Supplementary material for:
High-temperature Corrosion of ~30% Porous FeCr Stainless Steels in Air: Long-term Evaluation up to Breakaway

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Table S.1. Chemical composition of the alloys given by the producer

		Analyzed chemical composition, % [information from the producer]									
Target composition	Fe	Cr	Mn	Mo	Ni	Cu	Si	Nb	C	O	N
Fe20Cr	Bal.	20.0	0.03	0.02	0.07	0.03	0.08	0.02	0.01	0.03	0.01
Fe22Cr	Bal.	22.0	0.23	0.01	0.03	0.02	0.08	0.02	0.04	0.58	0.07
Fe27Cr	Bal.	27.0	0.30	0.04	0.01	0.00	0.08	0.02	0.01	0.03	0.02

Table S.2. Pores statistic obtained from SEM images analysis

Alloy (magnification)	Range of equivalent diameter [μm]	Average equivalent diameter [μm]	Median equivalent diameter [μm]	Porosity [%]
Fe20Cr (1500x)	1.76 – 70.1	12.4	7.47	29.40
Fe20Cr (2500x)	1.06 – 71.2	11.2	6.09	29.58
Fe22Cr (1500x)	1.76 – 74.4	11.2	6.84	27.68
Fe22Cr (2500x)	1.11 – 58.6	10.9	6.82	27.33
Fe27Cr (1500x)	1.76 – 77.4	10.2	5.90	26.64
Fe27Cr (2500x)	1.08 – 65.2	11.5	7.45	29.37

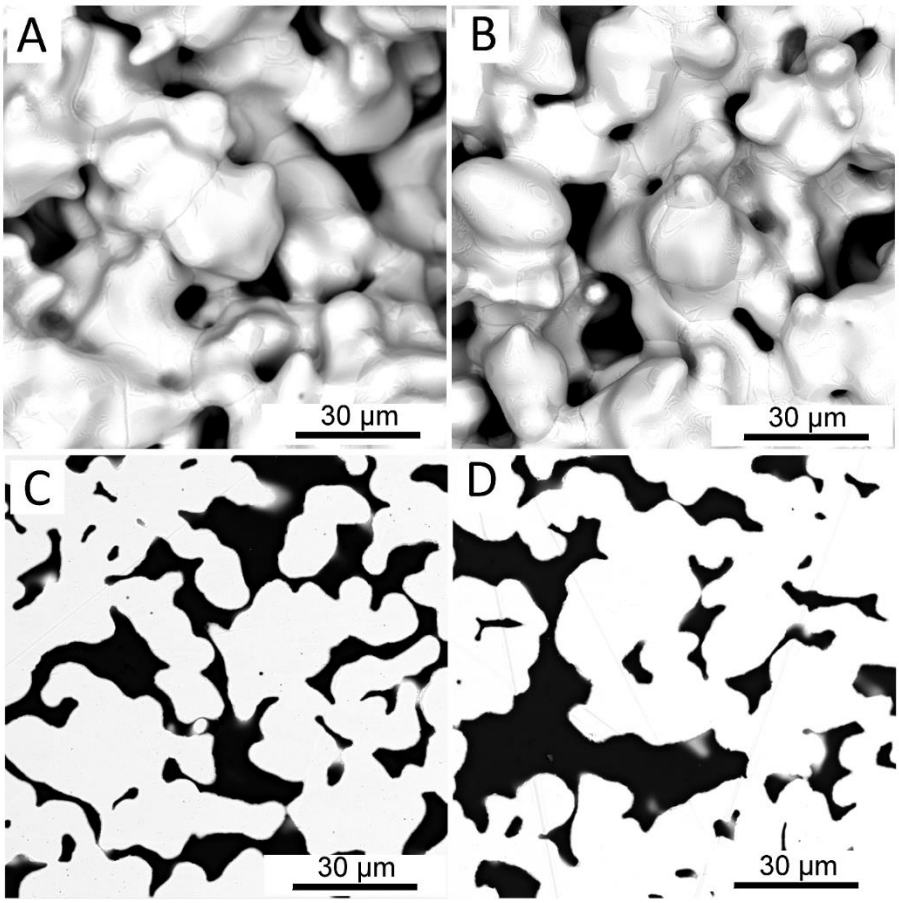

Figure S.1. SEM images of non-oxidised A) surface, C) cross-section of Fe20Cr alloy and B) surface, D) cross-section of Fe27Cr alloy.

