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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

<u>Abstract</u>: 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

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## 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

The major part of the data library RCN-2 is superseded by RCN-3 (see document IAEA-NDS-67).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

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• PAGE RCN-2CP LIBRARY INDEX TEXT MAT MF l 21530 1 31100 1 0 1 'n ō 

	00010								-	-
	31110	32510	40022	500	)53	50153		0	1	0
	110022	14510	0		1	1		0	1	1
	297								1	1
RCN-2	EVALUATION	H.GRUPPELAA	R AND H.A	A.J.VAN I	DER KAMP	NA022D	29/11/82		1	1
MINIM	UM ENERGY			-00100	EV				1	1
MIN E	N OF STATIS	FICAL MODEL	2	21.50000	KEV				1	1
ENERG	Y OF FIRST I	EXCITED STAT	Е	.58300	MEV				1	1
CONTI	NUOUS STAT	MODEL ABOVE		3.51900	MEV				1	1
HIGH	ENERGY MODE	L ABOVE	1	1.00000	MEV				1	1
MAXIN	UM ENERGY		2	20.00000	MEV				1	1
LEVEL	DENSITY PAR	RAMETER NAO	22	3.50000	1/MEV				1	1
LEVEL	DENSITY PA	RAMETER NAO	21	3.50000	1/MEV				1	1
****	*CROSS SECT	IONS FOR NUC	LIDES IN	COOLING	CIRCUIT	OF LMFB	R****		1	1
****	*SODIUM-22*	*********	*******	*******	*******	*******	****		1	1
RESC	LVED RESONAL	NCE REGION U	PTO 15 KE	CV (REVIS	SED NOVEN	IBER 1983	2)		1	1
	THERMAL ABS	ORBTION CROS	S SECTION	1 = 29000	)+-1000 H	BARN (MU	31)		1	1
	CALCULATED	VALUE OF RES	ONANCE IN	TEGRAL=	14700B.				1	1
	RESOLVED RE	SONANCE PARA	METERS: C	ONLY ONE	RESONANC	Œ			1	1
	MEASURED BY	GLEDENOV ET	AL.(GL82	2); THE N	EUTRON W	VIDTH OF			1	l
	THIS RESONAL	NCE HAS BEEN	MODIFIED	D IN ORDE	R TO FI	2			1	1
	THE VALUE OF	F THE THERMA	L ABSORBI	TION CROS	SS SECTIO	ON TO			1	1
	THE ADOPTED	VALUE OF MU	GHABGHAB(	MU81).					1	1
STRE	NGTH FUNCTI	ON REGION UP	TO 100 K	ŒV.					1	1
	CAPTURE CRO	SS SECTIONS	WITH CODE	E FISPRO-	-ECN				1	1
	STRENGTH FU	NCTIONS FROM	OPTICAL	MODEL FO	DR NA-23	(LA80)			1	1
	DOBS=30.8 K	EV , FROM BEC	KERMANN (	BE77)					1	1
	S-WAVE CAPT	URE WIDTH=1.	0 EV,						1	1
	P-WAVE CAPT	URE WIDTH=5.	4 EV, CAL	CULATED	WITH CER	RBERO			1	1
HIGH	ENERGY REGI	ON ABOVE 0.1	MEV.						1	1
	CROSS SECTI	ONS WITH COL	E SASSI-E	ECN, CERE	BERO, ERI	NNI, THR	ES-2		ī	ī
	OPTICAL MOD	EL PARAMETER	S FROM LA	ARSON (LAS	30)	•			ī	ī
	LEVEL SCHEM	E OF TARGET	NUCLEUS F	ROM END	ET AL.	(EN78)			ī	ī
	SOUARED SPI	N CUTOFF PAR	AMETER=6.	55 FROM	EXPERIME	ENTAL SP	IN		ī	ī
	DISTRIBUTIO	N							ī	ī
	CHARGED PAR	TICLE EMISSI	ON CROSS	SECTION	FROM CER	RBERO.ER	INNT		ī	ī
	AND THRES-2	•							ī	ī
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	RCN-2CP LIBRARY INDEX										
	TEXT										
	180036	28	0	0	0	0	2	0			
	14510	14511	14580	14590	21520	21530	2	ŏ			
	21540	3 14511 14580 14590 21520 3 30010 30011 30020 30040									
	30051	30010 30011 30020 30040 30160 30220 30280 31020									
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	32510	40022	50053	50163	0	0	2	õ			
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	100000	14010	Ŭ	-	-	Ū	5	ī			
FCN-7	EVAL. H.GR	IPPELAAR AN	H.A.T.VAN	DER KAMP 04	02/82		2	ī			
WINTN	UM ENERGY			00100 EV	02,02		2	ī			
WIN F	N OF STATIS	TCAL MODEL	. 46	50000 KEV			2	Ť			
ENEDO	V OF FIDET I	EXCIPED STA	י ידי די	97000 WEV			2	÷			
CONT	NUCUS STAT	KUDEL VBONE		86700 MEV			5	÷.			
UTCU	ENERGY WODEL	NODEL RECVE	י טי	00000 MEV			2	÷			
WAVTE	ENERGI MODEN		20	000000 MEV			2	-			
TEVET	DENSITY DN		20	46600 1/MEV			2				
LEVEL	DENSIII PA	CAMBIER AD	1036 F	50000 1/MEV			2	÷			
	TODOGC CECL	TONG FOD NU	CITDES IN C	NED CAS OF I	WEDD++++++++		2	-			
	+ NDCON - 26++	IONS FOR NO		JVER GMS OF I			2	÷			
DECO	VED DECONN	NOR DECTON			*******		2	1			
RESU	DUED RESONAL	NCE REGION			<u>ا در</u>		2	1			
	THERMAL CAP	IURE CRUSS	SECTION = 5	T DARN (MUA	5)		2	1			
	RESONANCE I	NTEGRAL: NU	MEASURED VI	APOF VECSELA	E DECONANCE		2	Ţ			
	RESOLVED REA	ONE UNDORN	AMETERS, UNL:	I UNE NEGATIV	E RESONANCE		2	Ţ			
CUDI	KNOWN ( MU / 5 )	ONE HIPUTH	ETICAL RESUL	MANCE AT 20 F	ΞY		2	Ţ			
SIR	CADTINE COO	ON REGION D	P IU I.2 ME				2	Ţ			
	OTHER CRO	SS SECTIONS	WITH CODE DA	PISPRO-LCN			2	Ţ			
	CINER CRUSS	SECTIONS W	ON-O OL DI	NAME CEDENCEN	TUNGETON		2	Ţ			
	-0 22 BUR	NGIN FUNCTI	UN=0.91, 9-1	WAVE STRENGT	FUNCTION		2	Ť			
	-U.33, THE A	SAME VALUES	AS USED FUI	ARGUN-40			2	Ť			
	DODG-20 KEN	GTH FUNCTIC	INS FROM OPT.	ICAL MODEL			2	Ţ			
	DUBS=30 KEV	FROM BECK	ERMANN (BE7				2	Ť			
	S-WAVE CAPT	URE WIDTH=U	U.S// EV.THI:	S NUMBER CONS	SISTS OF A		2	Ť			
	CONTRIBUTION	N FROM VALE	NCY CAPTURE	UF ULIZ EV A	AS CALCULATED		2	Ţ			
	WITH A FURM	ULA GIVEN E	Y ALLEN ET A	AL.(AL77) ANI	A STATISTICAL		2	1			
	CONTRIBUTIO	N OF 0.257	EV AS CALCUI	LATED BY THE	CODE CERBERO		2	Ţ			
	P-WAVE CAPT	URE WIDTH=C	-638 EV, CAI	LCULATED WITH	CERBERO		2	1			
HIGH	ENERGI REGI	UN ABOVE I.	Z MEV.				2	1			
	ALL CRUSS S.	ECTIONS WIT	H CODE SASS.	L-ECN			2	1			
	OPTICAL HOD	EL PARAMETE	RS FROM WIEL	DLING ET AL.(	WI76)		2	1			
	LEVEL SCHEM	E OF TARGET	NUCLEUS FRO	OM ENDT AND V	AN DER		2	1			
LEUN(EN78). I-								1			
	SQUARED SPI	N CUTOFF PA	RAMETER=5.1	FROM EXPERIN	IENTAL SPIN		2	1			
	DISTRIBUTIO	N					2	1			
	CHARGED PAR	TICLE EMISS	ION CROSS SI	ECTION FROM C	ERBERO, ERINNI		2	1			
	AND THRES-2						2	1			

