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INTERNATIONAL ATOMIC ENERGY AGENCY

NUCLEAR DATA SERVICES

DOCUMENTATION SERIES OF THE IAEA NUCLEAR DATA SECTION

RCN-2.CP

Evaluated neutron cross-section library for 13 corrosion products, cover-gas nuclides and other nuclides in the primary cooling circuit of a fast power reactor

by H. Gruppelaar et al.
ECN Netherlands, 1982

Abstract: This document summarizes the contents of the evaluated neutron cross-section library "RCN-2.CP" released in 1982 by the Netherlands Energy Research Foundation, ECN. - Upon request, this library is available on magnetic tape, in KEDAK format, from the IAEA Nuclear Data Section, costfree.

H.D. Lemmel (ed.)
August 1986

IAEA NUCLEAR DATA SECTION, P.O. BOX 100, A-1400 VIENNA

RCN-2CP LIBRARY INDEX
TEXT

MAT MF

300064 24 0 0 0 0 12 0

RCN-2.CP

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The major part of the data library RCN-2 is superseded by RCN-3 (see document IAEA-NDS-67).

This library, RCN-2.CP, was released in 1982 by H. Gruppelaar and H.A.J. van der Kamp, see page 643 of the Proceedings of the International Conference on Nuclear Data for Science and Technology, Antwerp, 6-10 Sept. 1982.

RCN-2.CP contains evaluated neutron cross-sections for the following 13 isotopes

11-Na-22 (2.6 a)

18-Ar-36, 38, 40

24-Cr-50

26-Fe-54

27-Co-58g (71.3 d), 58m (9.1 h)

28-Ni-58, 62, 64

30-Zn-64

50-Sn-112

The data library is in KEDAK format, compare document IAEA-NDS-21.

On the following pages the documentary text contained in the library, is reproduced.

RCN-2CP LIBRARY INDEX
TEXT

						MAT	MF
110022	29	0	0	0	0	1	0
14510	14511	14580	14590	21520	21530	1	0
21540	30010	30011	30020	30040	30050	1	0
30051	30160	30220	30280	30410	31020	1	0
30270	31030	31040	31070	31080	31100	1	0
31110	32510	40022	50053	50163	0	1	0
110022	14510	0	1	1	0	1	1
297						1	1
RCN-2 EVALUATION H.GRUPPELAAR AND H.A.J.VAN DER KAMP NA022D 29/11/82						1	1
MINIMUM ENERGY			.00100	EV		1	1
MIN EN OF STATISTICAL MODEL			21.50000	KEV		1	1
ENERGY OF FIRST EXCITED STATE			.58300	MEV		1	1
CONTINUOUS STAT MODEL ABOVE			3.51900	MEV		1	1
HIGH ENERGY MODEL ABOVE			11.00000	MEV		1	1
MAXIMUM ENERGY			20.00000	MEV		1	1
LEVEL DENSITY PARAMETER NA022			3.50000	1/MEV		1	1
LEVEL DENSITY PARAMETER NA021			3.50000	1/MEV		1	1
*****CROSS SECTIONS FOR NUCLIDES IN COOLING CIRCUIT OF LMFBR****						1	1
*****SODIUM-22**********						1	1
RESOLVED RESONANCE REGION UPTO 15 KEV (REVISED NOVEMBER 1982)						1	1
THERMAL ABSORBTION CROSS SECTION = 29000+-1000 BARN (MU81)						1	1
CALCULATED VALUE OF RESONANCE INTEGRAL= 14700B.						1	1
RESOLVED RESONANCE PARAMETERS: ONLY ONE RESONANCE						1	1
MEASURED BY GLEDENOV ET AL.(GL82); THE NEUTRON WIDTH OF						1	1
THIS RESONANCE HAS BEEN MODIFIED IN ORDER TO FIT						1	1
THE VALUE OF THE THERMAL ABSORBTION CROSS SECTION TO						1	1
THE ADOPTED VALUE OF MUGHABGHAB(MU81).						1	1
STRENGTH FUNCTION REGION UP TO 100 KEV.						1	1
CAPTURE CROSS SECTIONS WITH CODE FISPRO-ECN						1	1
STRENGTH FUNCTIONS FROM OPTICAL MODEL FOR NA-23 (LA80)						1	1
DOBS=30.8 KEV ,FROM BECKERMANN (BE77)						1	1
S-WAVE CAPTURE WIDTH=1.0 EV,						1	1
P-WAVE CAPTURE WIDTH=5.4 EV, CALCULATED WITH CERBERO						1	1
HIGH ENERGY REGION ABOVE 0.1 MEV.						1	1
CROSS SECTIONS WITH CODE SASSI-ECN, CERBERO, ERINNI,THRES-2						1	1
OPTICAL MODEL PARAMETERS FROM LARSON(LA80)						1	1
LEVEL SCHEME OF TARGET NUCLEUS FROM ENDT ET AL.(EN78)						1	1
SQUARED SPIN CUTOFF PARAMETER=6.55 FROM EXPERIMENTAL SPIN						1	1
DISTRIBUTION						1	1
CHARGED PARTICLE EMISSION CROSS SECTION FROM CERBERO,ERINNI						1	1
AND THRES-2.						1	1

RCN-2CP LIBRARY INDEX
TEXT

						MAT	MF
180036	28	0	0	0	0	2	0
14510	14511	14580	14590	21520	21530	2	0
21540	30010	30011	30020	30040	30050	2	0
30051	30160	30220	30280	31020	30270	2	0
31030	31040	31070	31080	31100	31110	2	0
32510	40022	50053	50163	0	0	2	0
180036	14510	0	1	1	0	2	1
333						2	1

ECN-3 EVAL. H.GRUPPELAAR AND H.A.J.VAN DER KAMP 04/02/82 2 1
MINIMUM ENERGY .00100 EV 2 1
MIN EN OF STATISTICAL MODEL 46.50000 KEV 2 1
ENERGY OF FIRST EXCITED STATE 1.97000 MEV 2 1
CONTINUOUS STAT MODEL ABOVE 6.86700 MEV 2 1
HIGH ENERGY MODEL ABOVE 11.00000 MEV 2 1
MAXIMUM ENERGY 20.00000 MEV 2 1
LEVEL DENSITY PARAMETER AR036 4.46600 1/MEV 2 1
LEVEL DENSITY PARAMETER AR035 5.60000 1/MEV 2 1
*****CROSS SECTIONS FOR NUCLIDES IN COVER GAS OF LMFBR********** 2 1
*****ARGON-36********** 2 1
RESOLVED RESONANCE REGION 2 1
THERMAL CAPTURE CROSS SECTION = 5+-1 BARN (MU73) 2 1
RESONANCE INTEGRAL: NO MEASURED VALUE KNOWN 2 1
RESOLVED RESONANCE PARAMETERS,ONLY ONE NEGATIVE RESONANCE 2 1
KNOWN(MU75),ONE HYPOTHETICAL RESONANCE AT 20 KEV 2 1
STRENGTH FUNCTION REGION UP TO 1.2 MEV. 2 1
CAPTURE CROSS SECTIONS WITH CODE FISPRO-ECN 2 1
OTHER CROSS SECTIONS WITH CODE SASSI-ECN 2 1
S-WAVE STRENGTH FUNCTION=0.91, P-WAVE STRENGTH FUNCTION 2 1
=0.33, THE SAME VALUES AS USED FOR ARGON-40 2 1
OTHER STRENGTH FUNCTIONS FROM OPTICAL MODEL 2 1
DOBS=30 KEV ,FROM BECKERMANN (BE77) 2 1
S-WAVE CAPTURE WIDTH=0.377 EV.THIS NUMBER CONSISTS OF A 2 1
CONTRIBUTION FROM VALENCY CAPTURE OF 0.12 EV AS CALCULATED 2 1
WITH A FORMULA GIVEN BY ALLEN ET AL.(AL77) AND A STATISTICAL 2 1
CONTRIBUTION OF 0.257 EV AS CALCULATED BY THE CODE CERBERO 2 1
P-WAVE CAPTURE WIDTH=0.638 EV, CALCULATED WITH CERBERO 2 1
HIGH ENERGY REGION ABOVE 1.2 MEV. 2 1
ALL CROSS SECTIONS WITH CODE SASSI-ECN 2 1
OPTICAL MODEL PARAMETERS FROM WIEDLING ET AL.(WI76) 2 1
LEVEL SCHEME OF TARGET NUCLEUS FROM ENDT AND VAN DER 2 1
LEUN(EN78). I- 2 1
SQUARED SPIN CUTOFF PARAMETER=5.1 FROM EXPERIMENTAL SPIN 2 1
DISTRIBUTION 2 1
CHARGED PARTICLE EMISSION CROSS SECTION FROM CERBERO,ERINNI 2 1
AND THRES-2 2 1