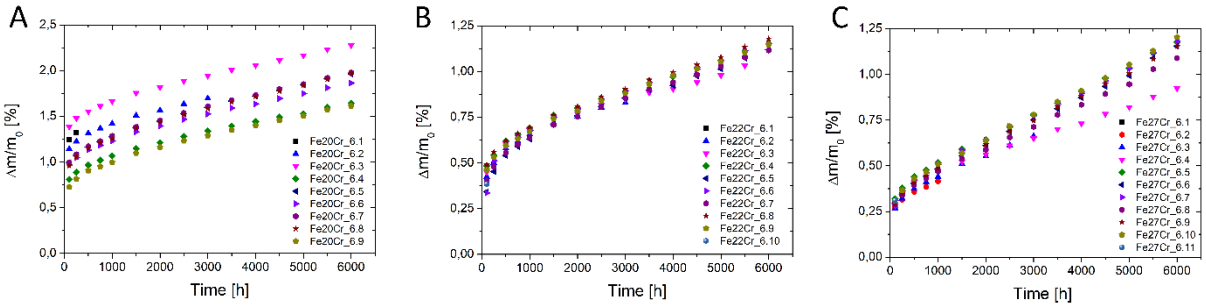

Figure S.2. The mass gain of the individual A) Fe20Cr B) Fe22Cr and C) Fe27Cr specimens oxidised at 600°C.

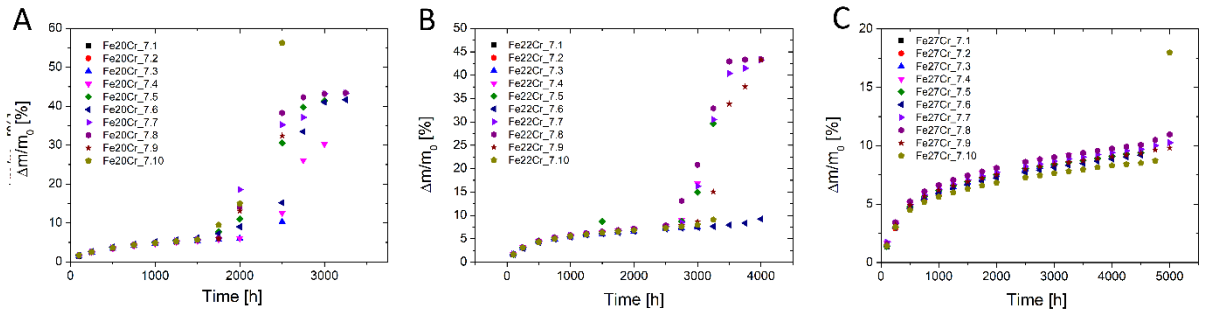

Figure S.3. The mass gain of the individual A) Fe20Cr B) Fe22Cr and C) Fe27Cr specimens oxidised at 700°C.

