Appendix

Table A.1: Composition in wt. % of the two alloys used in the experimental reactors: Inconel 600 used in the ARE [1] and Hastelloy N used in the MSRE [2].

	Nickel	Chromium	Molybdenum	Iron	Manganese	Carbon	Silicon	Others
Inconel 600	77	15		7	0.03	0.04-0.06	0.22	Al- 0.15 Ti-0.25
Hastelloy N	71	7	16	5	0.05	0.08	1	Co- 0.20 Cu-0.35 W-0.5 Al+Ti-0.35

Table A.2: Composition of alloys (wt. %) tested by Ouyang et al. [3].

	Ni	Cr	Mo	Fe	W	Co	Mn	Al	Ti	Si	C	Others
Hastelloy- N	71	7	16	3	0.5	0.2	0.8			1	0.08	Al+Ti: 0.35 Cu: 0.35
Hastelloy-B3	65	1.5	28.5	1.5	3	3	3	0.5	0.2	0.1	0.01	
Haynes-242	65	8	25	2		2.5	0.8	0.5			0.03	Cu: 0.5
Haynes-263	52	20	6	0.7		20	0.6	0.6	2.4	0.4	0.06	Cu:0.2
TZM	0.005		99.4	0.01					0.4	0.005	0.04	

Table A.3: Compositions in wt. % of the alloys examined by Olson et al. [4].

	Cr	Mo	W	Al	Ti	Fe	C	Co	Ni	Mn	Nb	Zr
Haynes-230	22.5	1.2	14.1	0.3		1.8	0.1	0.3	59	0.5		
Inconel 617	22.1	9.6		1.1	0.4	1.1	0.1	12.4	52.9	0.1		
Hastelloy N	6.3	16.1	0.1			4.0		0.2	47.5	0.5		
Hastelloy X	21.3	8.8	0.4	0.1		19.3	0.1	1.4	47.5	0.5		
Nb-1Zr											99	1
Incoloy-800H	20.4			0.5	0.6	45.3	0.1		31.6	0.8		
Ni-201									99.4	0.2		

Table A.4: Elemental composition (wt. %) of the three Hastelloys used in Vignarooban et al.'s work [5].

	Ni	Co	Cr	Mo	W	Fe	Mn	Si	C
C-276	57	1	16	16	4	5	1	0.08	0.01
C-22	56	2.5	22	13	3	3	0.5	0.08	0.01
N	71	-	7	16	-	5	0.8	1	0.08

Table A.5: Elemental composition (wt. %) of nickel superalloys used in Cho et al.'s work [6].

	Ni	Cr	Fe	Co	C	Al	Ti	Nb	Mo
Inconel 713LC	74	11.57	0.1	0.08	0.05	6.05	0.76	1.95	4.15
Nimonic 80A	74.90	19.24	1.14	-	0.06	1.68	2.40	-	-
Nimonic 90	59.88	19.38	0.57	16.05	0.058	1.38	2.40	-	-

Table A.6: Composition (wt. %) and the structural type of stainless steel used in the study of Shinata et al. [7].

Steel	Type	Fe	Cr	Ni	Mo	S	P	Mn	Si	C
430	Ferritic	82.93	16.06	0.21	-	0.003	0.030	0.32	0.35	0.10
316	Austenitic	68.71	16.66	10.45	2.17	0.005	0.038	1.27	0.65	0.05
304	Austenitic	70.79	19.37	8.20	-	0.025	0.033	1.02	0.51	0.05
329J1	Duplex	68.92	23.76	5.27	1.23	0.002	0.030	0.48	0.28	0.03

Table A.7: Composition in wt. % of the three steels investigated by Polovov et al.[8].

Steel	C	Si	Mn	Cr	Ni	Ti	Mo	S	P	Cu
AISI 316L	<0.03	<0.4	1-2	16.8-18.3	13.5-15	-	2.2-2.8	0.02	0.03	-
AISI 316Ti	<0.1	<0.8	<2	16-18	12-14	0.5-0.7	2-3	0.02	0.035	0.3
AISI 321	<0.12	<0.8	<2	17-19	9-11	0.5-0.8	-	0.02	0.035	0.3

Table A.8: The compositions (wt. %) of the five stainless steels utilised by Cheng et al.[9].

	C	Si	Mn	P	S	Cr	Mo	Ni	V	Fe
SB450	0.2	0.28	0.97	0.02	0.01	0.02	-	0.11	-	Bal.
T22	0.06	0.36	0.47	0.01	-	2.34	1.00	-	-	Bal.
T5	0.14	0.48	0.34	0.03	0.02	5.25	0.55	-	-	Bal.
T9	0.09	0.36	0.4	0.02	-	8.25	0.93	-	-	Bal.
X20	0.21	0.25	0.49	0.02	0.01	11.08	0.87	0.79	0.26	Bal.

Table A.9: The elemental composition (wt. %) of the samples used in Kruizenga and Gill's work [10].

	Cr	Mo	Ni	Mn	Si	Fe	Cu	Ti	Nb
321SS	17.28	0.34	9.1	1.8	0.63	70.37	0.32	0.16	-
347SS	17.45	0.32	9.43	1.57	0.63	69.72	0.62 (max)	-	0.26 (max)

Table A.10: Composition (wt. %) of 254SMO [11], 316L [12] and 904L [13] investigated by Olsson and Wallen [14].

	Ni	Fe	Mo	Cr	Si	P	Mn	C	Cu	S
AVESTA 254 SMO	17.5-18.5	Balance	6-6.5	19.5-20.5	0.80 max	0.03 max	1.0 max	0.02 max	0.5-1.0	
AISI 316	13.5-15	Balance	2.2-2.8	16.8-18.3	<0.40	0.035	1-2	<0.03	0.3	0.02
904	23-28	Balance	4-5	19-23	1 max	0.045 max	2 max	0.020 max	1-2	0.035

Table A.11: Composition (wt. %) of different alloys used by Wallen et al. [15].

	Fe	C	Mn	Cr	Ni	Mo	Cu	N	P	Si	S
AVESTA 654 SMO	Bal	0.017	2	24.3	22	7.30	0.43	0.452	0.021	0.29	0.001
AVESTA 254 SMO	Bal	0.019	0.42	20	18.2	6.04	0.72	0.199	0.021	0.38	0.001
316 AISI	Bal	0.017	1.6	17.2	12.6	2.60			0.031	0.43	0.001
AVESTA SAF 2504	Bal	0.014	0.39	24.9	7	2.60			0.012	0.20	0.001
Alloy 625		0.013	0.10	22.1	Bal	9.39			0.006	0.15	0.002
C276	7.6	0.006	0.21	15.9	Bal	16.5			0.005	0.02	0.004

Table A.12: Composition of 27-7MO (wt. %) used by Muro et al. [16].

	Ni	Cr	Mo	Cu	Mn	Fe	N	C	Si	S	P
27-7MO	26-28	20.5-23	6.5-8	0.5-1.5	3 max.	Bal	0.3-0.4	0.02 max	0.5 max	0.01 max	0.03 max

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