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MAT MF

100039	28	0	0	0	0	3	0
180038	20	14500	14500	21520	21520	5	0
14510	14511	14560	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	00000	1	ĩ	ň	3	ĩ
100050	14010	0	-	-	Ũ	2	÷
312				100 100		2	
ECN-3 EVAL. H.G	RUPPELAAR AN	D H.A.J.VAN	DER KAMP 18	/02/82		3	1
MINIMUM ENERGY			.00100 EV			3	1
MIN EN OF STATI	STICAL MODEL		.30000 MEV			3	1
ENERGY OF FIRST	EXCITED STA	TÉ 2	.16800 MEV			3	1
CONTINUOUS STAT	MODEL ABOVE	5	.97480 MEV			з	٦
NICH ENERGY MOD	FL ABOVE	11				3	-
NIGH ENERGY HOL		20	00000 NEV			5	-
MAAIMUM ENERGI		20	.00000 MEV			3	1
LEVEL DENSITY P	ARAMETER AR	038 7	.15000 1/MEV			3	1
LEVEL DENSITY P	ARAMETER AR	037 6	.46000 1/MEV			3	1
****CROSS SEC	TIONS FOR NU	CLIDES IN CO	OVER GAS OF 1	LMFBR********		3	l
*****ARGON-38*	*********	********	********	**********		3	1
RESOLVED RESON	ANCE REGION					3	٦
THERMAL CA	PTURE CROSS	SECTION = 0	8+0.2 BARN	(10173)		à	ī
DECONANCE	TNTECONI · NO	WEACHDED V	AT HE VNOWN	(110/07)		2	÷
RESONANCE	INIEGRAL: NO	MEASURED VI				3	÷
RESOLVED R	ESUNANCA PAR	AMETERS: ON	LI TWO HIPOT	HETICAL		3	1
RESONANCES	S, ONE NEGATI	VE AT -4960	EV, CNE POS	ITIVE AT		3	1
135 KEV, F	ITTED TO THE	VALUE OF T	HE THERMAL C	APTURE		3	l
CROSS SECT	ION.					3	1
STRENGTH FUNCT	ION REGION U	P TO 1.2 ME	v.			3	1
CAPTURE CR	OSS SECTIONS	WITH CODE	FISPRO-ECN			7	1
OTHER CROS	S SECTIONS W	TTH CODE SM	SST-FON			2	÷
				N. THURDEROW		3	÷.
S-WAVE SIN	ENGIN FUNCTI	UN=0.91, P-1	WAVE STRENGT	H FUNCTION		3	T
=0.33, THE	SAME VALUES	AS USED FOR	R ARGON-40			3	1
OTHER STRE	NGTH FUNCTIO	NS FROM OPT:	ICAL MODEL			3	1
DOBS=140 K	EV , FROM BEC	KERMANN (BE	77)			3	1
S-WAVE CAP	TURE WIDTH=0	.357 EV,				3	1
P-WAVE CAP	TURE WIDTH=0	.638 EV. CA	LCULATED WITH	H CERBERO		З	٦
HIGH ENERGY REG	TON ABOVE 1.	2 MEV.				7	ī
ALL CROSS	SECTIONS WIT	H CODE SASS	-FCN			5	÷
	DECITORD WIT	DO DDOY WIR		(11-96)		2	
OPTICAL HU	DEL PARAMETE	RS FROM WIL	DLING ET AL.	(WI/6)		3	1
LEVEL SCHE	ME OF TARGET	NUCLEUS FR	om endt et a	L. (EN78)		3	1
SQUARED SP	PIN CUTOFF PA	RAMETER=4.6	5 FROM EXPER	IMENTAL SPIN		3	1
DISTRIBUTI	ON					3	1
CHARGED PA	RTICLE EMISS	ION CROSS SI	ECTION FROM	CERBERO, ERINNI		З	1
AND THRES-	2 RENORMALIZ	ED AT 14.5	MEV (0A78) W	HERE POSSIBLE.		3	ī
						5	-