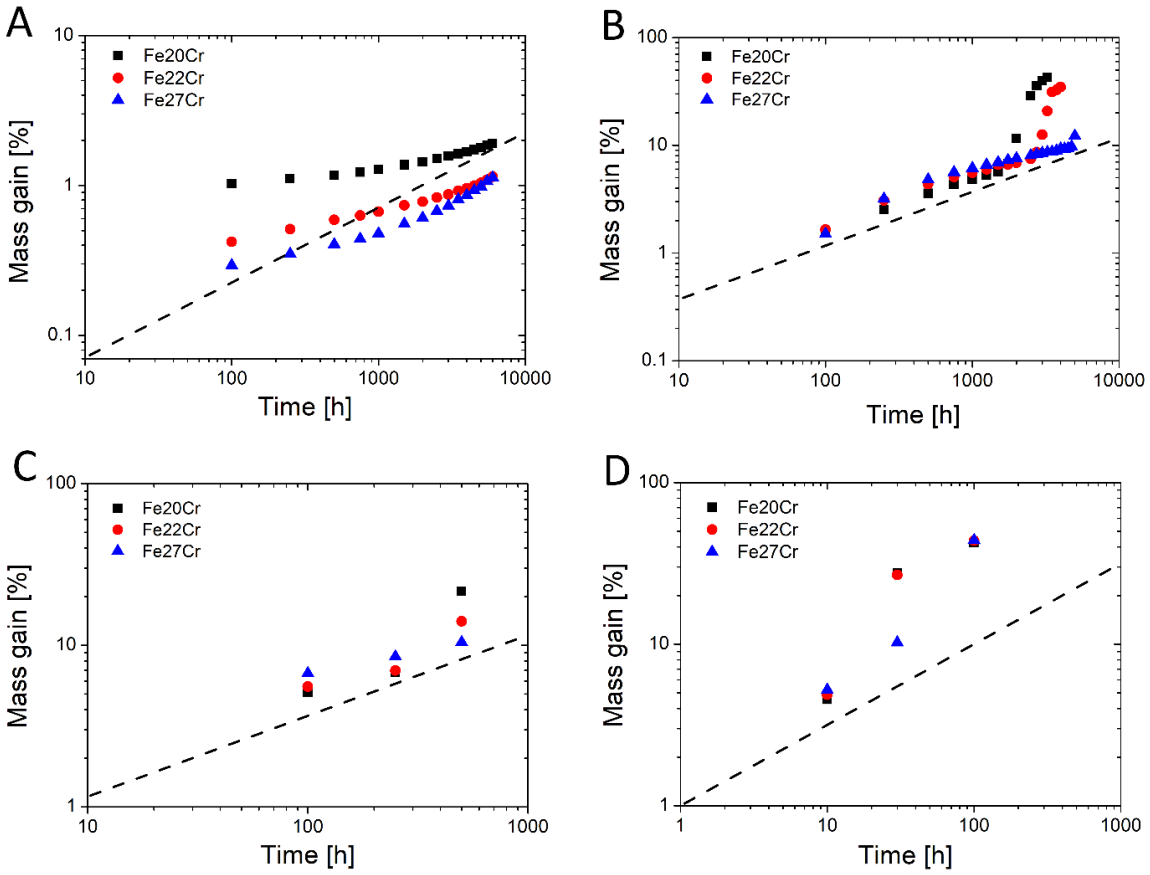

Figure S.4. The log-log plot of mass gain data for Fe20Cr, Fe22Cr and Fe27Cr oxidised at A) 600°C, B) 700°C, C) 800°C and D) 900°C. The dash lines represent 0.5 slope lines.