180038	28	0	0	0	0	3	0
14510	14511	14580	14590	21520	21530	3	0
21540	30010	30011	30020	30040	30050	3	0
30051	30160	30220	30280	31020	30270	3	0
31030	31040	31070	31080	31100	31110	3	0
32510	40022	50053	50163	0	0	3	0
180038	14510	0	1	1	0	3	1
315						3	1

ECN-3 EVAL. H.GRUPPELAAR AND H.A.J.VAN DER KAMP 18/02/82 3 1
MINIMUM ENERGY .00100 EV 3 1
MIN EN OF STATISTICAL MODEL .30000 MEV 3 1
ENERGY OF FIRST EXCITED STATE 2.16800 MEV 3 1
CONTINUOUS STAT MODEL ABOVE 5.97480 MEV 3 1
HIGH ENERGY MODEL ABOVE 11.00000 MEV 3 1
MAXIMUM ENERGY 20.00000 MEV 3 1
LEVEL DENSITY PARAMETER AR038 7.15000 1/MEV 3 1
LEVEL DENSITY PARAMETER AR037 6.46000 1/MEV 3 1
*****CROSS SECTIONS FOR NUCLIDES IN COVER GAS OF LMFBR********** 3 1
*****ARGON-38********** 3 1
RESOLVED RESONANCE REGION 3 1
THERMAL CAPTURE CROSS SECTION = 0.8+-0.2 BARN (MU73) 3 1
RESONANCE INTEGRAL: NO MEASURED VALUE KNOWN 3 1
RESOLVED RESONANCE PARAMETERS: ONLY TWO HYPOTHETICAL 3 1
RESONANCES, ONE NEGATIVE AT -4960 EV, ONE POSITIVE AT 3 1
135 KEV, FITTED TO THE VALUE OF THE THERMAL CAPTURE 3 1
CROSS SECTION. 3 1
STRENGTH FUNCTION REGION UP TO 1.2 MEV. 3 1
CAPTURE CROSS SECTIONS WITH CODE FISPRO-ECN 3 1
OTHER CROSS SECTIONS WITH CODE SASSI-ECN 3 1
S-WAVE STRENGTH FUNCTION=0.91, P-WAVE STRENGTH FUNCTION 3 1
=0.33, THE SAME VALUES AS USED FOR ARGON-40 3 1
OTHER STRENGTH FUNCTIONS FROM OPTICAL MODEL 3 1
DOBS=140 KEV ,FROM BECKERMANN (BE77) 3 1
S-WAVE CAPTURE WIDTH=0.357 EV, 3 1
P-WAVE CAPTURE WIDTH=0.638 EV, CALCULATED WITH CERBERO 3 1
HIGH ENERGY REGION ABOVE 1.2 MEV. 3 1
ALL CROSS SECTIONS WITH CODE SASSI-ECN 3 1
OPTICAL MODEL PARAMETERS FROM WIEDLING ET AL.(WI76) 3 1
LEVEL SCHEME OF TARGET NUCLEUS FROM ENDT ET AL.(EN78) 3 1
SQUARED SPIN CUTOFF PARAMETER=4.65 FROM EXPERIMENTAL SPIN 3 1
DISTRIBUTION 3 1
CHARGED PARTICLE EMISSION CROSS SECTION FROM CERBERO,ERINNI 3 1
AND THRES-2 RENORMALIZED AT 14.5 MEV (QA78) WHERE POSSIBLE. 3 1

RCN-2CP LIBRARY INDEX
TEXT

						MAT	MF
180040	26	0	0	0	0	4	0
14510	14511	14580	14590	21520	21530	4	0
21540	30010	30011	30020	40022	30170	4	0
30220	30280	31030	31040	31070	32510	4	0
30040	30050	30051	30160	31020	30270	4	0
50053	50163	0	0	0	0	4	0
180040	14510	0	1	1	0	4	1
396						4	1

RCN-2 EVALUATION H.GRUPPELAAR AND H.A.J.VAN DER KAMP AR040V 16/02/83 4 1
MINIMUM ENERGY .00100 EV 4 1
MIN EN OF STATISTICAL MODEL .65268 MEV 4 1
ENERGY OF FIRST EXCITED STATE 1.46080 MEV 4 1
CONTINUOUS STAT MODEL ABOVE 4.61200 MEV 4 1
HIGH ENERGY MODEL ABOVE 11.00000 MEV 4 1
MAXIMUM ENERGY 20.00000 MEV 4 1
LEVEL DENSITY PARAMETER AR040 5.68000 1/MEV 4 1
LEVEL DENSITY PARAMETER AR039 6.52800 1/MEV 4 1
*****CROSS SECTIONS FOR NUCLIDES IN COVER GAS OF LMFB****** 4 1
*****ARGON-40********** 4 1
*****REVISION FEBRUARY 1983 ********** 4 1
INCREASED CAPTURE CROSS SECTIONS IN RESONANCE RANGE; 4 1
SMALL ADJUSTMENTS AT HIGHER ENERGIES 4 1
RESOLVED RESONANCE REGION UPTO 596 KEV 4 1
EXPERIMENTAL THERMAL CAPTURE CROSS SECTION= 4 1
0.66+-0.01 BARN (MU73) 4 1
EXPERIMENTAL RESONANCE INTEGRAL=0.41+-0.03 BARN (MU73) 4 1
CALCULATED THERMAL CAPTURE CROSS SECTION=0.67 BARN 4 1
CALCULATED RESONANCE INTEGRAL=0.35 BARN 4 1
A DIRECT CAPTURE COMPONENT HAS BEEN ASSUMED OF 0.63 4 1
BARN TO FIT THE THERMAL CAPTURE CROSS SECTIONS(1/V SHAPE) 4 1
NO NEGATIVE RESONANCES HAVE BEEN ASSUMED. 4 1
EVALUATION WITH SIGMA-ECN AT 0 K, MULTILEVEL FORMULA 4 1
RESOLVED RESONANCE PARAMETERS FROM LIOU ET AL (LI 75) 4 1
STRENGTH FUNCTION REGION UPTO 1.2 MEV 4 1
CAPTURE CROSSSECTONS WITH CODE FISPRO-ECN 4 1
OTHER CROSS SECTIONS WITH CODE SASSI-ECN 4 1
S-WAVE STRENGTH FUNCTION=0.91 FROM LIOU ET AL.(LI75) 4 1
P-WAVE STRENGTH FUNCTION=0.33 FROM LIOU ET AL.(LI75) 4 1
OTHER STRENGTH FUNCTIONS FROM OPTICAL MODEL 4 1
DOBS=87 KEV FROM LIOU ET AL. (LI75) 4 1
AVERAGE CAPTURE WIDTH= 517 MV (EVEN L), = 258 MV (ODD L), 4 1
VALUES OBTAINED FROM ADJUSTMENT TO EXPERIMENTAL VALUE OF THE 4 1
CAPTURE CROSS SECTION AT 1 MEV (BO59), AND FISSION 4 1
SPECTRUM AVERAGED CROSS SECTION (HU59). 4 1
HIGH ENERGY REGION ABOVE 1.2 MEV 4 1
ALL CROSS SECTION WITH CODE SASSI-ECN 4 1
OPTICAL MODEL PARAMETERS FROM WIEDLING (WI76) 4 1
LEVEL SCHEME OF TARGET NUCLEUS FROM ENDT ET AL.(EN78) 4 1
SQUARED SPIN CUTOFF PARAMETER =3.31 FROM EXPERIMENTAL 4 1
SPIN DISTRIBUTION 4 1
CHARGED PARTICLE EMISSION CROSS SECTION FROM CERBERO, 4 1
ERINNI AND THRES-2 RENORMALIZED AT 14.5 MEV(QA78) 4 1