MAT MF

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	180040	26	0	0	0	0	4	0
	14510	14511	14580	14590	21520	21530	4	0
	21540	30010	30011	30020	40022	30170	х А	0
	30220	30280	31030	31040	31070	32510	4	0
	30040	30050	30051	30100	31020	30270	4	0
	50053	50163	0	U L	U I	0	4	0
	180040	14510	U	1	Ŧ	U	4	1
Dav	390				300401	16/07/07	4	1
RCN	-2 EVALUATIO	N H.GRUPPELA	AR AND M.A.	J.VAN DER KAMP	AR040V	10/02/83	4	1
MIN	INUM ENERGI			CEDER NEW			4	
ENE.	EN OF SIAIL	SIICAL MODEL	יידי ז	46080 MEV			ч л	1
CON	TINUOUS STAT	KODEL NBOVE		61200 MEV			-т л	1
UTC	TINGODS SINI	FI. ABOVE		00000 MEV			4	1
MAY	H ENERGI HOD. Iniim Energy		20	00000 MEV			4	1
IEV	FI DENSITY D		n4n 5	.68000 1/MEV			4	ī
LEV	FI. DENSITY P	ARAMETER AR	039 6	52800 1/MEV			4	ī
***	**CROSS SECT	TONS FOR NUC	LIDES IN CO	VER GAS OF LAFE	******		4	ī
***	**ARGON-40**	********	********	*********	******		4	ī
***	**REVISION F	EBRUARY 1983	*******	************	******		4	ī
	INCREASED C	APTURE CROSS	SECTIONS I	N RESONANCE RAN	IGE;		4	1
	SMALL ADJUS	TMENTS AT HI	GHER ENERGI	ES	•		4	1
RES	OLVED RESONA	NCE REGION U	PTO 596 KEV				4	1
	EXPERIMENTA	L THERMAL CA	PTURE CROSS	SECTION=			4	1
	0.66+-0.01	BARN (MU73)					4	l
	EXPERIMENTA	L RESONANCE	INTEGRAL=0.	41+-0.03 BARN (	(MU73)		4	1
	CALCULATED	THERMAL CAPT	URE CROSS S	ECTION=0.67 BAB	RN		4	1
	CALCULATED	RESONANCE IN	TEGRAL=0.35	BARN			4	1
	A DIRECT CA	PTURE COMPON	ENT HAS BEE	N ASSUMED OF C.	63		4	l
	BARN TO FIT	THE THERMAL	CAPTURE CR	DSS SECTIONS(1,	V SIAPE)		4	l
	NO NEGATIVE	RESONANCES	HAVE BEEN A	SSUMED.			4	l
	EVALUATION	WITH SIGMA-E	CN AT OK,	MULTILEVEL FORM	IULA		4	1
	RESOLVED RE	SONANCE PARA	METERS FROM	LIOU ET AL (LI	[ 75 ]		4	l
STRE	NGTH FUNCTIO	N REGION UPT	0 1.2 MEV				4	1
	CAPTURE CRO	SSSECTONS WI	TH CODE FIS	PRO-ECN			4	1
	OTHER CRUSS	SECTIONS WI	TH CODE SAS	SI-ECN			4	1
	D-WAVE STRE	NGTH FUNCTIO	N=0.91 FROM	LICU ET AL.(L)	175)		4	1
	OTUTO CTORN	GTH FUNCTION	R-U.33 FROM	LICU ET AL.(L)	. /5 /		4	1
	DORS=87 KEV	FROM I TOU	S FROM OFII	CAL MODEL			4	1
	AVEBAGE CAD		SI AL. (DIA SI7 WV (EVE	ער 250 איז – 250 איז			4	
	VALUES OBTA	INED FROM AD	JUSTMENT TO	FYDERIMENTAL V		тир		1
	CAPTURE CRO	SS SECTION A	T I MEV (BO	59). AND FISSIC	NN NN		4	1
	SPECTRUM AV	ERAGED CROSS	SECTION (H	(159).	241		Δ	1
HIGH	ENERGY REGI	ON ABOVE 1.2	MEV				4	ī
	ALL CROSS S	ECTION WITH	CODE SASSI-	ECN			4	î
	OPTICAL MOD	EL PARAMETER	S FROM WIED	LING (WI76)			4	ī
	LEVEL SCHEM	E OF TARGET	NUCLEUS FRO	M ENDT ET AL.(1	EN78)		4	
	SQUARED SPI	N CUTOFF PAR	AMETER =3.3	1 FROM EXPERIME	ENTAL		4	ī
	SPIN DISTRI	BUTION					4	ī
	CHARGED PAR	TICLE EMISSI	ON CROSS SE	CTION FROM CER	BERO,		4	1
	ERINNI AND	THRES-2 RENO	RMALIZED AT	14.5 MEV(QA78)	)		4	l
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240050	25	0		0	0	0	5	0
14510	14511	14580	145	90	21520	21530	5	0
21540	30010	30011	300	20	30040	30050	5	0
30051	30160	30220	302	80	31020	30270	5	0
31030	31040	31070	325	10	40022	50053	5	0
50163	0	0		0	0	0	5	0
240050	14510	0		1	1	0	5	1
423							5	l
\$RCN 2.3 EVALUAT	ION H.GRUPPE	LAAR AND	H.A.J. VA	N DER	KAMP CR050D 2	10279 \$	5	l
MINIMUM ENERGY			.00100	EV			5	l
MIN EN OF STATI	STICAL MODEL		.30125	MEV			5	1
ENERGY OF FIRST	EXCITED STA	ATE .	.78330	MEV			5	1
CONTINUOUS STAT	MODEL ABOVE	2	3.93770	MEV			5	1
HIGH ENERGY MOD	EL ABOVE		6.50000	MEV			5	1
MAXIMUM ENERGY			20.00000	MEV			5	1
LEVEL DENSITY P	ARAMETER CF	2050	8.00000	1/MEV			5	1
LEVEL DENSITY P	ARAMETER CF	1049	7.50000	1/MEV			5	1
*****CROSS SECT	IONS FOR NUC	LIDES IN	COOLING C	IRCUIT	OF LMFBR****	******	5	1
*****CHROMIUM-5	0*********	*******	*******	*****	********	******	5	1
RESOLVED RESONA	NCE REGION U	IPTO 300 I	KEV EVALUA	TED BY	F.H.FROEHNER		5	1
THE ADOPTE	D RESOLVED F	ESONANCE	PARAMETER	S HAVE	BEEN EVALUAT	ED	5	1
BY F.H.FRC	EHNER, KFK(F	'R77).					5	1
RESONANCES	FOR L=0 ANL	) L=I ARE	GIVEN ON	THE FI	LE.	~~!!!!!!	5	1
FOR THE P-	WAVE RESONAN	ICES AN A	VERAGE VAL	UE FOR	THE SPIN IS	GIVEN.	5	1
THE S-WAVE	CRUSS SECTI	UNS WERE	CALCULATE	D WIIL	PORTONE		5	1 1
LEVEL REIL	H-MOOKE FOR	NULAE, THI	E P-WAVE C	RU33 2 RTT_111	CUED FORMULAE		5	1
WERE CALCU	LATED WIIN J		STEVEL DE NDENED NO		UNER FORMULAE	•	5	1 1
ATA IND CALL	TRVE BEEN DOP	FLER-BRO	N ABOVE 30	1-300	<b>N</b> •		5	-
	HISIICAL HOI MIDE AND NEIM	PON SCAT	TERING CRO		ייידראכ עדייש		5	1
CODE SASSI	-ECN. COMPOI	IND CROSS	SECTIONS	RENORM	ALIZED TO		5	ī
INCLUDE RE	SIDUAL CROSS	SECTION	S	1121.014			5	ī
NEUTRON OF	TICAL-MODEL	PARAMETE	RS ALMOST	THE SA	ME AS THOSE		5	ī
OF WIEDLIN	G ET AL. (WIT	76).					5	1
S-WAVE CAP	TURE WIDTH=	1.3 EV, 3	INCLUDING	A 0.56	EV CONTRIBUT	ION DUE	5	1
TO VALENCY	CAPTURE, ES	TIMATED I	BY ALLEN A	ND MUS	GROVE (AL77).		5	1
P-WAVE CAF	TURE WIDTH=	0.55 EV,1	FROM KENNY	ET AL	(KE77).		5	1
D-WAVE CAF	TURE WIDTH=(	.74 EV,	0.56 EV L	OWER 1	HAN S-WAVE CO	MPONENT	5	1
DOBS= 15.4	KEV OVER EN	ERGY RAN	GE OF 360	EV (20	OBSERVED LEV	ELS)	5	1
GIVEN BY F	ROEHNER (FR	17).					5	1
LEVEL DENS	SITY PARAMETH	ER,A=6.86	MEV-1, DE	DUCED	FROM DOBS WIT	Ή	5	1
CORRECTION	FOR ENERGY	DEPENDEN	CE OF LEVE	L DENS	SITY OVER 360	EV.	5	1
LEVEL SCHE	ME OF TARGE	NUCLEUS	MAINLY FF	ROM NUC	LEAR DATA SHE	ets	5	1
(AU75).							5	l
RESIDUAL COMPOU	IND CROSS SEC	TIONS					5	1
MOST CROSS	SECTIONS CA	ALCULATED	WITH CODE	S CERE	SERO AND ERINN	II.	5	1
(N,P) CROS	S SECTION CI	ALCULATED	WITHOUT A	NY FIJ	PARAMETERS.		5	l
(N,A)+(N,P)	IN) CROSS SEC	TION , F	ITTED TO ]	4.7-ME	EV VALUE,		5	1
121 MB (DC	173), BY ADJI	JSTMENT O	F TI-47 LE	EVEL DE	INSITY PARAMET	ER	5	l
(N,D) CROS	S SECTION FR	ROM THRES	-2, FITTEI	) TO 14	-MEV VALUE, C	BTAINED	5	1
FROM SYSTE	MATICS, 15 1	IB (QA78)	•				5	1
(N, PN)+(N,	NP) CROSS SI	CTION RE	NORMALIZEI	) TO 14	-MEV VALUE,		5	1
153 MB (AL	.61).						5	1
(N, 2N) CRC	JSS SECTION I	ROM SMOO	TH CURVE 1	HROUGH	I EXPERIMENTAL	POINTS	5	1
GIVEN IN E	INL-325 (GA76	DA).					5	1

