

PACKAGE ID - 000131DVX1100 DESULF MODEL-FLUBED

KWIC TITLE - Desulfurization Model for Continuous
Fluidized-Bed

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

COMPLETION DATE - 03/01/1988 **PUBLICATION DATE** - 03/01/1988

DESCRIPTION - Models were developed to complement the DOE-METC effort to develop a high-temperature process for the desulfurization of coal-derived gases. Computer models capable of describing both the sulfidation and regeneration cycles in continuous fluidized-bed reactors have been written and tested. Isothermal conditions have been assumed during the sulfidation phase but the highly exothermic nature of the regeneration reactions made it necessary to consider non-isothermal regeneration.

PACKAGE CONTENTS - Media Directory; Software Abstract; User's Manual;
Media Includes Source Code, Executable Module, Object Module;

SOURCE CODE INCLUDED? - Yes

MEDIA QUANTITY - 1 5.25 Diskette

METHOD OF SOLUTION - All models are based upon the simultaneous solution of the differential equations describing the component material balances and, where necessary, energy balances. The models are heterogenous in that the solid and fluid phases are considered separately. Concentration and/or temperature gradients between solid and fluid phases are described in terms of mass and heat transfer coefficients. Plug flow of the gas phase is assumed. The solids are assumed to be perfectly mixed in the fluidized-bed model. The overall description of the fluidized-bed is based upon the Kunii-Levenspiel three-phase bubble model. Parameters in this model such as interphase mass transfer coefficients are developed from correlations taken from the literature.

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METHOD OF SOLUTION - (CONT)

COMPUTER - DEC VAX11

OPERATING SYSTEMS - VMS

PROGRAMMING LANGUAGES - FORTRAN IV

SOFTWARE LIMITATIONS - NONE

SOURCE CODE AVAILABLE (Y/N) - Y

UNIQUE FEATURES - Only known models for hot gas
desulfurization/regeneration processes for continuous
fluidized-bed applications.

RELATED SOFTWARE - This is the original software.

OTHER PROG/OPER SYS INFO - File naming convention used is
(filename).DOC. No proprietary or any special software is required.

HARDWARE REQS - Standard features

TIME REQUIREMENTS - Less than 5 minutes

REFERENCES - Final Report on the work performed under Contract No.:
AC21-86MC23089, Dynamic Simulation Models for High-Temperature
Desulfurization Processes, March 1988, by Louisiana State
University, DOE/MC/23089-2601, (DE88010263).

ABSTRACT STATUS - Submitted 11/26/91

SUBJECT CLASS CODE - R

KEYWORDS -

COMPUTER PROGRAM DOCUMENTATION
D CODES
DESULFURIZATION
COAL GAS
FLUIDIZED BED REACTORS
ISOTHERMAL PROCESSES
MATHEMATICAL MODELS
COMPUTERIZED SIMULATION

EDB SUBJECT CATEGORIES -

990200 010402

SPONSOR - DOE/FE

PACKAGE TYPE - SCREENED