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TEXT

						MAT	MF
240050	25	0	0	0	0	5	0
14510	14511	14580	14590	21520	21530	5	0
21540	30010	30011	30020	30040	30050	5	0
30051	30160	30220	30280	31020	30270	5	0
31030	31040	31070	32510	40022	50053	5	0
50163	0	0	0	0	0	5	0
240050	14510	0	1	1	0	5	1
423						5	1

$RCN 2.3 EVALUATION H.GRUPPELAAR AND H.A.J. VAN DER KAMP CR050D 210279 $ 5 1
MINIMUM ENERGY .00100 EV 5 1
MIN EN OF STATISTICAL MODEL .30125 MEV 5 1
ENERGY OF FIRST EXCITED STATE .78330 MEV 5 1
CONTINUOUS STAT MODEL ABOVE 3.93770 MEV 5 1
HIGH ENERGY MODEL ABOVE 6.50000 MEV 5 1
MAXIMUM ENERGY 20.00000 MEV 5 1
LEVEL DENSITY PARAMETER CR050 8.00000 1/MEV 5 1
LEVEL DENSITY PARAMETER CR049 7.50000 1/MEV 5 1
*****CROSS SECTIONS FOR NUCLIDES IN COOLING CIRCUIT OF LMFBR********** 5 1
*****CHROMIUM-50********** 5 1
RESOLVED RESONANCE REGION UPTO 300 KEV EVALUATED BY F.H.FROEHNER 5 1
THE ADOPTED RESOLVED RESONANCE PARAMETERS HAVE BEEN EVALUATED 5 1
BY F.H.FROEHNER, KFK(FR77). 5 1
RESONANCES FOR L=0 AND L=1 ARE GIVEN ON THE FILE. 5 1
FOR THE P-WAVE RESONANCES AN AVERAGE VALUE FOR THE SPIN IS GIVEN. 5 1
THE S-WAVE CROSS SECTIONS WERE CALCULATED WITH THE MULTI- 5 1
LEVEL REICH-MOORE FORMULAE, THE P-WAVE CROSS SECTIONS 5 1
WERE CALCULATED WITH THE SINGLE-LEVEL BREIT-WIGNER FORMULAE. 5 1
THE DATA HAVE BEEN DOPPLER-BROADENED AT T=900 K. 5 1
OPTICAL AND STATISTICAL MODEL REGION ABOVE 300 KEV. 5 1
TOTAL,CAPTURE AND NEUTRON SCATTERING CROSS SECTIONS WITH 5 1
CODE SASSI-ECN, COMPOUND CROSS SECTIONS RENORMALIZED TO 5 1
INCLUDE RESIDUAL CROSS SECTIONS 5 1
NEUTRON OPTICAL-MODEL PARAMETERS ALMOST THE SAME AS THOSE 5 1
OF WIEDLING ET AL.(WI76). 5 1
S-WAVE CAPTURE WIDTH= 1.3 EV, INCLUDING A 0.56 EV CONTRIBUTION DUE 5 1
TO VALENCY CAPTURE, ESTIMATED BY ALLEN AND MUSGROVE (AL77). 5 1
P-WAVE CAPTURE WIDTH= 0.55 EV,FROM KENNY ET AL.(KE77). 5 1
D-WAVE CAPTURE WIDTH=0.74 EV, 0.56 EV LOWER THAN S-WAVE COMPONENT 5 1
DOBS= 15.4 KEV OVER ENERGY RANGE OF 360 EV (20 OBSERVED LEVELS) 5 1
GIVEN BY FROEHNER (FR77). 5 1
LEVEL DENSITY PARAMETER,A=6.86 MEV-1, DEDUCED FROM DOBS WITH 5 1
CORRECTION FOR ENERGY DEPENDENCE OF LEVEL DENSITY OVER 360 EV. 5 1
LEVEL SCHEME OF TARGET NUCLEUS MAINLY FROM NUCLEAR DATA SHEETS 5 1
(AU76). 5 1
RESIDUAL COMPOUND CROSS SECTIONS 5 1
MOST CROSS SECTIONS CALCULATED WITH CODES CERBERO AND ERINNI. 5 1
(N,P) CROSS SECTION CALCULATED WITHOUT ANY FIT PARAMETERS. 5 1
(N,A)+(N,AN) CROSS SECTION , FITTED TO 14.7-MEV VALUE, 5 1
121 MB (D073), BY ADJUSTMENT OF TI-47 LEVEL DENSITY PARAMETER 5 1
(N,D) CROSS SECTION FROM THRES-2, FITTED TO 14-MEV VALUE, OBTAINED 5 1
FROM SYSTEMATICS, 15 MB (QA78). 5 1
(N,PN)+(N,NP) CROSS SECTION RENORMALIZED TO 14-MEV VALUE, 5 1
153 MB (AL61). 5 1
(N,2N) CROSS SECTION FROM SMOOTH CURVE THROUGH EXPERIMENTAL POINTS 5 1
GIVEN IN BNL-325 (GA76A). 5 1

260054	26	0	0	0	0	6	0
14510	14511	14580	14590	21520	21530	6	0
21540	30010	30011	30020	30040	30050	6	0
30051	30160	30220	30280	31020	30270	6	0
31030	31040	31070	31100	32510	40022	6	0
50053	50163	0	0	0	0	6	0
260054	14510	0	1	1	0	6	1
495						6	1

