

Erratum

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Portable XRF on Prehistoric Bronze Artefacts: Limitations and Use for the Detection of Bronze Age Metal Workshops

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Table 2. The data measured by the XRF device on the artefacts from Mecklenburg (German Mining Museum, Bochum). In order to compare the measurements, the patina type is given based on a superficial examination (including visible profile sections) of the artefacts. Additional, the major corrosion elements are given in values, the less frequent elements are named (< indicates a measurement below the detection limit of the device of around 50ppm).

The table contains mistakes in the Iron (Fe) column. The correct table 2 is as follows:

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ID	location	sample position	patina*	metal										major corrosion elements				
				Cu	Sn	Pb	As	Ni	Bi	Sb	Zn	Fe	Al	P	Si			
				in %	in %	in %	in %	in %	in %	in %	in %	in %	in %	in %	in %			
191	Gielow, MSE	arm ring, polished part	removed	85.67	11.27	0.22	0.17	0.394	<	0.091	0.13	0.157				1.5	Nb/Ti/Zr	
193	Gielow, MSE	arm ring, polished part	removed	84.66	11.46	0.11	0.299	0.705	<	0.139	0.083	0.118				1.97	Ti	
199	Mecklenburg	neck collar, end	removed	84.66	13.83	0.13	0.33	0.376	0.009	0.088	0.107	0.045					Ti/Zr	
224	Bütow, MSE	neck collar, profile	type I	83.71	11.55	0.09	0.194	0.377	<	0.381	<	0.177				2.6	Ti	
262	Bütow, MSE	neck collar, inside	type I	84.84	11.83	0.09	0.2	0.421	<	0.389	<	0.146				1.58	Ti	
192	Gielow, MSE	arm ring, inside	type I	81.68	12.24	0.17	0.233	0.492	<	0.107	0.131	0.113		1.22		2.8		
194	Gielow, MSE	arm ring, inside	type I	81.27	14.31	0.13	0.38	0.624	<	0.177	0.101	0.075		0.47		2.04		
238	Heinrichswalde, MSE	disc head pin, head	type I	86.68	9.25	0.77	0.199	0.214	<	<	0.048	0.464				0.62	Ti/Zr	
263	Lubmin, VPG	neck collar, inside	type I	38.48	49.36	0.15	0.218	<	0.025	<	0.147	6.098		0.71		3.4	Ti	
264	Lubmin, VPG	neck collar, front	type I	34.02	46.4	0.14	0.173	<	0.022	<	0.118	2.778	8.52	1.14		5.99	Ti/W	
195	Mecklenburg	neck collar, front	type I	79.98	15.16	0.16	0.198	0.275	<	0.047	0.112	0.049		0.67		2.98	Ti/Zr	
198	Mecklenburg	neck collar	type I	80.83	13.72	0.17	0.377	0.344	0.013	0.07	0.093	0.114				2.76	Ti/Zr	
203	Mecklenburg	neck collar, triangle piece	type I	41.56	42.28	1.57	0.549	0.087	0.075	<	0.134	0.592	5.13	2.19		4.97	Ti/W	
289	Mecklenburg	neck collar, triangle inside	type I	37.37	47.73	1.74	0.549	0.092	0.087	<	0.114	0.75		2.06		5.4	Ti/W	
219	Mecklenburg	neck collar, inside	type I	77.29	18.35	0.41	0.219	0.147	0.013	0.038	0.137	0.216		1.55		1.26	W/Zr	
220	Mecklenburg	neck collar, front	type I	68.79	23.96	0.61	0.397	0.385	0.032	0.064	0.212	0.183		3.44		1.28	Ti/W	
256	Mecklenburg	neck collar, end	type I	62.02	31.37	0.49	0.251	0.242	0.03	0.063	0.122	0.325		2.59		1.44	W	
257	Mecklenburg	neck collar, front rib	type I	69.24	24.76	0.59	0.411	0.226	0.036	0.06	0.199	0.288		2.23		1.4	Ti/W	
258	Mecklenburg	neck collar, front decor	type I	70.69	22.36	0.57	0.352	0.306	0.023	0.053	0.188	0.143		2.46		1.23	Ti	
226	Mecklenburg	neck collar, front	type I	66.16	19.41	1.05	0.445	0.458	0.081	0.154	0.134	0.488		1.2		8.64	Ti	
200	Möllen, LRO (GÜ)	neck collar	type I	78.32	16.26	0.2	0.271	0.137	<	<	0.125	1.223				2.99	Ti	
197	Pisede, MSE	neck collar, inside	type I	81.32	12.89	0.48	0.315	0.62	0.026	0.126	0.184	0.079		1.34		1.47	Ti/Zr	
265	Pisede, MSE	neck collar, front decor	type I	79.99	13.96	0.52	0.326	0.68	0.032	0.107	0.158	0.064		1.2		1.56	Ti	
215	Poltnitz, LUP	leg ring, inside ring	type I	83.35	11.48	0.16	0.19	0.346	<	<	0.124	0.317		1.08		1.34	Mn/	
																	Ti/V/Zr	
233	Poltnitz, LUP	armring, fragment	type I	71.81	8.88	0.32	0.1	0.463	<	<	0.049	0.42	8.96	4.7		3.19	Mn/Ti/V	
252	Poltnitz, LUP	leg ring, inside ring	type I	83.59	9.34	0.3	0.295	0.52	0.013	0.497	0.149	0.151		1.52		1.46	Mn/Nb/	
																	Ti/V/Zr	
261	Poltnitz, LUP	armring, fragment	type I	82.93	10.01	<	0.297	0.866	<	0.066	<	0.36		2.76		1.81	Ti/V	
211	Sparow, MSE	disc head pin	type I	81.76	14.53	0.26	0.337	0.518	0.014	0.11	0.1	0.189		0.81		0.93	Ti	
213	Wotenitz, NWM	neck collar, inside	type I	22.01	44.43	<	0.529	0.148	<	<	0.131	22.352		0.48		7.96	Mn/Ti	

