) as well as permeation coefficients (P), Solubility coefficients (S), and Diffusion coefficients (D). The Permeation coefficient is the transmission rate normalized to thickness, the Solubility coefficients is a measure of the amount of test gas (permeant) that is absorbed into the film under test. The Diffusion coefficient is a measure of the speed at which the test gas (permeant) moves through the film under test.

1.4 The custom software provides for prediction of transmission rates, as well as predicted Diffusion, Solubility, Permeation, Permeability and Permeance coefficients. Algorithms follow Fick's and Henry's laws as well as Pasternak's solution to the fickian curve. Prediction is a useful tool when the Permeation (P), Solubility (S), and Diffusion (D) coefficients are needed, as use of the "prediction" feature can reduce the time required for that type of test by 40% or more.

1.5 The PERM•NET system has a powerful database for storage and retrieval of permeation test data. Over 50 fields are available for selection when generating the user specified database. The integrated software also has provisions for manual or automatic "real time" data collection from any active permeation application. The software also features manual or automatic prediction intervals when the "prediction" mode is selected. The user has full control of the data used for prediction as well as database content.

1.6 The PERM•NET system features a Graphs and Reports module which enables the operator to use either the default or customizable report format for presentation or hard copy of the selected data. The software allows the user to select any or all tests in the databases for reporting and allows database searching by several criteria including system type, test regime, test data and number. The reports module also allows selection of standard reporting units for Graphing and Reporting.

1.7 The PERM•NET system incorporates software & hardware that enables the user to receive "on-line" help and remote troubleshooting by factory service personnel. The included software module allows the factory service personnel to remotely run the application and diagnostic software packages via modem to quickly and accurately determine system failure mode, and to perform corrective action or initiate system return or hands on system service.





## PERM NET™

### PERM•NET hardware components

Each PERM•NET system consists of an IBM PC , or compatible with the proprietary communication drivers and software packages.

This data acquisition system will have the minimum following components:

- Pentium 266 processor
- 32 Meg of RAM
- 1.44 Meg 3.5" floppy drive
- 2.0 Gigabyte hard drive
- 12x CD ROM
- Opto-isolated RS485 serial communication port 28.8K modem
- 17 inch color monitor

### MOCON permeation module software specifications

The module software is presented in seven basic display screens. Movement between the screens is accomplished by pressing function keys. Function keys are located above the normal keyboard keys. Each display screen shows which function keys to press to process a specific request. See your system manual for specifics on operation of the permeation applications.

There are several default settings for communications; The baud rate has been fixed at 9600 and the default communication port is Port 1. If you have to change either one of these, please contact us.