$RCN 2 EVALUATION H.GRUPPELAAR AND H.A.J. VAN DER KAMP FE054C 290879 $ 6 1
MINIMUM ENERGY .00100 EV 6 1
MIN EN OF STATISTICAL MODEL .30128 MEV 6 1
ENERGY OF FIRST EXCITED STATE 1.40800 MEV 6 1
CONTINUOUS STAT MODEL ABOVE 4.58000 MEV 6 1
HIGH ENERGY MODEL ABOVE 6.50000 MEV 6 1
MAXIMUM ENERGY 20.00000 MEV 6 1
LEVEL DENSITY PARAMETER FE054 6.30000 1/MEV 6 1
LEVEL DENSITY PARAMETER FE053 7.00000 1/MEV 6 1
*****CROSS SECTIONS FOR NUCLIDES IN COOLING CIRCUIT OF LMFBR***** 6 1
*****IRON-54********** 6 1
RESOLVED RESONANCE REGION UPTO 300 KEV EVALUATED BY F.H.FROEHNER, 6 1
THE ADOPTED RESOLVED RESONANCE PARAMETERS HAVE BEEN EVALUATED BY 6 1
F.H.FROEHNER, KFK(FR77). 6 1
RESONANCES FOR L=0 ,L=1 AND L=2 ARE GIVEN ON THE FILE. 6 1
WITHIN THE SET OF L=1 RESONACES ALSO L=2 RESONANCES WITH SPIN 6 1
J=1.5 HAVE BEEN INCLUDED. 6 1
WITHIN THE SET OF L=2 RESONANCES ALSO L=3 RESONANCES WITH SPIN 6 1
J=2.5 HAVE BEEN INCLUDED. 6 1
THE S-WAVE CROSS SECTIONS WERE CALCULATED WITH THE MULTILEVEL 6 1
REICH-MOORE FORMULAE, THE P- AND D-WAVE CROSS SECTIONS WERE 6 1
CALCULATED WITH SINGLE-LEVEL BREIT-WIGNER FORMULAE. 6 1
THE DATA HAVE BEEN DOPPLER-BROADENED AT T=900K. 6 1
THE RESOLVED RESONANCE DATA HAVE BEEN REVISED AT JAN. 1980 6 1
BY ADDING A NEG. RES. AT -75.5 KEV, GN=59 KEV, GG=2.6 EV 6 1
*******THIS REVISION HAS NOT BEEN MADE IN DATA TYPE 21520***** 6 1
OPTICAL AND STATISTICAL MODEL REGION ABOVE 300 KEV. 6 1
TOTAL,CAPTURE AND NEUTRON SCATTERING CROSS SECTIONS WITH CODE 6 1
SASSI-ECN. 6 1
COMPOUND CROSS SECTIONS RENORMALIZED TO INCLUDE CHARGED- 6 1
PARTICLE EMISSION CROSS SECTIONS. 6 1
NEUTRON OPTICAL-MODEL PARAMETERS FROM E.FORT(FO79). 6 1
S-WAVE APTURE WIDTH =2.6 EV ESTIMATED BY EVALUATORS. 6 1
THIS NUMBER INCLUDES A 2.1 EV CONTRIBUTION FROM VALENCY CAPTURE, 6 1
CLCULATED FROM COEFFICIENT GIVEN BY ALLEN AND MUSGROVE (AL77) 6 1
P-WAVE CAPTURE WIDTH= 0.5 EV (FR77). 6 1
D-WAVE CAPTURE WIDTH=0.5, ADJUSTED TO FIT LOW-ENERGY CAPTURE 6 1
CROSS SECTION OF ALLEN ET AL. (AL77B). 6 1
DOBS= 17.0 KEV OVER ENERGY RANGE OF 400 KEV (15 OBSERVED LEVELS) 6 1
GIVEN BY FROEHNER (FR77). 6 1
LEVEL DENSITY PARAMETER,A=6.93 MEV-1, DEDUCED FROM DOBS WITH 6 1
CORRECTION FOR ENERGY DEPENDENCE OF LEVEL DENSITY OVER 400 KEV. 6 1
LEVEL SCHEME OF TARGET NUCLEUS MAINLY FROM MOSS ET AL. (MO72). 6 1
RESIDUAL COMPOUND CROSS SECTIONS 6 1
MOST CROSS SECTIONS CALCULATED WITH CODES CERBERO-2 AND ERINNI. 6 1
(N,P) CROSS SECTIONS TAKEN FROM ENDF-B/1V DOSIMETRY FILE. 6 1
(N,A) CROSS SECTION CALCULATED WITH CODE ERINNI. 6 1
(N,AN)+(N,NA) CROSS SECTION CALCULATED FROM CERBERO-2 AND ERINNI. 6 1
(N,D) CROSS SECTION FROM THRESH-2, FITTED TO 14.5-MEV VALUE, 6 1
OBTAINED FROM MEASUREMENTS,10 MB (HA77). 6 1
(N,PN)+(N,NP) CROSS SECTION TAKEN FROM KEDAK-3 DOCUMENTATION 6 1
(GO77). 6 1

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TEXT	MAT	MF
(N,2N) CROSS SECTION CALCULATED FROM ERINNI, IN AGREENENT WITH	6	1
EXPERIMENTAL DATA GIVEN IN BNL-325 (GA76A).	6	1
(N,2P) CROSS SECTION (DATA TYPE 31100 USED) CALC. FROM ERINNI.	6	1

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TEXT

						MAT	MF
270058	27	0	0	0	0	7	0
14510	14511	14580	14590	21520	21530	7	0
21540	30010	30011	30020	30040	30050	7	0
30051	30160	30220	30280	31020	30270	7	0
31030	31040	31070	31100	31110	32510	7	0
40022	50053	50163	0	0	0	7	0
270058	14510	0	1	1	0	7	1
315						7	1
RCN-2 EVL. FOR CO-58G BY H.GRUPPELAAR AND H.A.J.VAN DER KAMP (29/1/81)						7	1
MINIMUM ENERGY			.00100	EV		7	1
MIN EN OF STATISTICAL MODEL			.60000	KEV		7	1
ENERGY OF FIRST EXCITED STATE			24.90000	KEV		7	1
CONTINUOUS STAT MODEL ABOVE			1.23600	MEV		7	1
HIGH ENERGY MODEL ABOVE			6.50000	MEV		7	1
MAXIMUM ENERGY			20.00000	MEV		7	1
LEVEL DENSITY PARAMETER CO058			6.50000	1/MEV		7	1
LEVEL DENSITY PARAMETER CO057			6.00000	1/MEV		7	1
*****CROSS SECTIONS FOR NUCLIDES IN COOLING CIRCUIT OF LMFBR**********						7	1
*****COBALT-58 GROUND STATE TARGET**********						7	1
RESOLVED RESONANCE REGION UPTO ABOUT 0.5 KEV						7	1
ONLY ONE RESONANCE GIVEN. THIS WAS FITTED TO OBTAIN						7	1
REASONABLE AGREEMENT WITH EXPERIMENTAL VALUES FOR THERMAL						7	1
CAPTURE CROSS SECTION (SIGMA= 1880 B.) AND RESONANCE						7	1
INTEGRAL(RI= 6890 B.), VALUES GIVEN IN BNL-325						7	1
POSSIBLY SIGMA ABSORBTION IN THE RESONANCE REGION						7	1
CONSISTS OF A CONTRIBUTION OF 10 PERCENT FOR THE (N,GAMMA)						7	1
REACTION AND A CONTRIBUTION OF 90 PERCENT FOR THE (N,P)						7	1
REACTION.						7	1
OPTICAL MODEL AND STATISTICAL MODELS ABOVE 0.5 KEV						7	1
TOTAL, CAPTURE AND NEUTRON SCATTERING CROSS SECTIONS WITH						7	1
CODE SASSI-ECN.						7	1
NEUTRON OPTICAL MODEL FROM FORT (FO79).						7	1
DOBS=1.17 KEV FROM SYSTEMATICS.						7	1
GUESSED AVERAGE CAPTURE WIDTH= 0.5 EV.						7	1
CHARGED-PARTICLE EMISSION CROSS SECTIONS FROM CODES CERBERO						7	1
AND ERINNI.						7	1
THE (N,D) CROSS SECTION CALCULATED WITH CODE THRES-2						7	1
WITH RENORMALIZATION TO SYSTEMATICS.						7	1
(N,P) CROSS SECTION IS IMPORTANT DOWN TO THERMAL						7	1
ENERGIES.						7	1
LEVEL-DENSITY PARAMETERS MOSTLY FROM SYSTEMATICS.						7	1
LEVEL SCHEMES FROM NUCLEAR DATA SHEETS AND OWN EVALUATION.						7	1
NO EXPERIMENTAL CROSS SECTIONS AVAILABLE FOR COMPARISONS.						7	1