ID	location	sample position	patina*	metal										major corrosion elements				
				Cu	Sn	Pb	As	Ni	Bi	Sb	Zn	Fe	Al	P	Si			
				in %	in %	in %	in %	in %	in %	in %	in %	in %	in %	in %	in %			
214	Wotenitz, NWM	neck collar, front	type I	21.29	45.87	0.01	0.548	0.17	<	<	0.152	21.059		0.53	9.08	Mn/ Ti/W/Zr		
253	Wotenitz, NWM	neck collar, less patina	type I	47.23	29.98	<	0.392	0.224	<		0.205	11.119		0.24	8.58	Mn/Ti		
221	Alt Sammit, LRO (GÜ)	neck collar, front	type I+	65.55	23.96	0.8	0.625	0.351	0.045	0.198	0.22	0.405		3.1	4.01	Mo/Ti		
259	Alt Sammit, LRO (GÜ)	neck collar, inside	type I+	66.68	21.5	0.84	0.514	0.351	0.039	0.201	0.221	0.432		2.88	5.64	Ti		
201	Alt Sammit, LRO (GÜ)	neck collar, coating	type I+	58.00	29.52	1.11	0.691	0.442	0.048	0.223	0.323	0.933		2.68	3.1	Ti/W		
231	Karbow, LUP	disc head pin, head	type I+	76.67	9.45	0.27	0.15	0.384	<	0.062	0.124	0.738			7.12	Mn/ Ti/V/Zr		
235	Lubmin, VPG	neck collar, coating	type I+	35.96	40.67	0.15	0.209	<	0.022	<	0.123	7.728	6.76	0.89	6.8	Ti		
242	Thürkow, LRO (GÜ)	neck collar, inside	type I+	51.63	39.46	1.07	0.462	0.328	0.071	0.092	0.078	3.022		1.34	1.87			
243	Thürkow, LRO (GÜ)	neck collar, front/end	type I+	41.9	43.56	1.14	0.483	0.682	0.068	0.131	0.158	2.124		3.35	3.58	Ti		
208	Alt Sammit, LRO (GÜ)	ring knife, tip	type I-II	31.91	32.19	31.23	<	0.224	<	0.826	1.65	0.18						
209	Alt Sammit, LRO (GÜ)	ring knife, centre	type I-II	54.08	32.99	0.67	0.888	0.673	0.042	0.162	0.352	0.216		3.97	2.49	Ti/W		
244	Amt Grabow (Wittenmoor), LUP	neck collar, front	type I-II	58.32	23.35	1.33	0.521	0.423	0.057	<	0.21	0.284	7.15	4.6	2.85	Ti		
293	Amt Grabow (Wittenmoor), LUP	neck collar, inside	type I-II	50.49	23.83	1.35	0.37	0.17	0.054	<	0.162	0.457		5.32		Ti/V/W		
232	Dabel, LUP (PCH)	belt disc	type I-II	82.06	13.96	0.23	0.335	0.281	<	0.149	0.075	0.238			2.31			