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260054	26	n	0	0	0	6	0
14510	14511	14580	14590	21520	21530	6	ō
21540	30010	30011	30020	30040	30050	6	ō
30051	30160	30220	30280	31020	30270	6	Õ
31030	31040	31070	31100	32510	40022	6	Ō
50053	50163	0	0	0	0	6	Ō
260054	14510	ō	1	1	0	6	1
495		-				6	1
SRCN 2 EVALUATIO	N H.GRUPPE	LAAR AND H.	A.J. VAN DER	KAMP FE054C	290879 \$	6	1
MINIMUM ENERGY			.00100 EV			6	1
MIN EN OF STATIST	TCAL MODEL		30128 MEV			6	1
ENERGY OF FIRST F	XCITED STA	TE 1.	40800 MEV			6	1
CONTINUOUS STAT M	ODEL ABOVE	4.	58000 MEV			6	1
HIGH ENERGY MODEL	ABOVE	6	50000 MEV			6	1
MAXIMUM ENERGY		20	00000 MEV			6	ī
LEVEL DENSITY PAR	AMETER FE	054 6.	30000 1/MEV			6	1
LEVEL DENSITY PAR	AMETER FE	053 7	.00000 1/MEV			6	ī
*****CROSS SECTI	ONS FOR NU	CLIDES IN CO	OLING CIRCUI	T OF LMFBR**	***	6	1
*****IRON-54***	*******	*****	*****	********	***	6	ī
RESOLVED RESONAN	ICE REGION	11PTO 300 KE	V EVALUATED H	BY F.H. FROEHN	ER.	6	ī
THE ADOPTED	) RESOLVED	RESONANCE P	ARAMETERS HAV	/E BEEN EVALU	ATED BY	6	1
F.H. FROEHNE	R. KFK(FR7	7).				6	1
RESONANCES	FOR L=0 .I.	=1 AND L=2 )	ARE GIVEN ON	THE FILE.		6	ī
WITHIN THE	SET OF L=1	RESONACES	ALSO $L=2$ RES	NANCES WITH	SPIN	ē	- ī
J=1.5 HAVE	BEEN INCLU	DED-				ñ	1
WITHIN THE	SET OF L=2	RESONANCES	ALSO L=3 RES	SONANCES WITH	SPIN	ĕ	ī
J=2.5 HAVE	BEEN INCLU	DED.			DIIN	6	ī
THE S-WAVE	CROSS SECT	IONS WERE C	ALCHLATED WIT	РН ТНЕ МПЛТТЛ	EVEL.	6	ī
PEICH-MOOPE	FORMILAE.	THE P- AND	D-WAVE CROSS	S SECTIONS WE	RE	ē	ī
CALCULATED	WITH SINGL	E-LEVEL BRE	T-WIGNER FOR	RMULAE.		6	ī
THE DATA H	VE BEEN DO	PPLER-BROAD	ENED AT T=9(	)0K.		6	ī
THE BESOLVE	TO PESONANC	F DATA HAVE	BEEN REVISE	1981 אמד. דאר ר	n	ñ	1
BY ADDING A	NFG DFG	ΔT -75 5 K	EV. GN=59 KEY	J. GG=2 6 FV	0	6	1
DI ADDING P	ON HAS NOT	BEEN MADE	IN DATA TYPE	21520*****		ĥ	1
OPTICAL AND STAT	TSTICAL MO	DEL REGION	ABOVE 300 KEY	1.		6	ī
TOTAL. CAPTI	IRE AND NEU	TRON SCATTE	RING CROSS SI	ECTIONS WITH	CODE	6	ī
SASSI-ECN.		IRON DONIE				6	ī
COMPOUND CE	NSS SECTIO	NS RENORMAL	IZED TO INCL	IDE CHARGED-		6	ī
PARTICLE EN	ITSSION CRO	SS SECTIONS				6	ī
NEUTRON OPT	TCAL-MODEL	PARAMETERS	- FROM E.FOR	r(F079).		6	ī
S-WAVE APTI	IRE WIDTH =	2.6 EV ESTI	ATED BY EVAL	JUATORS.		6	1
THIS NUMBER	TNCLUDES	A 2-1 EV CO	NTRIBUTION FI	ROM VALENCY C	APTURE.	6	ī
CLCULATED H	ROM COEFFI	CIENT GIVEN	BY ALLEN ANI	D MUSGROVE (A	L77)	6	ī
P-WAVE CAPI	URE WIDTH=	0.5 EV (FR	77).		,	6	ī
D-WAVE CAP	URE WIDTH=	0.5. ADJUST	ED TO FIT LO	-ENERGY CAPT	URE	6	1
CROSS SECTI	ION OF ALLE	N ET AL. (A	L77B).		0142	6	ī
DOBS = 17.0	KEV OVER E	NERGY BANGE	OF 400 KEV	(15 OBSERVED	LEVELS)	e E	ī
GIVEN BY FR	OFFINER (FR	77)_				6	ī
LEVEL DENSI	TY PARAMET	ER.A=6.93 M	EV-1. DEDUCE	D FROM DORS W	זיתיא	Ē	ī
CORRECTION	FOR ENERGY	DEPENDENCE	OF LEVEL DE	NSTTY OVER 40	O KEV	6	1
LEVEL SCHEL	F OF TARGE	T NICTERS K	ATNLY FROM M	NEET OT DI 40	072)	6	1
RESIDUAL COMPOUN	ID CROSS SE	מטניקטאר זי			0,2,1	5	1
MOST CROSS	SECTIONS C	ש השידה שורים איים איים שי		DEFDO-7 AND F	DTNNT	5	1
(N P) CPOS	SECTIONS C	TAVEN FROM	ENDE-B/10 DO	CINFROV FILE	VIUNI.	Ē	
(N. ) (NOS	SECTIONS	ALCIILATEN U	UTH CODE EDI	NNT		6	1
(N N) + (N N)	NY) LEVES 5	ECTION CALCO	ILATED FOOL OKI	TEDREDALD AND	PDTW."	2	1
(NILL) - (NIL (NILL) - (NILL)		DOR WRDEGR	SEALED LKON (	JA SLYDU VAT	CRING	5	- 1
(ה, ש) כמטסמ הפתאזאבה בי	ON MEYGINDE	NON INKESN".	(WA77)	T-4-2-HEA AF	<u>ر ک</u> ان	2	
(N DAJTUR N COLUTARD LI	ND) CDOGG C	TOTIO, IV AD	IDON VEDAV	-2 1000000000000000000000000000000000000	TON	D F	
(A)77)	12 / CRU33 3	SCIION TAKE	A FRUM KEDAK	-5 DOCUMENTAT	TON	ē	1
						_	

'86	DON- 90D I TEDADY THOSE	PAGE	8
	TEXT	MAT	MF
(N,2N) CROSS	SECTION CALCULATED FROM ERINNI, IN AGREENENT WITH	6	ı
EXPERIMENTAL	DATA GIVEN IN BNL-325 (GA76A).	6	l
(N, 2P) CROSS	SECTION (DATA TYPE 31100 USED) CALC. FROM ERINNI.	6	1