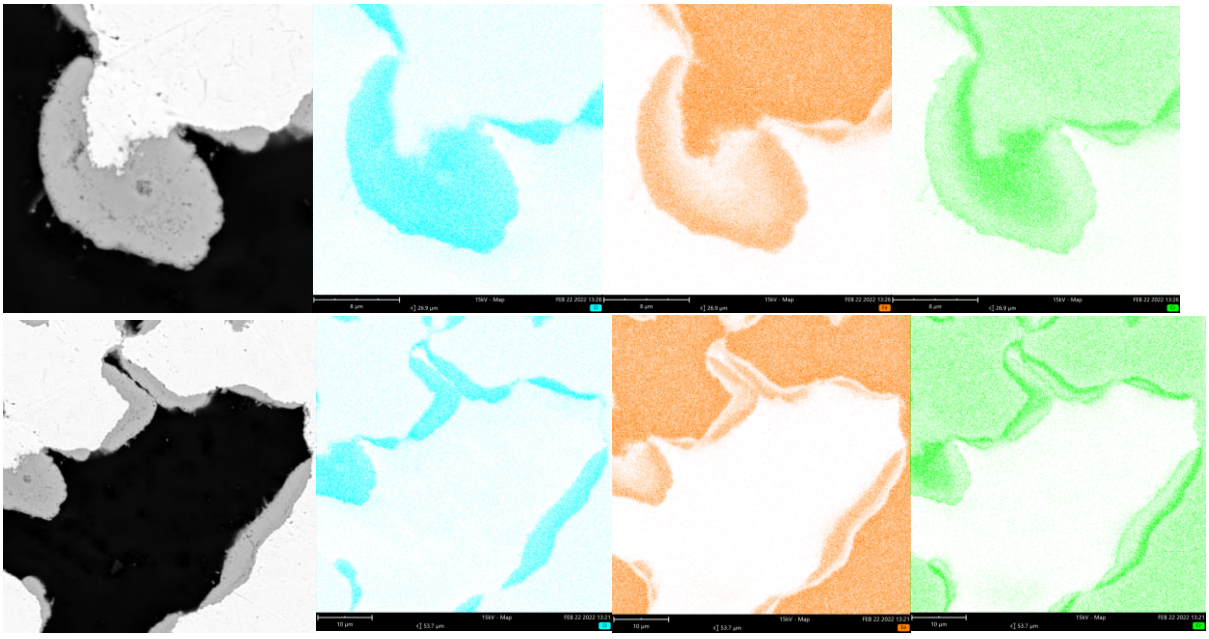

Figure S.5. EDX analysis of Fe20Cr alloy after 6000 h oxidation at 600°C.