270158	27	0	0	0	0	8	0
14510	14511	14580	14590	21520	21530	8	0
21540	30010	30011	30020	30040	30050	8	0
30051	30160	30220	30280	31020	30270	8	0
31030	31040	31070	31100	31110	32510	8	0
40022	50053	50163	0	0	0	8	0
270158	14510	0	1	1	0	8	1
324						8	1

RCN-2 EVL. FOR CO-58M (RUN N) BY H.GRUPPELAAR AND H.A.J.VAN DER KAMP. 8 1
MINIMUM ENERGY .00100 EV 8 1
MIN EN OF STATISTICAL MODEL .51000 KEV 8 1
ENERGY OF FIRST EXCITED STATE -24.9 KEV 8 1
CONTINUOUS STAT MODEL ABOVE 1.21100 MEV 8 1
HI(' ENERGY MODEL ABOVE 6.50000 MEV 8 1
MAXIMUM ENERGY 20.00000 MEV 8 1
LEVEL DENSITY PARAMETER CO058 6.50000 1/MEV 8 1
LEVEL DENSITY PARAMETER CO057 6.00000 1/MEV 8 1
*****CROSS SECTIONS FOR NUCLIDES IN COOLING CIRCUIT OF LMFBR********** 8 1
*****COBALT-58 METASTABLE TARGET** 8 1
RESOLVED RESONANCE REGION UPTO ABOUT 0.5 KEV 8 1
ONLY ONE RESONANCE GIVEN. THIS WAS FITTED TO OBTAIN 8 1
AGREEMENT WITH EXPERIMENTAL VALUES FOR THERMAL 8 1
CAPTURE CROSS SECTION (SIGMA= 136 KB) (MU73) 8 1
THE CALCULATED RESONANCE INTEGRAL IS RI=180 KB, NOT FAR FROM 8 1
THE VALUE MEASURED BY HALPERIN ET AL.(HA64). 8 1
POSSIBLY SIGMA ABSORBTION IN THE RESONANCE REGION 8 1
CONSISTS OF A CONTRIBUTION OF 75 PERCENT FOR THE (N,GAMMA) 8 1
REACTION AND OF A CONTRIBUTION OF 25 PERCENT FOR THE (N,P) 8 1
REACTION. 8 1
OPTICAL MODEL AND STATISTICAL MODELS ABOVE 0.5 KEV 8 1
TOTAL, CAPTURE AND NEUTRON SCATTERING CROSS SECTIONS WITH 8 1
CODE SASSI-ECN. 8 1
NEUTRON OPTICAL MODEL FROM FORT (F079). 8 1
DOBS=1 KEV FROM SYSTEMATICS. 8 1
GUESSED AVERAGE CAPTURE WIDTH= 0.5 EV. 8 1
CHARGED-PARTICLE EMISSION CROSS SECTIONS FROM CODES CERBERO 8 1
AND ERINNI. 8 1
THE (N,D) CROSS SECTION CALCULATED WITH CODE THRES-2 8 1
WITH RENORMALIZATION TO SYSTEMATICS. 8 1
(N,P) CROSS SECTION IS IMPORTANT DOWN TO THERMAL 8 1
ENERGIES. 8 1
LEVEL-DENSITY PARAMETERS MOSTLY FROM SYSTEMATICS. 8 1
LEVEL SCHEMES FROM NUCLEAR DATA SHEETS AND OWN EVALUATION. 8 1
NO EXPERIMENTAL CROSS SECTIONS AVAILABLE FOR COMPARISONS. 8 1

RCN-2CP LIBRARY INDEX
TEXT

MAT MF

280058	27	0	0	0	0	9	0
14510	14511	14580	14590	21520	21530	9	0
21540	30010	30011	30020	30040	30050	9	0
30051	30160	30220	30280	31020	30270	9	0
31030	31040	31070	31100	31110	32510	9	0
40022	50053	50163	0	0	0	9	0
280058	14510	0	1	1	0	9	1
468						9	1