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30051	30160	30220	30280	31020	30270	7	0
31030	31040	31070	31100	31110	32510	7	Ő
40022	50053	50163	01100	01110	01010	7	0
270058	14510	0	ĩ	ĩ	ő	7	ĩ
270030	14520	•	-	-	U	7	ī
RCN-2 EVI. FOR	CO-586 BY H.	GRUPPELAAR A	ND H.A.J.VAN	DER KAMP (2	9/1/81)	7	ĩ
MINIMUM ENERGY	00 000 01		00100 EV		5/ 2/ 02/	7	ī
MIN EN OF STATT	STICAL MODEL		60000 KEV			7	ī
ENERGY OF FIRST	EXCITED STA	ТЕ 24.	90000 KEV			7	ī
CONTINUOUS STAT	MODEL ABOVE		23600 MEV			7	ī
HIGH ENERGY MOD	EL ABOVE	6.	50000 MEV			7	ī
MAXIMUM ENERGY		20.	00000 MEV			7	ī
LEVEL DENSITY P	ARAMETER CO	0058 6.	50000 1/MEV			7	ī
LEVEL DENSITY P	ARAMETER CO	0057 6.	00000 1/MEV			7	1
*****CROSS SECT	TONS FOR NUC	LIDES IN COO	LING CIRCUIT	OF LMFBR***	*******	7	ī
****COBALT-58	GROUND STATE	TARGET****	*******	******	******	7	ī
RESOLVED RESONA	NCE REGION U	IPTO ABOUT 0.	5 KEV			7	1
ONLY ONE R	ESONANCE GIV	EN. THIS WAS	FITTED TO C	BTAIN		7	ī
REASONABLE	AGREEMENT W	ITH EXPERIME	NTAL VALUES	FOR THERMAL		7	ī
CAPTURE CR	OSS SECTION	(SIGMA= 1880	B.) AND RES	ONANCE		7	1
INTEGRAL(	RI= 6890 B.)	), VALUES GIV	EN IN BNL-32	5		7	1
POSSIBLY S	IGMA ABSORBI	TION IN THE F	ESONANCE REG	ION		7	ī
CONSISTS O	F A CONTRIBU	JTION OF 10 F	PERCENT FOR T	HE (N.GAMMA)		7	1
REACTION A	ND A CONTRIE	BUTION OF 90	PERCENT FOR	THE (N,P)		7	1
REACTION.						7	l
OPTICAL MODEL A	ND STATISTIC	CAL MODELS AN	SOVE 0.5 KEV			7	1
TOTAL, CAP	TURE AND NEL	JTRON SCATTER	RING CROSS SE	CTIONS WITH		7	ĩ
CODE SASSI	-ECN.					7	1
NEUTRON OP	TICAL MODEL	FROM FORT (F	°079).			7	1
DOBS=1.17	KEV FROM SYS	STEMATICS.				7	1
GUESSED AV	ERAGE CAPTUR	RE WIDTH= 0.5	δEV.			7	1
CHARGED-PA	RTICLE EMISS	SION CROSS SE	CTIONS FROM	CODES CERBER	0	7	l
AND ERINNI	•					7	1
THE (N,D)	CROSS SECTIO	ON CALCULATEI	WITH CODE T	HRES-2		7	1
WITH RENOR	MALIZATION 7	CO SYSTEMATIC	s.			7	l
(N,P) CROS	S SECTION IS	5 IMPORTANT I	OWN TO THERM	IAL		7	1
ENERGIES.						7	l
LEVEL-DENS	ITY PARAMETE	ERS MOSTLY FR	ROM SYSTEMATI	CS.		7	l
LEVEL SCHE	MES FROM NUC	CLEAR DATA SH	HEETS AND OWN	EVALUATION.		7	1
NO EXPERIM	ENTAL CROSS	SECTIONS AVE	AILABLE FOR C	OMPARISONS.		7	1

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270158	27	0	0	0	0	8	0
14510	14511	14580	14590	21520	21530	ĕ	ň
21540	20010	30011	30020	30040	30050	ĕ	ň
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270158	14510	0	T	T	0	8	T
324						8	1
RCN-2 EVL. FOR	CO-58M (RUN )	N) BY H.GP	RUPPELAAR AN	ND H.A.J.VAN	DER KAMP.	8	1
MINIMUM ENERGY			.00100	EV		8	l
MIN EN OF STAT	ISTICAL MODEL		.51000 H	(EV		8	l
ENERGY OF FIRS	T EXCITED STAN	TE -2	24.9 1	(EV		8	1
CONTINUOUS STA	T MODEL ABOVE		1.21100	1EV		8	1
HIC ' ENERGY MO	DEL ABOVE		6.50000 1	1EV		8	1
MAXIMUM ENERGY		2	20.00000 1	1EV		8	l
LEVEL DENSITY	PARAMETER CO	058	6.50000 1/1	IEV		8	l
LEVEL DENSITY	PARAMETER CO	057	6.00000 1/1	1EV		8	1
****CROSS SEC	TIONS FOR NUC	LIDES IN C	COOLING CIRC	CUIT OF LMFBF	*********	8	l
*****COBALT-58	METASTABLE T	ARGET * * * * *	*********	**********	*******	8	l
RESOLVED RESON	ANCE REGION U	PTO ABOUT	0.5 KEV			8	l
ONLY ONE	RESONANCE GIV	EN. THIS W	WAS FITTED ?	TO OBTAIN		8	l
AGREEMEN	T WITH EXPERI	MENTAL VAL	LUES FOR THE	ERMAL		8	l
CAPTURE C	ROSS SECTION	(SIGMA= 13	36 KB) (1	(U73)		8	l
THE CALCU	LATED RESONAN	CE INTEGRA	AL IS RI=180	) KB, NOT FAF	FROM	8	l
THE VALUE	MEASURED BY	HALPERIN B	ET AL. (HA64	).		8	l
POSSIBLY	SIGMA ABSORBT	ION IN THE	E RESONANCE	REGION		8	1
CONSISTS	OF A CONTRIBU	TION OF 75	5 PERCENT I	FOR THE (N,GA	AMMA)	8	l
REACTION	AND OF A CONT	RIBUTION C	OF 25 PERCEI	NT FOR THE (N	(,P)	8	l
REACTION.						8	l
OPTICAL MODEL	AND STATISTIC	AL MODELS	ABOVE 0.5 H	(EV		8	1
TOTAL, CA	PTURE AND NEU	TRON SCATT	TERING CROSS	S SECTIONS WI	TH	8	l
CODE SASS	I-ECN.					8	l
NEUTRON O	PTICAL MODEL	FROM FORT	(F079).			8	l
DOBS=1 KE	V FROM SYSTEM	ATICS.				8	l
GUESSED A	VERAGE CAPTUR	E WIDTH= (	.5 EV.			8	ı
CHARGED-P	ARTICLE EMISS	ION CROSS	SECTIONS FI	ROM CODES CEF	BERO	8	l
AND ERINN	Ι.					8	1
THE (N,D)	CROSS SECTIO	N CALCULAT	TED WITH COL	DE THRES-2		Ř	1
WITH RENO	RMALIZATION T	O SYSTEMAT	FICS.			Â	٦
(N,P) CRO	SS SECTION IS	INPORTAN	די סד אשמם יו	HERMAL		Ř	ī
ENERGIES.						Ř	ī
LEVEL-DEN	SITY PARAMETE	RS MOSTLY	FROM SYSTEM	MATICS.		Å	ĩ
LEVEL SCH	EMES FROM NUC	LEAR DATA	SHEETS AND	OWN EVALUATI	ION .	Ř	ī
NO EXPERT	MENTAL CROSS	SECTIONS	AVATLABLE FO	DR COMPARTSON	IS.	ĕ	ī
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RCN-2CP LIBRARY INDEX TEXT MAT MF 0 9 21530 9 30050 9 30270 9 32510 9 **07**0 RCN-2 EVALUATION H.A.J.VAN DER KAMP AND H.GRUPPELAAR NI058C 25/4/80 .00100 MINIMUM ENERGY EV l MIN EN OF STATISTICAL MODEL MEV .16815 ENERGY OF FIRST EXCITED STATE 1.45500 MEV 3.62060 CONTINUOUS STAT MODEL ABOVE MEV HIGH ENERGY MODEL ABOVE 6.50000 MEV 20.00000 MEV MAXIMUM ENERGY LEVEL DENSITY PARAMETER NI058 LEVEL DENSITY PARAMETER NI058 6.05000 1/MEV LEVEL DENSITY PARAMETER NI057 6.00000 1/MEV \*\*\*\*\*CROSS SECTIONS FOR NUCLIDES IN COOLING CIRCUIT OF LMFB\*\*\*\*\* RESOLVED RESONANCE REGION UPTO 167 KEV EVALUATED BY F.H.FROEHNER, THE ADOPTED RESOLVED RESONANCE PARAMETERS HAVE BEEN EVALUATED BY 9 F.H.FROEHNER, KFK(FR77,FR77A,FR80). RESONANCES FOR L=0 AND L>0 ARE GIVEN ON THE FILE. THE L>O RESONANCES ARE CONSIDERED TO BE L=1 RESONANCES. THE S-WAVE CROSS SECTIONS WERE CALCULATED WITH THE MULTILEVEL п REICH-MOORE FORMULA, THE P-WAVE CROSS SECTIONS WERE CALCULATED WITH THE SINGLE-LEVEL BREIT-WIGNER FORMULA. THE DATA HAVE BEEN DOPPLER BROADENED AT T= 900K. OPTICAL AND STATISTICAL MODEL REGION ABOVE 167 KEV TOTAL CAPTURE AND NEUTRON SCATTERING CROSS SECTIONS WITH CODE SASSI-ECN. COMPOUND CROSS SECTIONS RENORMALIZED TO INCLUDE CHARGED-PARTICLE EMISSION CROSS SECTIONS. NEUTRON OPTICAL MODEL PARAMETERS FROM E.FORT(F079). S-WAVE CAPTURE WIDTH = 2.3 EV(FR77A). THIS NUMBER INCLUDES A 0.9 EV CONTRIBUTION FROM VALENCY CAPTURE CALCULATED AS DIFFERENCE OF S-WAVE CAPTURE WIDTH AND D-WAVE CAPTURE WIDTH AS GIVEN BY FROEHNER(FR77A). P-WAVE CAPTURE WIDTH=0.5EV(FR77A). D-WAVE CAPTURE WIDTH=1.4 EV. COBS= 16.7 KEV EVALUATED BY FROEHNER(FR79). LEVEL DENSITY PARAMETER, A=6.98 MEV-1 DEDUCED FROM DOBS WITH CORRECTION FOR ENERGY DEPENDENCE OF LEVEL DENSITY OVER 418KEV LEVEL SCHEME OF TARGET NUCLEUS FROM KOCHER (KO76B). CHARGED-PARTICLE EMISSION CROSS SECTIONS. CROSS SECTIONS CALCULATED WITH CODES CERBERO (NEUTRON ENERGY 1 TO 9 MEV) AND ERINNI ( 9 TO 20 MEV). (N,P) CROSS SECTION TAKEN FROM ENDF/B-5 DOSIMETRY FILE. (N,A) CROSS SECTION: CERBERO AND ERINNI CALCULATION RENORMALIZED 9 TO A VALUE OF 125 MB AT ENERGY OF 14.5 MEV(QA78). (N,PN)+(N,NP) CROSS SECTION: ERINNI CALCULATION RENORMALIZED TO A VALUE OF 541 MB AT ENERGY OF 14.5 MEV, ESTIMATED AS A WEIGHTED 9 AVERAGE OF SIX MOST RECENT MEASUREMENTS(GL62, BR63, CR63, TE68, F170, HE73A). (N,D) CROSS SECTION: THRES-2 CALCULATION RENORMALIZED TO A VALUE OF 24 MB AT ENERGY OF 14.5 MEV(DE65). (N,AN)+(N,NA) CROSS SECTION CALCULATED WITH ERINNI. (N, 2N) CROSS SECTION TAKEN FROM ENDF/B-5 DOSIMETRY FILE. 

