

PACKAGE ID - 000724IB38600 EROSIONMOD1

KWIC TITLE - Erosion Rates for Components in Contact With
Fluid-Solids Systems

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

COMPLETION DATE - 04/01/1991 **PUBLICATION DATE** - 09/01/1992

DESCRIPTION - EROSION was developed for two-dimensional general analysis of erosion in fluid-solids systems and specific analysis of erosion in bubbling fluidized-bed combustors. The Finnie impaction, Nielson and Gilchrist combined ductile and brittle, and several forms of the monolayer energy dissipation erosion model are incorporated in the software, which calculates lifetimes of heat exchanger tubes, water-wall surfaces, internals, distributors, and baffles.

PACKAGE CONTENTS - Media Directory; Software Abstract;
DOE/MC/24193-3500; Media Includes Source Code, Sample Problem
Input;

SOURCE CODE INCLUDED? - Yes

MEDIA QUANTITY - 1 3.5 Diskette

METHOD OF SOLUTION - Erosion rates are determined from the gas/solids hydrodynamics computed using the FLUFIX/MOD2 or FORCE2 programs. The solids phase viscous stresses are used to determine the kinetic energy's energy-dissipation rate per unit volume for the monolayer energy-dissipation models. Cell-centered solids velocities are used to compute algebraic erosion models such as the Finnie and Neilson-Gilchrist models.

COMPUTER - IBM PC 386

OPERATING SYSTEMS - DOS, designed to be portable

PROGRAMMING LANGUAGES - FORTRAN77

SOURCE CODE AVAILABLE (Y/N) - Y

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RELATED SOFTWARE - Either FLUFIX/MOD2 or FORCE2 is employed to calculate the gas/solids hydrodynamics used by this software.

HARDWARE REQS - Minimum of 640 kbytes RAM and 2 Mbytes disk memory.

TIME REQUIREMENTS - On a 386 PC the transient and time-averaged erosion rate for 500 modes can be computed in less than 5 minutes.

REFERENCES - R.W. Lyczkowski, J.X. Bouillard, S.M. Folga, and S.L. Chang, User's Manual for EROSION/MOD1: A Computer Program for Fluid-Solids Erosion, DOE/MC/24193-3500, September 1992.

ABSTRACT STATUS - Submitted June 20, 1994. Released screened 5/01/95.

SUBJECT CLASS CODE - Q

KEYWORDS -

COMPUTER PROGRAM DOCUMENTATION
E CODES
TWO-PHASE FLOW
FLUIDIZED-BED COMBUSTORS
EROSION
TRANSIENTS
FLUIDS
SOLIDS
FINITE DIFFERENCE METHOD

EDB SUBJECT CATEGORIES -

990200 014000 420500

SPONSOR - DOE/FE

PACKAGE TYPE - SCREENED