RCN-2 EVALUATION H.A.J.VAN DER KAMP AND H.GRUPPELAAR NI058C 25/4/80 9 1
MINIMUM ENERGY .00100 EV 9 1
MIN EN OF STATISTICAL MODEL .16815 MEV 9 1
ENERGY OF FIRST EXCITED STATE 1.45500 MEV 9 1
CONTINUOUS STAT MODEL ABOVE 3.62060 MEV 9 1
HIGH ENERGY MODEL ABOVE 6.50000 MEV 9 1
MAXIMUM ENERGY 20.00000 MEV 9 1
LEVEL DENSITY PARAMETER NI058 6.05000 1/MEV 9 1
LEVEL DENSITY PARAMETER NI057 6.00000 1/MEV 9 1
*****CROSS SECTIONS FOR NUCLIDES IN COOLING CIRCUIT OF LMFB***** 9 1
*****NICKEL-58********** 9 1
RESOLVED RESONANCE REGION UPTO 167 KEV EVALUATED BY F.H.FROEHNER, 9 1
THE ADOPTED RESOLVED RESONANCE PARAMETERS HAVE BEEN EVALUATED BY 9 1
F.H.FROEHNER, KFK(FR77,FR77A,FR80). 9 1
RESONANCES FOR L=0 AND L>0 ARE GIVEN ON THE FILE. 9 1
THE L>0 RESONANCES ARE CONSIDERED TO BE L=1 RESONANCES. 9 1
THE S-WAVE CROSS SECTIONS WERE CALCULATED WITH THE MULTILEVEL 9 1
REICH-MOORE FORMULA, THE P-WAVE CROSS SECTIONS WERE CALCULATED 9 1
WITH THE SINGLE-LEVEL BREIT-WIGNER FORMULA. 9 1
THE DATA HAVE BEEN DOPPLER BROADENED AT T= 900K. 9 1
OPTICAL AND STATISTICAL MODEL REGION ABOVE 167 KEV 9 1
TOTAL CAPTURE AND NEUTRON SCATTERING CROSS SECTIONS WITH CODE 9 1
SASSI-ECN. 9 1
COMPOUND CROSS SECTIONS RENORMALIZED TO INCLUDE CHARGED-PARTICLE 9 1
EMISSION CROSS SECTIONS. 9 1
NEUTRON OPTICAL MODEL PARAMETERS FROM E.FORT(FO79). 9 1
S-WAVE CAPTURE WIDTH = 2.3 EV(FR77A). 9 1
THIS NUMBER INCLUDES A 0.9 EV CONTRIBUTION FROM VALENCY CAPTURE 9 1
CALCULATED AS DIFFERENCE OF S-WAVE CAPTURE WIDTH AND D-WAVE 9 1
CAPTURE WIDTH AS GIVEN BY FROEHNER(FR77A). 9 1
P-WAVE CAPTURE WIDTH=0.5EV(FR77A). 9 1
D-WAVE CAPTURE WIDTH=1.4 EV. 9 1
DOBS= 16.7 KEV EVALUATED BY FROEHNER(FR79). 9 1
LEVEL DENSITY PARAMETER, A=6.98 MEV-1 DEDUCED FROM DOBS WITH 9 1
CORRECTION FOR ENERGY DEPENDENCE OF LEVEL DENSITY OVER 418KEV 9 1
LEVEL SCHEME OF TARGET NUCLEUS FROM KOCHER (KO76B). 9 1
CHARGED-PARTICLE EMISSION CROSS SECTIONS. 9 1
CROSS SECTIONS CALCULATED WITH CODES CERBERO (NEUTRON ENERGY 9 1
1 TO 9 MEV) AND ERINNI (9 TO 20 MEV). 9 1
(N,P) CROSS SECTION TAKEN FROM ENDF/B-5 DOSIMETRY FILE. 9 1
(N,A) CROSS SECTION: CERBERO AND ERINNI CALCULATION RENORMALIZED 9 1
TO A VALUE OF 125 MB AT ENERGY OF 14.5 MEV(QA78). 9 1
(N,PN)+(N,NP) CROSS SECTION: ERINNI CALCULATION RENORMALIZED TO 9 1
A VALUE OF 541 MB AT ENERGY OF 14.5 MEV, ESTIMATED AS A WEIGHTED 9 1
AVERAGE OF SIX MOST RECENT MEASUREMENTS(GL62, BR63, CR63, 9 1
TE68, FI70, HE73A). 9 1
(N,D) CROSS SECTION: THRES-2 CALCULATION RENORMALIZED TO A VALUE 9 1
OF 24 MB AT ENERGY OF 14.5 MEV(DE65). 9 1
(N,AN)+(N,NA) CROSS SECTION CALCULATED WITH ERINNI. 9 1
(N,2N) CROSS SECTION TAKEN FROM ENDF/B-5 DOSIMETRY FILE. 9 1
(N,2P) CROSS SECTION CALCULATED WITH ERINNI. 9 1
(N,PA)+(N,AP) CROSS SECTION CALCULATED WITH ERINNI. 9 1

280062	25	0	0	0	0	10	0
14510	14511	14580	14590	21520	21530	10	0
21540	30010	30011	30020	30040	30050	10	0
30051	30160	30170	30220	30280	31020	10	0
30270	31030	31070	32510	40022	50053	10	0
50163	0	0	0	0	0	10	0
280062	14510	0	1	1	0	10	1
423						10	1

H.GRUPPELAAR AND H.A.J. VAN DER KAMP NI062B 17/01/80 $ 10 1

MINIMUM ENERGY		.00100	EV	10 1
MIN EN OF STATISTICAL MODEL		.29763	MEV	10 1
ENERGY OF FIRST EXCITED STATE		1.17300	MEV	10 1
CONTINUOUS STAT MODEL ABOVE		3.46400	MEV	10 1
HIGH ENERGY MODEL ABOVE		6.50000	MEV	10 1
MAXIMUM ENERGY		20.00000	MEV	10 1
LEVEL DENSITY PARAMETER	NI062	8.11300	1/MEV	10 1
LEVEL DENSITY PARAMETER	NI061	8.20000	1/MEV	10 1

*****CROSS SECTIONS FOR NUCLIDES IN COOLING CIRCUIT OF LMFB***** 10 1
*****NICKEL-62********** 10 1
RESOLVED RESONANCE REGION UPTO 300 KEV EVALUATED BY F.H.FROEHNER, 10 1
THE ADOPTED RESOLVED RESONANCE PARAMETERS HAVE BEEN EVALUATED BY 10 1
F.H.FROENER, KFK(FR77,FR77A). 10 1
RESONANCES FOR L=0 AND L>0 ARE GIVEN ON THE FILE. 10 1
THE L>0 RESONANCES ARE CONSIDERED TO BE L=1 RESONANCES. 10 1
THE S-WAVE CROSS SECTIONS WERE CALCULATED WITH THE MULTILEVEL 10 1
REICH-MOORE FORMULA, THE P-WAVE CROSS SECTIONS WERE CALCULATED 10 1
WITH THE SINGLE-LEVEL BREIT-WIGNER FORMULA. 10 1
THE DATA HAVE BEEN DOPPLER-BROADENED AT T= 900K. 10 1
OPTICAL AND STATISTICAL MODEL REGION ABOVE 300KEV. 10 1
TOTAL,CAPTURE AND NEUTRON SCATTERING CROSS SECTIONS WITH CODE 10 1
SASSI-ECN. 10 1
COMPOUND CROSS SECTIONS RENORMALIZED TO INCLUDE CHARGED-PARTICLE 10 1
EMISSION CROSS SECTIONS. 10 1
NEUTRON OPTICAL MODEL PARAMETERS FROM E.FORT(FO79). 10 1
S-WAVE CAPTURE WIDTH = 0.33 EV . 10 1
THIS NUMBER INCLUDES A 0.1EV CONTRIBUTION FROM VALENCY CAPTURE 10 1
P-WAVE CAPTURE WIDTH= 0.17 EV. 10 1
D-WAVE CAPTURE WIDTH= 0.23 EV. 10 1
THE VALUES OF THE CAPTURE WIDTHS HAVE BEEN ADJUSTED TO FIT 10 1
AVERAGE CAPTURE CROSS SECTIONS IN THE RESOLVED RESONANCE RANGE. 10 1
DOBS=18.6 KEV EVALUATED BY FROEHNER(FR79). 10 1
LEVEL DENSITY PARAMETER, A=8.97 MEV-1 DEDUCED FROM DOBS WITH 10 1
CORRECTION FOR ENERGY DEPENDENCE OF LEVEL DENSITY OVER 400 KEV 10 1
LEVEL SCHEME OF TARGET NUCLEUS EVALUATED BY AUTHORS. 10 1
CHARGED-PARTICLE EMISSION CROSS SECTIONS ABOVE 6 MEV. 10 1
CROSS SECTIONS CALCULATED WITH CODE ERINNI. 10 1
(N,P) CROSS SECTION:ERINNI CALCULATIONS RENORMALIZED TO A VALUE 10 1
OF 47.5 MB ,AT ENERGY OF 14.5 MEV,ESTIMATED AS AN AVERAGE OF 10 1
FIVE MEASUREMENTS(LE74B,ED72,LE70,CR63,VA62A). 10 1
(N,A) CROSS SECTION: ERINNI CALCULATIONS RENORMALIZED TO A VALUE 10 1
OF 22.5 MB, AT ENERGY OF 14.5 MEV, ESTIMATED AS AN AVERAGE OF 10 1
SIX MEASUREMENTS (FU78, QA78, WE75, CU71, LE69, YU67). 10 1
(N,AN)+(N,NA) CROSS SECTIONS CALCULATED WITH ERINNI 10 1
(N,PN)+(N,NP) CROSS SECTION: ERINNI CALCULATIONS RENORMALIZED 10 1
TO A VALUE OF 7.0 MB (QA78). 10 1