(N, 2P) CROSS SECTION CALCULATED WITH ERINNI.

(N,PA)+(N,AP) CROSS SECTION CALCULATED WITH ERINNI.

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TEXT MAT MF 0 10 280062 25 Δ n n 21520 14511 14580 14590 21530 10 14510 30010 30011 30020 30040 30050 10 21540 30170 30220 30280 31020 10 30160 30051 31070 32510 40022 50053 10 30270 31030 0 0 0 10 50163 0 n 14510 n 1 1 0 10 280062 423 10 H. GRUPPELAAR AND H.A.J. VAN DER KAMP NI062B 17/01/80 10 Ŝ .00100 EΥ 10 MINIMUM ENERGY MIN EN OF STATISTICAL MODEL -29763 MEV 10 1,17300 MEV 10 ENERGY OF FIRST EXCITED STATE CONTINUOUS STAT MODEL ABOVE 3,46400 MEV 10 6.50000 NEV 10 HIGH ENERGY MODEL ABOVE MAXIMUM ENERGY 20.00000 MEV 10 8.11300 1/MEV 10 LEVEL DENSITY PARAMETER NI062 LEVEL DENSITY PARAMETER NIO61 8.20000 1/MEV 10 \*\*\*\*\*CROSS SECTIONS FOR NUCLIDES IN COOLING CIRCUIT OF LMFB\*\*\*\*\* 10 10 RESOLVED RESONANCE REGION UPTO 300 KEV EVALUATED BY F.H.FROEHNER, 10 THE ADOPTED RESOLVED RESONANCE PARAMETERS HAVE BEEN EVALUATED BY 10 F.H.FROENER, KFK(FR77,FR77A). 10 RESONANCES FOR L=O AND L>O ARE GIVEN ON THE FILE. 10 THE L>O RESONANCES ARE CONSIDERED TO BE L=1 RESONANCES. 10 THE S-WAVE CROSS SECTIONS WERE CALCULATED WITH THE MULTILEVEL 10 REICH-MOORE FORMULA, THE P-WAVE CROSS SECTIONS WERE CALCULATED 10 WITH THE SINGLE-LEVEL BREIT-WIGNER FORMULA. 10 THE DATA HAVE BEEN DOPPLER-BROADENED AT T= 900K. 10 OPTICAL AND STATISTICAL MODEL REGION ABOVE 300KEV. 10 TOTAL, CAPTURE AND NEUTRON SCATTERING CROSS SECTIONS WITH CODE 10 SASSI-ECN. 10 COMPOUND CROSS SECTIONS RENORMALIZED TO INCLUDE CHARGED-PARTICLE 10 EMISSION CROSS SECTIONS. 10 NEUTRON OPTICAL MODEL PARAMETERS FROM E.FORT(F079). 10 S-WAVE CAPTURE WIDTH = 0.33 EV . 10 THIS NUMBER INCLUDES A 0.1EV CONTRIBUTION FROM VALENCY CAPTURE 10 P-WAVE CAPTURE WIDTH= 0.17 EV. 10 D-WAVE CAPTURE WIDTH= 0.23 EV. 10 THE VALUES OF THE CAPTURE WIDTHS HAVE BEEN ADJUSTED TO FIT 10 AVERAGE CAPTURE CROSS SECTIONS IN THE RESOLVED RESONANCE RANGE. 10 DOBS=18.6 KEV EVALUATED BY FROEHNER(FR79). 10 LEVEL DENSITY PARAMETER, A=8.97 HEV-1 DEDUCED FROM DOBS WITH 10 CORRECTION FOR ENERGY DEPENDENCE OF LEVEL DENSITY OVER 400 KEV 10 LEVEL SCHEME OF TARGET NUCLEUS EVALUATED BY AUTHORS. 10 CHARGED-PARTICLE EMISSION CROSS SECTIONS ABOVE 6 MEV. 10 CROSS SECTIONS CALCULATED WITH CODE ERINNI. 10 (N, P) CROSS SECTION: ERINNI CALCULATIONS RENORMALIZED TO A VALUE 10 OF 47.5 MB , AT ENERGY OF 14.5 MEV, ESTIMATED AS AN AVERAGE OF 10 FIVE MEASUREMENTS(LE74B, ED72, LE70, CR63, VA62A). 10 (N,A) CROSS SECTION: ERINNI CALCULATIONS RENORMALIZED TO A VALUE 10 OF 22.5 MB, AT ENERGY OF 14.5 MEV, ESTIMATED AS AN AVERAGE OF 10 SIX MEASUREMENTS (FU78, QA78, WE75, CU71, LE69, YU67). 10 (N, AN)+(N, NA) CROSS SECTIONS CALCULATED WITH ERINNI 10 (N, PN)+(N, NP) CROSS SECTION: ERINNI CALCULATIONS RENORMALIZED 10 TO A VALUE OF 7.0 MB (QA78). 10

