PACKAGE ID - 000750IBMPC00 ABSIM

KWIC TITLE - Simulation of Absorption Systems in Flexible and Modular Form

AUTHORS - Grossman, G.
Israel Institute of Thechnology, Haifa, (Israel)

LIMITATION CODE -UNL **AUDIENCE CODE -** UNL

COMPLETION DATE - 06/01/1994 **PUBLICATION DATE -** 06/01/1994

DESCRIPTION - The computer code has been developed for simulation of absorption systems at steady-state in a flexible and modular form, making it possible to investigate various cycle configurations with different working fluids. The code is based on unit subroutines containing the governing equations for the system's components. When all the equations have been established, a mathematical solver routine is employed to solve them simultaneously. Property subroutines contained in a separate data base serve to provide thermodynamic properties of the working fluids. The code is user-oriented and requires a relatively simple input containing the given operating conditions and the working fluid at each state point. the user conveys to the computer an image of the cycle by specifying the different components and their interconnections. Based on this information, the program calculates the temperature, flowrate, concentration, pressure and vapor fraction at each state point in the system and the heat duty at each unit, from which the coefficient of performance may be determined. A graphical user-interface is provided to facilitate interactive input and study of the output.

PACKAGE CONTENTS - Software Abstract; User's instructions; Media Includes Executable Modules, Sample Problem Input and Output;

SOURCE CODE INCLUDED? - No

MEDIA QUANTITY - 1 3.5 Diskette

METHOD OF SOLUTION - The solution of the code-generated equations is performed by a hybrid method combining Newton-Raphson and Steepest Descent.

COMPUTER - IBM PC

OPERATING SYSTEMS - DOS

PROGRAMMING LANGUAGES - FORTRAN (70%) C (30%)

SOFTWARE LIMITATIONS - At this point the code can simulate cycles requiring up to 95 governing equations. Future versions will be able to handle larger systems.

PACKAGE ID - 000750IBMPC00 ABSIM

SOURCE CODE AVAILABLE (Y/N) - N

UNIQUE FEATURES - Unlike other equation solvers often used for cycle simulations, this code generates the governing equations automatically as the user draws the cycle on the computer screen. The solution technique employing constraints eliminates possible solutions that are mathematically valid but physically invalid.

RELATED SOFTWARE - The current version supersedes earlier versions of the same program that did not have a graphical interface and were inferior in terms of their capabilities.

OTHER PROG/OPER SYS INFO - Executables, data, and text files were supplied with the submitted media. Source and compilation instructions were not supplied with the submitted media. The executables seemed to run without error, but a sample set of input and/or output was not supplied.

HARDWARE REQS - The program must be installed on an IBM PC, 80286 or higher, employing DOS 5.0 or higher. At least 550,000 Bytes of RAM are required to run the program, in the DOS environment. At this point the program is unable to access extended memory.

TIME REQUIREMENTS - Typically 1-2 minutes for a large cycle, a few seconds for a small cycle.

REFERENCES - Informal Documentation.

ABSTRACT STATUS - Submitted October 1994. Released AS-IS November 7, 1994.

SUBJECT CLASS CODE - HP

KEYWORDS -
COMPUTER PROGRAM DOCUMENTATION
A CODES
ABSORPTION
THERMODYNAMIC PROPERTIES
COMPUTER GRAPHICS
COMPUTERIZED SIMULATION
FLUIDS
EQUIPMENT INTERFACES

EDB SUBJECT CATEGORIES -
990200 420400

SPONSOR - DOE/EE

PACKAGE TYPE - AS - IS