T A S A C

A Computer Program for

Thermal Analysis of Severe Accident Conditions

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Model Description and User's Guide

M.Stempniewicz, P.Marks, K.Salwa
Institute of Atomic Energy
PL-05-400 Otwock, Swierk

ABSTRACT

TASAC (Thermal Analysis of Severe Accident Conditions) is a computer program developed in the Institute of Atomic Energy, written in FORTRAN 77 for the digital computer analysis of PWR rod bundle during severe accident conditions.

The program has the ability to model an early stage of core degradation including heat transfer inside the rods, convective and radiative heat exchange as well as cladding interaction with coolant and fuel, hydrogen generation, melting, relocations and refreezing of fuel rod materials with dissolution of UO_2 and ZrO_2 in liquid phase.

The code was applied for the simulation of International Standard Problem number 28 (ISP-28), performed on PHEBUS test facility. This report contains the program physical models description, detailed description of input data requirements and results of code verification. The main directions for future code development are formulated.

C O N T E N T S

L I S T O F F I G U R E S