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    280064        26         0         0         0         0 11   0
     14510     14511     14580     14590     21520     21530 11   0
     21540     30010     30011     30020     30040     30050 11   0
     30051     30160     30170     30220     30280     31020 11   0
     30270     31030     31040     31070     32510     40022 11   0
     50053     50163         0         0         0         0 11   0
    280064     14510         0         1         1         0 11   1
       459                                                    11   1
$RCN 2.3 EVALUATION H.GRUPPELAAR AND H.A.J. VAN DER KAMP NI064C 91179  $ 11   1
 MINIMUM ENERGY                      .00100    EV                      11   1
 MIN EN OF STATISTICAL MODEL         .31102   MEV                      11   1
 ENERGY OF FIRST EXCITED STATE      1.34600   MEV                      11   1
 CONTINUOUS STAT MODEL ABOVE        3.56000   MEV                      11   1
 HIGH ENERGY MODEL ABOVE            6.50000   MEV                      11   1
 MAXIMUM ENERGY                    20.00000   MEV                      11   1
 LEVEL DENSITY PARAMETER  NI064     8.35000 1/MEV                      11   1
 LEVEL DENSITY PARAMETER  NI063     8.96800 1/MEV                      11   1
  *****CROSS SECTIONS FOR NUCLIDES IN COOLING CIRCUIT OF LMFBR*****    11   1
  *****NICKEL-64**************************************************    11   1
  RESOLVED RESONANCE REGION UPTO 300 KEV EVALUATED BY F.H.FROEHNER,    11   1
       THE ADOPTED RESOLVED RESONANCE PARAMETERS HAVE BEEN EVALUATED BY 11   1
       F.H.FROENER, KFK(FR77,FR77A).                                   11   1
       RESONANCES FOR L=0 AND L>0 ARE GIVEN ON THE FILE.               11   1
       THE L>0 RESONANCES ARE CONSIDERED TO BE L=1 RESONANCES.         11   1
       THE S-WAVE CROSS SECTIONS WERE CALCULATION WITH THE MULTILEVEL  11   1
       REICH-MOORE FORMULA, THE P-WAVE CROSS SECTIONS WERE             11   1
       CALCULATED WITH THE SINGLE-LEVEL BREIT-WIGNER FORMULA.          11   1
       THE DATA HAVE BEEN DOPPLER-BROADENED AT  T=900K.                11   1
  OPTICAL AND STATISTICAL MODEL REGION ABOVE 300KEV.                   11   1
       TOTAL,CAPTURE AND NEUTRON SCATTERING CROSS SECTIONS WITH CODE   11   1
       SASSI-ECN.                                                      11   1
       COMPOUND CROSS SECTIONS RENORMALIZED TO INCLUDE CHARGED-        11   1
       PARTICLE EMISSION CROSS SECTIONS.                               11   1
       NEUTRON OPTICAL MODEL PARAMETERS FROM  E.FORT(FO79).            11   1
       S-WAVE CAPTURE WIDTH =0.5EV ESTIMATED BY EVALUATORS.            11   1
       THIS NUMER INCLUDES A 0.3 EV CONTRIBUTION FROM VALENCY CAPTURE  11   1
       CALCULATED AS DIFFERENCE OF  S-WAVE CAPTURE WIDTH AND D-WAVE    11   1
       CAPTURE WIDTH AS GIVEN BY FROEHNER(FR77A.)                      11   1
       P-WAVE CAPTURE WIDTH= 0.2 EV.                                   11   1
       D-WAVE CAPTURE WIDTH= 0.2 EV.                                   11   1
       P-WAVE AND D-WAVE CAPTURE WIDTHS AND STATISTICAL PART OF        11   1
       S-WAVE CAPTURE WIDTH HAVE BEEN ADJUSTED TO FIT THE CAPTURE      11   1
       CROSS SECTION MEASUREMENTS BY GRENCH,(GR65).                    11   1
       DOBS= 19.9 KEV EVALUATED BY FROEHNER(FR79).                     11   1
       LEVEL DENSITY PARAMETER, A=9.96 MEV-1 DEDUCED FROM DOBS WITH    11   1
       CORRECTION FOR ENERGY DEPENDENCE OF LEVEL DENSITY OVER 400 KEV. 11   1
       LEVEL SCHEME OF TARGET NUCLEUS FROM AUBLE(AU74).                11   1
  CHARGED-PARTICLE EMISSION CROSS SECTIONS ABOVE 8 MEV.                11   1
       MOST CROSS SECTIONS CALCULATED WITH CODES CERBERO-2 AND ERINNI.  11   1
       (N,P) CROSS SECTION:ERINNI CALCULATIONS RENORMALIZED TO A VALUE  11   1
       OF 3.4 MB ,AT ENERGY OF 14.5MEV, ESTIMATED AS AN AVERAGE OF THREE 11   1
       MEASUREMENTS(VA62A,PR60,WA69).                                  11   1
       (N,A) CROSS SECTIONS: ERINNI CALCULATIONS RENORMALIZED TO A VALUE 11   1
       OF 6.5 MB ,AT ENERGY OF  14.5 MEV, ESTIMATED AS AN AVERAGE OF   11   1
       THREE MEASUREMENTS (ST65,LE69,WA69).                            11   1
       (N,AN)+(N,NA) CROSS SECTIONS CALCULATED WITH ERINNI.            11   1
       (N,D) CROSS SECTION FROM THRES-2 RENORMALIZED TO A               11   1
       VALUE OF 16.0 MB ,AT ENERGY OF  14.5 MEV,(QA78).                11   1
       (N,PN)+(N,NP) CROSS SECTION CALCULATED WITH ERINNI.              11   1
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TEXT

