

CONTENTS

	Page
1. Introduction, Matter of Code Update	1
2. Basic Data Libraries	2
2.1 GAM-Library	2
2.2 THERMOS-Library	3
3. Installation of the Code System	5
4. Input Manual V.S.O.P.-MS	9
4.1 Steering the execution mode.	S1 – S3
4.2 Geometric reactor design	11
4.2.1 2-dimensional (r-z – geometry)	BI1 – BI9
4.2.2 3-dimensional	TR1 – TR5
4.3 Fuel element design	D1 – D17
4.3.1 Specifications	D1 – D4
4.3.2 Design of fuel element-types and -variants	D5 – D17
4.3.2.1 Coated particles	D7 – D11
4.3.2.2 Spherical fuel elements	D12, D13
4.3.2.3 Prismatic fuel elements	D14 – D16
4.3.2.4 Additional nuclides	D17
4.4 Reactor and fuel cycle	V1 – TX26
4.4.1 Set up dimensions	V1
4.4.2 Definition of materials	V2 – V5
4.4.3 Design and operations	V6 – V17
4.4.3.1 Case identification	V6
4.4.3.2 Definition of reactor batches	V7 – V9
4.4.3.3 Data for the burnup calculation	V10, V11
4.4.3.4 Control poison search	V12 – V14
4.4.3.5 Print-out options and steering	V15
4.4.3.6 Steering the performance for spectrum and diffusion calculation	V16, V17
4.4.4 Fast and epithermal neutron spectrum	G1 – G12
4.4.5 Thermal cell spectrum	T1 – T13
4.4.6 Diffusion calculation	C1 – C21
4.4.6.1 Title card	C1
4.4.6.2 General control	C2 – C6
4.4.6.3 Description of neutron flux problem	C7 – C10
4.4.6.4 Simulation of void areas	C11 – C17
4.4.6.5 Fixed source, specified by zones	C18 – C21
4.4.7 Fuel cycle costs calculation	K1 – K12
4.4.8 Fuel management	R1 – R34
4.4.8.1 General definitions	R1 – R2
4.4.8.2 Data for individual fuel types	R3 – R4
4.4.8.3 Aging boxes for discharged fuel	R5
	69

4.4.8.4 Instructions for the burnup cycles	R6 – R27	69
4.4.8.5 Criticality search for the reloads	R28 – R31	85
4.4.8.6 Redefinition of CITATION edit options	R32	87
4.4.8.7 Extracted nuclides for printout	R33	87
4.4.8.8 ‘Status of core’ – data set for TINTE	R 34	87
4.4.9 Fuel power histogram for decay power evaluation	LF1 – LF3	88
4.4.10 Fuel irradiation histogram for entire isotope generation	P	89
4.4.11 Preparing THERMOS-library	TTTT1 – TTTT5	90
4.4.12 2d-Thermal hydraulics	TX1 – TX26	92
5. Input Manual V.S.O.P. - ZUT		108
5.1 Steering the execution mode	ZS	108
5.2 Fuel element design	DZ1 – DZ9	108
5.3 Resonance integral calculation	Z1 – Z17	113
5.3.1 Short input	Z1 – Z6	113
5.3.2 Resonance parameters	Z7 – Z9	117
5.3.3 Explicit fuel element design	Z10 – Z16	119
5.3.4 Opening of a new resonance integral data set ('resint')	Z17	122
Appendix: Structure of the code and program tasks		123
References		126