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\$RCN 2.	.3 EVALUATION	H.GRUPPELA	AR AND H.A.	J. VAN DER	KAMP NI064C 9	1179 \$	11	1
MINIM	JM ENERGY		-0	0100 EV			11	1
MIN E	N OF STATISTI	CAL MODEL	.3	1102 MEV			11	l
ENERG	Y OF FIRST EX	CITED STATE	5 1.3	4600 MEV			11	1
CONTI	NUOUS STAT MO	DEL ABOVE	3.5	6000 MEV			11	1
HIGH I	ENERGY MODEL	ABOVE	6.5	0000 MEV			11	1
MAXTM	IM ENERGY		20.0	0000 MEV			11	1
LEVEL.	DENSITY PARA	METER NICH	54 8.3	5000 1/MEV			11	ī
LEVEL	DENSITY PAR	METER NIOS	3 8.9	6800 1/MEV			11	ī
****	CROSS SECTIO	NS FOR NUCI	THES IN COC	LING CIRCUIT	T OF LMFBR***	* *	11	ī
****	NICVEL_CA++			**********	******	• •	11	1
DREOI	VED DECONANC	TE DECTON UI		בייביים ביים ביים ביים ביים ביים ביים ב	V F U FDOFUNF	Ð	11	-
RESU	LVED RESUNANC	DECOLVED DE	FIG JUU KEV	EVALUATED D	I F.H.FRUEHNE. P DEEN EVALUM	r, Ten ev	11	-
	THE ADOPTED	RESOLVED RE	LOUNANCE PAR	AMELERS HAV	E DEEN EVALUA	TED BI	77	1
	F.H.FRUENER,	Krk(rk//,r	R//A).				11	1
	RESONANCES H	OR L=U AND	L>U ARE GIV	EN ON THE F	ILE.		TT -	T
	THE L>O RESC	DNANCES ARE	CONSIDERED	TO BE L=1 R	ESONANCES.		11	1
	THE S-WAVE C	ROSS SECTIO	DNS WERE CAL	CULATION WI	TH THE MULTIL	EVEL	11	1
	REICH-MOORE	FORMULA, TH	IE P-WAVE CF	OSS SECTION	S WERE		11	1
	CALCULATED V	VITH THE SIN	GLE-LEVEL E	REIT-WIGNER	FORMULA.		11	l
	THE DATA HAV	E BEEN DOPP	PLER-BROADEN	ED AT T=90	ОК.		11	l
OPTI	CAL AND STAT	ISTICAL MODE	EL REGION AB	OVE 300KEV.			11	1
	TOTAL, CAPTUR	RE AND NEUTH	RON SCATTERI	NG CROSS SE	CTIONS WITH C	ODE	11	1
	SASSI-ECN.						11	l
	COMPOUND CRO	DSS SECTIONS	S RENORMALIZ	ED TO INCLU	DE CHARGED-		11	1
	PARTICLE EM	SSJON CROSS	S SECTIONS.				11	1
	NEUTRON OPTI	ICAL MODEL H	PARAMETERS F	ROM E.FORT	(FO79).		11	1
	S-WAVE CAPTI	JRE WIDTH =0	.5EV ESTIMA	TED BY EVAL	UATORS.		11	1
	THIS NUMER 1	INCLUDES A C	.3 EV CONTR	IBUTION FRO	M VALENCY CAP	TURE	11	1
	CALCULATED A	AS DIFFERENC	CE OF S-WAV	E CAPTURE W	IDTH AND D-WA	VE	11	1
	CAPTURE WID	TH AS GIVEN	BY FROEHNER	(FR77A.)			11	1
	P-WAVE CAPTI	JRE WIDTH= (	.2 EV.				11	1
	D-WAVE CAPTI	JRE WIDTH= (	.2 EV.				11	ī
	P-WAVE AND 1	-WAVE CAPTI	IRE WIDTHS A	ND STATISTI	CAL PART OF		11	ī
	S-WAVE CAPTI	IRE WIDTH HA	AVE BEEN ADJ	USTED TO FI	T THE CAPTURE		11	ī
	CROSS SECTIO	ON MEASUREM	ENTS BY GREN	CH. (GR65).			11	ī
	DOBS= 19 9 1	EV EVALUATI	TO BY FROFH	FD( FD70)			11	5
	TEVET DENST	NV DADANETEI		משמעת באישת השמעות באי	FRON DORS WT	70	11	- 1
	CODDECTION I	TOD EVEDOV I	NA DEBENDENCE (	Nau Iordiced Nau Iordiced	TRUM DODS WI	TU NEA	11	
	I EVEL COUPME	OR ENERGI I		F LEVEL DEN	A)	KEV.	11	- +
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CHAR	GED-PARIICEE	EMISSION C	CUSS SECTION	S ABUVE 6 A	EV. 2000 6 100 88		11	1
	MUST CRUSS :	SECTIONS CAL	LCULATED WIT	H CODES CER	BERU-Z AND ER	INNI.	11	Ŧ
	(N,P) CRUSS	SECTION ER.	INNI CALCULA	TIONS RENOR	MALIZED TO A	VALUE	11	1
	OF 3.4 MB ,1	AT ENERGY OF	- 14.5MEV, E	STIMATED AS	AN AVERAGE O	F THREE	11	1
	MEASUREMENT	S(VA62A, PR60	),WA69).				11	1
	(N,A) CROSS	SECTIONS: 1	ERINNI CALCU	LATIONS REN	ORMALIZED TO	A VALUE	11	1
	OF 6.5 MB ,	AT ENERGY OF	F 14.5 MEV,	ESTIMATED	AS AN AVERAGE	OF	11	1
	THREE MEASU	REMENTS (ST	55,LE69,WA69	).			11	1
	(N, AN)+(N, N)	A) CROSS SEC	TIONS CALCU	LATED WITH	ERINNI.		11	1
	(N,D) CROSS	SECTION FRO	DM THRES-2 P	ENORMALIZED	TO A		11	1
	VALUE OF 16	O MB ,AT E	NERGY OF 14	.5 MEV, (QA7	8).		11	1
	(N, PN)+(N, NI	?) CROSS SEC	TION CALCUL	ATED WITH E	RINNI.		11	1