MAT MF

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     300064          24           0           0           0           0 12   0
      14510       14511       14580       14590       21520       21530 12   0
      21540       30010       30011       30020       30040       30050 12   0
      30051       30160       30220       30280       31020       30270 12   0
      31030       31070       32510       40022       50053       50163 12   0
     300064       14510           0           1           1           0 12   1
        423                                                              12   1
 RCN-2 EVALUATION H.GRUPPELAAR AND H.A.J.VAN DER KAMP  ZN064L  21/03/83  12   1
 MINIMUM ENERGY                          .00100    EV                     12   1
 MIN EN OF STATISTICAL MODEL           74.92382   KEV                     12   1
 ENERGY OF FIRST EXCITED STATE           .99150   MEV                     12   1
 CONTINUOUS STAT MODEL ABOVE            3.30500   MEV                     12   1
 HIGH ENERGY MODEL ABOVE                6.50000   MEV                     12   1
 MAXIMUM ENERGY                        15.00000   MEV                     12   1
 LEVEL DENSITY PARAMETER  ZN064         9.50000 1/MEV                     12   1
 LEVEL DENSITY PARAMETER  ZN063         8.80000 1/MEV                     12   1
*****CROSS SECTIONS FOR NUCLIDES IN COOLING CIRCUIT OF LMFBR******        12   1
**** ZINC-64   REVISED MARCH 1983 ********************************        12   1
RESOLVED RESONANCE REGION UPTO 73 KEV                                    12   1
     THERMAL ABSORBTION CROSS SECTION=0.76+-0.02 B (MU81)                12   1
     RESONANCE INTEGRAL=1.45+-0.06 B (MU81)                              12   1
     CALCULATED VALUE THERMAL ABSORBTION CROSS SECTION=0.76 B            12   1
     CALCULATED VALUE RESONANCE INTEGRAL=1.46 B                          12   1
     EVALUATION WITH SIGMA-ECN AT 0 K, MULTILEVEL FORMULA                12   1
     RESOLVED RESONANCES FROM MUGHABGHAB ET AL.(MU81).                   12   1
STRENGTH FUNCTION REGION UPTO 0.2 MEV                                    12   1
     RADIATIVE CAPTURE CROSS SECTIONS WITH CODE FISPRO-ECN                12   1
     OTHER CROSS SECTIONS WITH CODE SASSI-ECN                            12   1
     S-WAVE STRENGTH FUNCTION, S0=1.62, FROM A STATISTICAL               12   1
     ANALYSIS OF THE RESONANCES GIVEN BY MUGHABGHAB ET AL.(MU81)         12   1
     P-WAVE STRENGTH FUNCTION, S1=0.73, FROM A STATISTICAL               12   1
     ANALYSIS OF THE RESONANCES GIVEN BY MUGHABGHAB ET AL.(MU81)         12   1
     D-WAVE STRENGTH FUNCTION, S2=2.8, HAS BEEN ADOPTED TO MATCH         12   1
     THE CURVES FOR THE CAPTURE CROSS SECTION IN THE RESONANCE           12   1
     REGION TO THAT IN THE STRENGTH FUNCTION REGION                      12   1
     OTHER STRENGTH FUNCTIONS FROM GENERALISED OPTICAL MODEL OF           12   1
     WIEDLING ET AL. (WI76)                                              12   1
     DOBS= 3.3 KEV FROM STATISTICAL ANALYSIS OF RESONANCES               12   1
     GIVEN BY MUGHABGHAB ET AL.(MU81).                                   12   1
     S-WAVE GAMMA WIDTH = 726 MV GIVEN BY MUGHABGHAB ET AL.(MU81)        12   1
     P-WAVE GAMMA WIDTH= 272 MV GIVEN BY MUGHABGHAB ET AL.(MU81).        12   1
HIGH ENERGY REGION                                                       12   1
     ALL CROSS SECTIONS WITH CODE SASSI-ECN                              12   1
     FOR (N,P) CROSS SECTIONS A SMOOTH CURVE THROUGH THE DATA            12   1
     OF SANTRY ET AL.(SA72) WAS TAKEN.                                   12   1
     (N,A) AND (N,P,N) CROSS SECTIONS WERE TAKEN FROM                    12   1
     CALCULATIONS WITH THE CODE PREEQ-ECN(LU77)                          12   1
     OPTICAL MODEL OF WIEDLING ET AL.(WI76) GIVES GOOD FIT TO            12   1
     TOTAL AND SCATTERING CROSS SECTIONS OF NATURAL ZINC.                12   1
     DIRECT COMPONENT OF 100MB ADDED TO INELASTIC SCATTERING              12   1
     CROSS SECTION OF FIRST-EXCITED STATE, ELASTIC SCATTERING             12   1
     CORRESPONDINGLY DECREASED.                                          12   1
     LEVEL SCHEME OF TARGET NUCLEUS MAINLY FROM (ALPHA,N-GAMMA)          12   1
     WORK (CH76A)                                                        12   1
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TEXT MAT MF

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   500112        26         0         0         0         0 13   0
    14510     14511     14580     14590     21520     21530 13   0
    21540     30010     30011     30020     30040     30050 13   0
    30051     30160     30220     30280     31020     30270 13   0
    31030     31040     31070     31100     32510     40022 13   0
    50053     50163         0         0         0         0 13   0
   500112     14510         0         1         1         0 13   1
      351                                                    13   1
ECN-2 EVALUATIE H.A.J.VAN DER KAMP AND H.GRUPPELAAR SN112D 25/10/82  13   1
MINIMUM ENERGY                      .00100    EV                 13   1
MIN EN OF STATISTICAL MODEL        1.58136    KEV                13   1
ENERGY OF FIRST EXCITED STATE      1.25700    MEV                13   1
CONTINUOUS STAT MODEL ABOVE        2.92600    MEV                13   1
HIGH ENERGY MODEL ABOVE            6.50000    MEV                13   1
MAXIMUM ENERGY                    20.00000    MEV                13   1
LEVEL DENSITY PARAMETER  SN112    15.25000 1/MEV                 13   1
LEVEL DENSITY PARAMETER  SN111    16.25000 1/MEV                 13   1
 *****CROSS SECTIONS FOR NUCLIDES IN COOLING CIRCUIT OF LMFBR****    13   1
 *****TIN-112******************************************************   13   1
 RESOLVED RESONANCE REGION                                        13   1
     EXPERIMENTAL THERMAL CAPTURE CROSS SECTION =0.73+-0.1 B.(MU81)  13   1
     CALCULATED THERMAL CAPTURE CROSS SECTION=0.727 B.            13   1
     EXPERIMENTAL RESONANCE INTEGRAL =29+-2 B.(MU81)              13   1
     CALCULATED RESONANCE INTEGRAL= 29.9 BARN                     13   1
     RESOLVED RESONANCE PARAMETERS FROM BROOKHAVEN COMPILATION(MU81)  13   1
     EVALUATION WITH SIGMA-ECN AT 0 K,MULTILEVEL FORMULA          13   1
 STRENGTH FUNCTION REGION UPTO 150 KEV                            13   1
     CAPTURE CROSS SECTIONS WITH CODE FISPRO-ECN                  13   1
     S-WAVE STRENGTH FUNCTION =0.3+-0.1 FROM BROOKHAVEN           13   1
     COMPILATION(MU81)                                            13   1
     P-WAVE STRENGTH FUNCTION =3.7+-1.0 FROM SYSTEMATICS IN       13   1
     BROOKHAVEN COMPILATION(MU81)                                 13   1
     OTHER STRENGTH FUNCTIONS FROM OPTICAL MODEL                  13   1
     DOBS=330 EV ADJUSTED TO VALUES OF CAPTURE CROSS SECTIONS     13   1
     AT 24 KEV GIVEN BY BRADLEY(BR80).                            13   1
     AVERAGE S-WAVE CAPTURE WIDTH =110+-17 MEV FROM BROOKHAVEN    13   1
     COMPILATION(MU81)                                            13   1
     AVERAGE P-WAVE CAPTURE WIDTH =145+-50 MEV (ADOPTED)          13   1
 HIGH ENERGY REGION ABOVE 150 KEV                                 13   1
     CROSS SECTIONS WITH CODE  SASSI-ECN                          13   1
     OPTICAL MODEL PARAMETERS FROM IGARASI(IG75) HAVE BEEN        13   1
     MODIFIED(REAL POTENTIAL IS DIFFERENT)                        13   1
     LEVEL SCHEME OF TARGET NUCLEUS FROM NUCLEAR DATA SHEETS(PE80)  13   1
     SQUARED SPIN CUTOFF PARAMETER =8.4 FROM EXPERIMENTAL         13   1
     SPIN DISTRIBUTION                                            13   1
     CHARGED-PARTICLE EMISSION CROSS SECTIONS FROM CERBERO(FA77B)  13   1
     ERINNI(FA77A) AND THRES(PE75).                               13   1
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