

PACKAGE ID - 000214IBMPC00 PRO ASPEN/PC1.0

KWIC TITLE - Advanced System for Process Engineering

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LIMITATION CODE -COPY **AUDIENCE CODE** - LIM

COMPLETION DATE - 10/01/1998 **PUBLICATION DATE** - 10/01/1998

DESCRIPTION - PRO ASPEN/PC1.0 (Advanced System for Process Engineering) is a state of the art process simulator and economic evaluation package which was designed for use in engineering fossil energy conversion processes and has been ported to run on a PC. PRO ASPEN/PC1.0 can represent multiphase streams including solids, and handle complex substances such as coal. The system can perform steady state material and energy balances, determine equipment size and cost, and carry out preliminary economic evaluations. It is supported by a comprehensive physical property system for computation of major properties such as enthalpy, entropy, free energy, molar volume, equilibrium ratio, fugacity coefficient, viscosity, thermal conductivity, and diffusion coefficient for specified phase conditions; vapor, liquid, or solid. The properties may be computed for pure components, mixtures, or components in a mixture, as appropriate. The PRO ASPEN/PC1.0 Input Language is oriented towards process engineers.

PACKAGE CONTENTS - Software Abstract; DOE/MC/16481-1202 Vols. 1 & 2; DOE/MC/16481-1203 Vols. 1 & 2; README.TXT Document Media Includes Object Library, User's Guide, Executable Module, Sample Problem Input and Output Data, Installation Instructions;

SOURCE CODE INCLUDED? - No

MEDIA QUANTITY - 1 CD Rom

METHOD OF SOLUTION - PRO ASPEN/PC1.0 uses a preprocessor type of structure that generates a main calling program from a user input file in the PRO ASPEN/PC1.0 Input Language. The major sections and flow of information in the PRO ASPEN/PC1.0 program are as follows. The input translator processes the user input file, enters all data regarding the process into a problem data file, and generates the main FORTRAN program containing the necessary model calls. A physical property initialization subprogram, which depends on the property models used in the simulation, is generated also. These programs are then compiled and linked with user program and PRO ASPEN/PC1.0 libraries to create a custom simulation program for the problem. The simulation program reads input data from the problem data file and after performing any calculations required writes a new problem data file if necessary. The system report writer can then be used to produce reports from this file. PRO ASPEN/PC1.0 is

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METHOD OF SOLUTION - (CONT) a file oriented system. Executive programs written in the machine's operating system language control the execution of the various programs and the creation and selection of files used.

COMPUTER - IBM PC

OPERATING SYSTEMS - Windows

PROGRAMMING LANGUAGES - Digital Visual fortran 5.0C

SOURCE CODE AVAILABLE (Y/N) - N

UNIQUE FEATURES - PRO ASPEN/PC1.0 utilizes a plex data structure. Information is stored in blocks of contiguous locations. These are created dynamically from a pool of free storage. They may be of any length and may contain integer values, real values, or character strings. The plex handling capability is provided by a group of subroutines called the Data Management System.

OTHER PROG/OPER SYS INFO - PRO ASPEN/PC1.0 requires that Digital Visual Fortran 5.0c be installed on the target PC. This Fortran compiler is used to compile and link the PRO ASPEN/PC.10 program at run-time. If you need to upgrade the version of Digital Visual Fortran to 5.0c, the following website has downloadable upgrades: <http://www.digital.com/fortran/dvf/updates.html>. PRO ASPEN/PC1.0 does NOT run under version 6.0 or 6.0A of Digital Visual Fortran at this time.

REFERENCES - ASPEN User Manual, Volumes 1 and 2, Massachusetts Institute of Technology, DOE/MC/16481-1203, May 1982; ASPEN Technical Reference Manual, Volumes 1 and 2, Massachusetts Institute of Technology, DOE/MC/16481-1202, May 1982.

ABSTRACT STATUS - Released AS-IS 3/3/1999

SUBJECT CLASS CODE - D

KEYWORDS -

COMPUTER PROGRAM DOCUMENTATION
A CODES
FOSSIL FUELS
ENERGY CONVERSION
ECONOMIC ANALYSIS
PROCESSING
PHYSICAL PROPERTIES
COMPUTERIZED SIMULATION
FLOWSHEETS
ENGINEERING
MULTIPHASE FLOW
CHEMICAL REACTIONS

EDB SUBJECT CATEGORIES -

990200 010400 015000 294000 020400 020700 030300 030800

E S T S C
ENERGY SCIENCE & TECHNOLOGY SOFTWARE CENTER
SOFTWARE ABSTRACT

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EDB SUBJECT CATEGORIES -

SPONSOR - DOE/FE

PACKAGE TYPE - AS - IS