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	54	•	•	•	~		~
300064	24	0	0	0	0	12	0
14510	14511	14580	14590	21520	21530	12	Q
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 EVALUATI	ON H.GRUPPELAA	R AND H.A.	J.VAN DER KAMP	ZN064L 2	1/03/83	12	l
MINIMUM ENERGY			.00100 EV			12	1
MIN EN OF STAT	ISTICAL MODEL	74	.92382 KEV			12	ī
ENERGY OF FIRS	T EXCITED STAT	E	.99150 MEV			12	ī
CONTINUOUS STA	T MODEL DEOVE		30500 WEV			12	ī
UCH ENEDGY NO	DEL ADOVE	-	50000 NEV			12	1
HIGH ENERGI HO	DEL ABOVE	10	00000 MEV			12	-
MAXIMUM ENERGY		13				12	1
LEVEL DENSITY	PARAMETER ZNU	64 5	0.50000 1/MEV			12	1
LEVEL DENSITY	PARAMETER ZNO	63 6	1.80000 1/MEV			12	1
*****CROSS SECT	IONS FOR NUCLI	DES IN COC	LING CIRCUIT O	F LMFBR****	**	12	1
**** ZINC-64	REVISED MARCH	1983 *****	******	********	×	12	1
RESOLVED RESONA	NCE REGION UPT	O 73 KEV				12	1
THERMAL AB	SORBTION CROSS	SECTION-C	0.76+-0.02 B (M	U81)		12	1
RESONANCE	INTEGRAL=1.45+	-0.06 в (М	1081)			12	1
CALCULATED	VALUE THERMAL	ABSORBTIC	N CROSS SECTIO	N=0.76 B		12	1
CALCULATED	VALUE RESONAN	CE INTEGRA	L=1.46 B			12	1
EVALUATION	WITH SIGMA-EC	NATOK.	MULTILEVEL FOR	MULA		12	1
RESOLVED R	ESONANCES FROM	MUGHABGHA	B ET AL. (MUS1)	-		12	ī
STRENGTH FUNCTI	ON REGION UPTO	0.2 MEV		-		12	ī
PADIATIVE	CAPTURE CROSS	SECTIONS W	UTH CODE FISPR	D-ECN		12	ī
OTHER CROS	S SECTIONS WIT	H CODE SAS	ST-FCW			12	ī
CINER CROE	ENGTH FUNCTION	0000 5AC	FDON & CONTR	TANT		12	÷
ANALAGIC C	ENGIN FUNCTION	FR CIVEN F	V WIGUNDGUND D	TICHE		12	-
ANALISIS C	PUCER EUNOMION	.52 GIVEN 5	E DANUGARUUN I DI MUUNABURUUN I	I AL.(MUOI)		12	Ť
P-WAVE SIN	ENGIN FUNCTION	, 51-0./3,	FROM A STATIS	TICAL		12	<u>+</u>
ANALYSIS	OF THE RESONANC	ES GIVEN E	SY MUGHABGHAB E	T AL.(MUBI)		12	1
D-WAVE STR	ENGTH FUNCTION	, 52=2.8,	HAS BEEN ADOPT	ED TO MATCH		12	1
THE CURVES	FOR THE CAPTU	RE CROSS S	SECTION IN THE	RESONANCE		12	1
REGION TO	THAT IN THE ST	RENGTH FUN	CTION REGION			12	1
OTHER STRE	NGTH FUNCTIONS	FROM GENE	RALISED OPTICA	L MODEL OF		12	1
WIEDLING E	T AL. (WI76)					12	1
DOBS= 3.3	KEV FROM STATI	STICAL ANA	LYSIS OF RESON	ANCES		12	1
GIVEN BY M	IUGHABGHAB ET A	L.(MU81).				12	1
S-WAVE GAN	MA WIDTH = 726	MV GIVEN	BY MUGHABGHAB	ET AL.(MUS1	.)	12	1
P-WAVE GAR	MA WIDTH= 272	MV GIVEN B	BY MUGHABGHAB E	T AL.(MU81)	•	12	1
HIGH ENERGY REG	ION					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) W	AS TAKEN.				12	1
(N,A) AND	(N,P,N) CROSS	SECTIONS W	ERE TAKEN FROM			12	ī
CALCULATIC	NS WITH THE CO	DE PREEO-F	CN(LU77)			12	ī
OPTICAL MC	DEL OF WIEDLIN	G ET AL. ()	176) GIVES GOO	0 777 70		12	ī
TOTAL AND	SCATTERING CRC	SS SECTION	IS OF NATURAL Z	TNC		12	ī
DIRECT CON	PONENT OF LOOM		TNELSCATC SCS	THO:		12	-
CROSS SECT	TON OF FIDER-F	YCITED CT	TRUDADITC DCA	ATTENTING		10	-
רטסספפסטעד	TNGLY DECERCE	מישבייטים סוג תי	TTA PRADITC 20	NTIEVING		75	
	WE OF TROCKERSE		WIN FOOM (STOT	A N_CANNA		12	- <u>-</u>
UNDY (CU26	NIL OF INKULT N	INCLEUS RAI	ALPH	n, n-carra )		12	1
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RCN-9CP LIBRARY INDEX				INGU 10			
	TEXT				MAT	MF	
26	0	0	0	o	13	0	
14511	14580	14590	21520	21530	13	0	
30010	30011	30020	30040	30050	13	0	
30160	302 <b>20</b>	30280	31020	30270	13	0	
31040	31070	31100	32510	40022	13	°0	
50163	0	ο.	0	0	13	0	

50053	50163	0	ο.	0	01	30
500112	14510	0	1	1	01	31
351					1	31
ECN-2 EVALUATIE	H.A.J.VAN DER	KAMP AND H	.GRUPPELAAR	SN112D 25/10/82	1	31
MINIMUM ENERGY		•0	0100 EV		1	31
MIN EN OF STATI	STICAL MODEL	1.5	8136 KEV		1	31
ENERGY OF FIRST	EXCITED STATE	1.2	5700 MEV		1	31
CONTINUOUS STAT	MODEL ABOVE	2.9	2600 MEV		1	31
HIGH ENERGY MOI	)EL ABOVE	6.5	0000 MEV		1	31
MAXIMUM ENERGY		20.0	0000 MEV		1;	31
LEVEL DENSITY F	ARAMETER SN112	2 15.2	5000 1 <b>/HEV</b>		1;	31
LEVEL DENSITY F	ARAMETER SN11J	l 16.2	5000 1 <b>/MEV</b>		1;	31
****CROSS SEC	TIONS FOR NUCLI	DES IN COO	LING CIRCUI	T OF LMFBR****	1;	31
*****TIN-112**	***********	********	********	*****	1;	31
RESOLVED RESON	NANCE REGION				13	31
EXPERIMENT	AL THERMAL CAPI	TURE CROSS	SECTION =0.	73+-0.1 B.(MU81)	1	31
CALCULATE	) THERMAL CAPTUR	RE CROSS SE	CTION=0.727	в.	13	31
EXPERIMENT	AL RESONANCE IN	TEGRAL =29	+−2 B.(MU81	)	1	3 1
CALCULATEI	) RESONANCE INTE	GRAL= 29.9	BARN		13	31
RESOLVED H	RESONANCE PARAME	TERS FROM	BROOKHAVEN	COMPILATION(MUS1)	1	31
EVALUATION	WITH SIGMA-ECN	I AT O K, MU	LTILEVEL FO	RMULA	13	з 1
STRENGTH FUNCT	LION REGION UPTO	) 150 KEV			1;	31
CAPTURE CH	ROSS SECTIONS WI	TH CODE FI	SPRO-ECN		1;	31
S-WAVE ST	RENGTH FUNCTION	=0.3+-0.1	FROM BROOKH	AVEN	1:	31
COMPILATIO	) (MU81)				1;	31
P-WAVE ST	RENGTH FUNCTION	=3.7+-1.0	FROM SYSTEM	ATICS IN	נו	31
BROOKHAVEI	I COMPILATION (ML	J81)			17	31
OTHER STRI	INGTH FUNCTIONS	FROM OPTIC	AL MODEL		13	31
DOBS=330 B	SV ADJUSTED TO V	ALUES OF C	APTURE CROS	S SECTIONS	13	31
AT 24 KEV	GIVEN BY BRADLE	EY(BR80).			13	31
AVERAGE S-	WAVE CAPTURE WI	(DTH =110+-	17 MEV FROM	BROOKHAVEN	1	31
COMPILATIO	) ( 18UM ) NC				13	31
AVERAGE P	-WAVE CAPTURE WI	(DTH =145+-	50 MEV (ADO	PTED)	1	31
HIGH ENERGY R	GION ABOVE 150	KEV			1	31
CROSS SEC.	CIONS WITH CODE	SASSI-ECN			1	31
OPTICAL MO	DDEL PARAMETERS	FROM IGARA	SI(IG75) HA	VE BEEN	1	31
MODIFIED()	REAL POTENTIAL D	IS DIFFEREN	Т)		1	31
LEVEL SCH	SME OF TARGET NU	ICLEUS FROM	NUCLEAR DA	TA SHEETS(PE80)	1	31
SQUARED SI	PIN CUTOFF PARAM	ETER = 8.4	FROM EXPERI	MENTAL	Ľ	31
SPIN DIST	RIBUTION				1	з 1
CHARGED-P	ARTICLE EMISSION	CROSS SEC	TIONS FROM	CERBERO(FA77B)	1	31
ERINNI(FA	17A) AND THRES(H	?E75).			1	31

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