

PACKAGE ID - 000575IBMPC00 NUMDEN

KWIC TITLE - Calculating Atomic Number Densities for Uranium

AUTHORS - Tayloe, R.W.
Battelle Memorial Institute, Columbus, OH (United States)

Davis, T.D.
Battelle Memorial Institute, Columbus, OH (United States)

Newvahner, R.L.
Martin Marietta Energy Systems, Portsmouth, OH (United States)

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

COMPLETION DATE - 01/01/1993 **PUBLICATION DATE** - 01/01/1993

DESCRIPTION - Provides method to calculate atomic number densities of selected uranium compounds and hydrogenous moderators for use in nuclear criticality safety analyses at gaseous diffusion uranium enrichment facilities.

PACKAGE CONTENTS - Media Directory; Software Abstract; POEF-T-3545; Media Includes Source Code, Executable Modules;

SOURCE CODE INCLUDED? - Yes

MEDIA QUANTITY - 1 3.5 Diskette

METHOD OF SOLUTION - Empirical models used to describe densities of mixtures of selected uranium compounds with hydrogenous moderators for a wide range of hydrogen-to-uranium atom (H/U) ratios.

COMPUTER - IBM PC

OPERATING SYSTEMS - MS-DOS 5.0

PROGRAMMING LANGUAGES - FORTRAN77

SOFTWARE LIMITATIONS - Incorporates models for calculating number densities for UF₆ and HF; UO₂F₂ and H₂O, UO₂ and H₂O, and U₃O₈ and H₂O. Other mixtures may be specified using general volume additive method.

SOURCE CODE AVAILABLE (Y/N) - Y

UNIQUE FEATURES - Provides a standardized method of calculating atomic number densities of selected uranium compounds and moderators for use in nuclear criticality analyses. Menu driven input. Output

PACKAGE ID - 000575IBMPC00 NUMDEN

UNIQUE FEATURES - (CONT) suitable for inclusion in the KENO monte-carlo computer program is generated.

RELATED SOFTWARE - Atomic number densities of uranium compounds and moderators are input into computer programs, such as KENO, for nuclear criticality safety analyses.

OTHER PROG/OPER SYS INFO - NUMDEN.FOR FORTRAN77 source code written to be platform independent. NUMDEN.EXE Executable file for IBM compatible personal computers with numeric coprocessors.

HARDWARE REQS - Intel 8088 compatible with numeric coprocessor. 640 kbytes RAM.

TIME REQUIREMENTS - Menu driven input, runs typically take only a few seconds.

REFERENCES - Tayloe, R.W, et. al. , Calculating Atomic Number Densities for Uranium Compounds, POEF-T-3545, Portsmouth Gaseous Diffusion Plant, January 1993.

ABSTRACT STATUS - Submitted April 1993. Released Screened May 4, 1993.

SUBJECT CLASS CODE - WG

KEYWORDS -

COMPUTER PROGRAM DOCUMENTATION
N CODES
CRITICALITY
MIXTURES
DENSITY
WATER
URANIUM COMPOUNDS
GASEOUS DIFFUSION PLANTS
ATOMIC NUMBER

EDB SUBJECT CATEGORIES -

990200 050700 360104 220100

SPONSOR - DOE/NE

PACKAGE TYPE - SCREENED