212	Karbow, LUP	neck collar, inside	type I-II	78.8	14.85	0.18	0.316	0.31	<	<	0.148	0.099		2.21	1.32	Ti/Zr		
247	Lübz, LUP	neck collar, outside	type I-II	81.61	12.93	0.61	0.089	0.167	0.024	0.4	0.115	0.042			2.83	Ti/W		
248	Lübz, LUP	neck collar, inside	type I-II	82.53	12.95	0.59	0.175	0.327	0.024	0.372	0.164	<			1.78	Ti/W/Zr		
236	Poltnitz, LUP	neck collar, inside	type I-II	73.51	21.46	0.04	0.089	0.09	<	<	0.152	0.772		1.33	1.46	Ti/W/Zr		
237	Poltnitz, LUP	neck collar, decor	type I-II	73.45	22.45	0.04	0.073	0.084	<	<	0.115	0.998		1.25	0.96	Mn/Ti/W		
249	Sparow, MSE	neck collar, inside	type I-II	73.83	19.98	0.42	0.518	0.618	0.016	0.182	0.115	0.115		2.21	1.37	Ti/W		
250	Sparow, MSE	neck collar, front	type I-II	72.53	21.83	0.45	0.644	0.743	0.017	0.192	0.082	0.17		1.05	1.59	Ti/W		
217	Wozinkel, LUP	neck collar, front decor	type I-II	75.96	16.69	0.38	0.615	1.001	0.036	0.122	0.16	0.14		2.96	1.17	Ti/V		
218	Wozinkel, LUP	neck collar, end	type I-II	75.18	16.89	0.32	0.634	0.859	0.035	0.113	0.152	0.227		1.78	2.07	Ti/V/Zr		
210	Alt Sammit, LRO (GÜ)	ring knife, ring	type II	57.73	26.21	0.65	0.623	0.51	0.031	0.135	0.26	0.251		6.05	2.82	Ti/V		
227	Amt Grabow, LUP	belt disc	type II	71.52	19.91	0.1	0.718	0.598	<	0.311	0.11	0.314		2.44	3.22	Ti		
205	Boldebeck, LRO (GÜ)	neck collar, inside	type II	85.73	12.53	0.37	0.289	0.038	0.01	0.141	0.14	0.066				Cr		
222	Bütow, MSE	neck collar, front	type II	56.53	26.23	0.03	0.367	0.343	<	0.677	0.131	1.322	5.58	2.52	5.62	Ti/V/W		
234	Friedrichsruhe, LUP	neck collar, fragment	type II	77.21	16.03	0.35	0.38	0.314	0.012	0.061	0.102	0.098		2.78	1.47	Mn/Ti/V		
246	Kremmin, LUP	neck collar, inside	type II	68.51	10.71	0.19	0.112	0.145	0.014	0.041	0.062	0.379	4.8	1.22	13.21	Mn/Ti/Zr		
286	Kremmin, LUP	neck collar, front	type II	66.96	8.78	0.18	0.106	0.222	0.008	<	0.072	0.381	6.58	1.87	14.42	Mn/Ti/Zr		

[illegible]