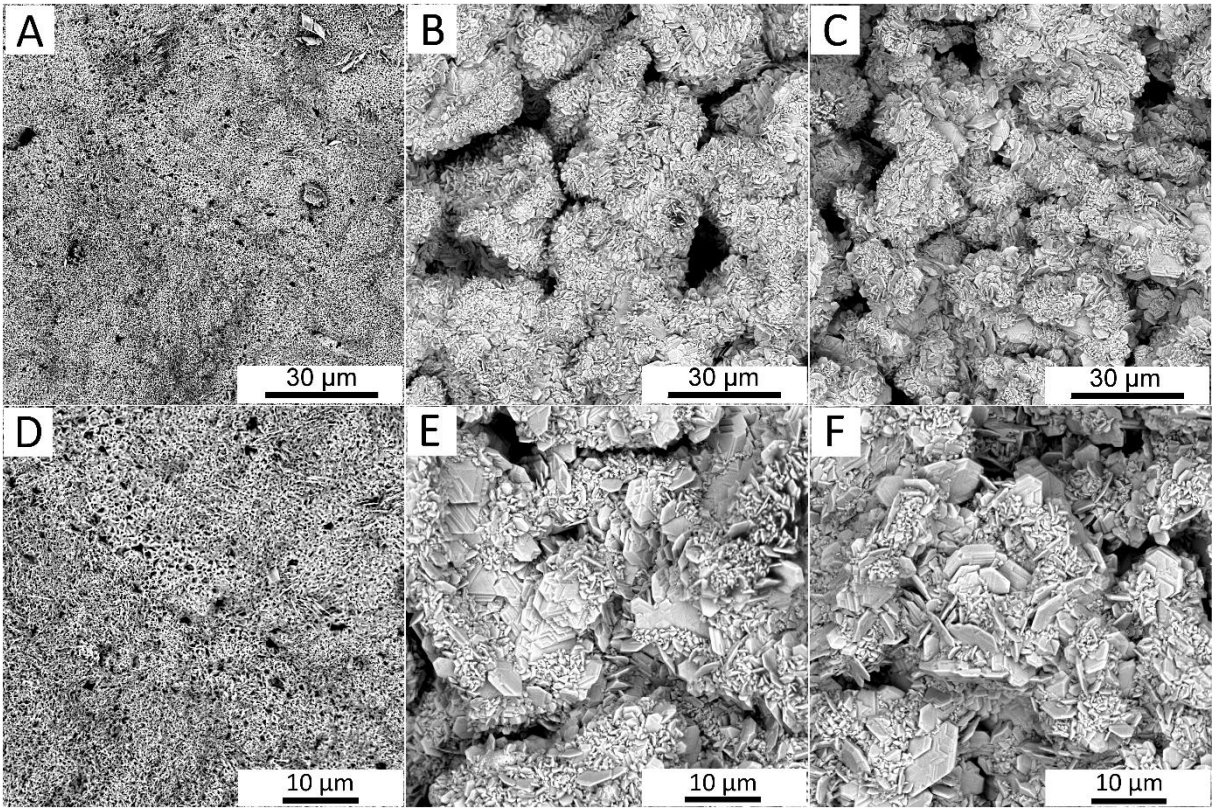

Figure S.6. SEM images of A, C) Fe20Cr, B, E) Fe22Cr and C, F) Fe27Cr alloy surface after oxidation at 700°C for 3000 h.

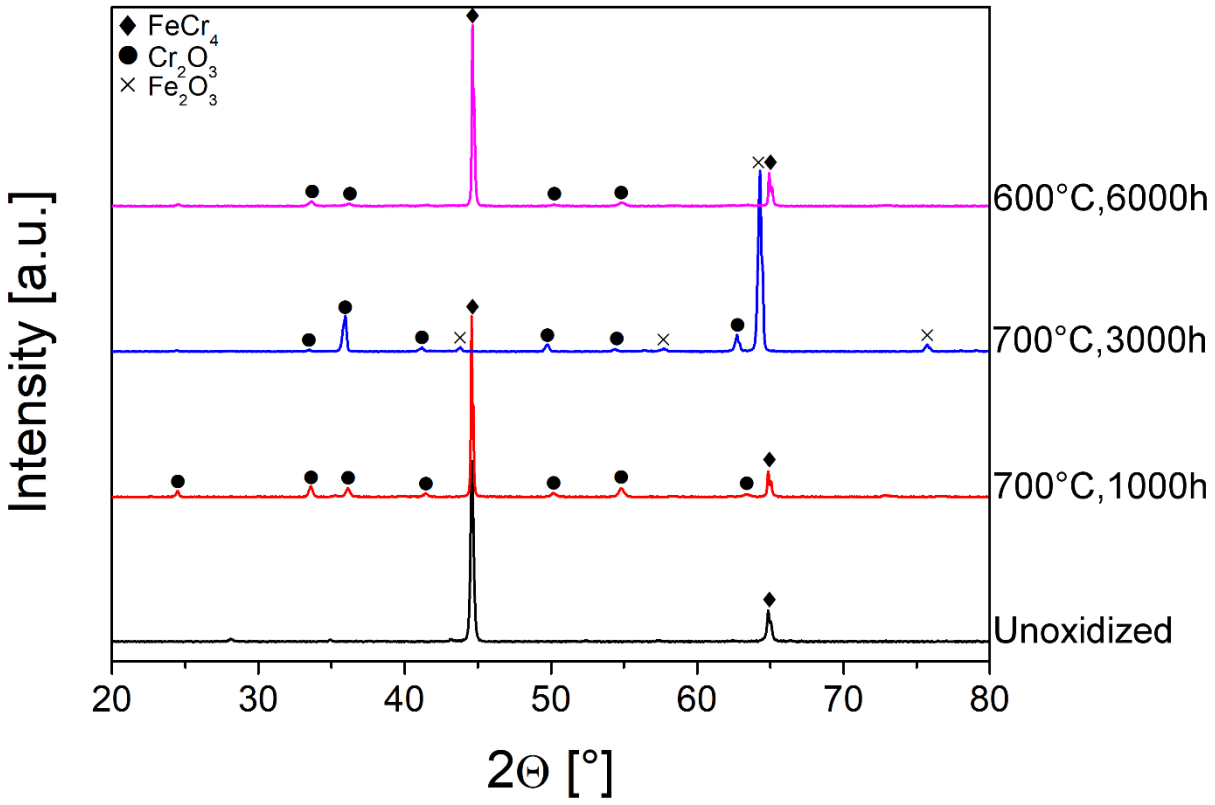

Figure S.7. XRD patterns of the reference Fe22Cr alloy and after different steps of oxidation.