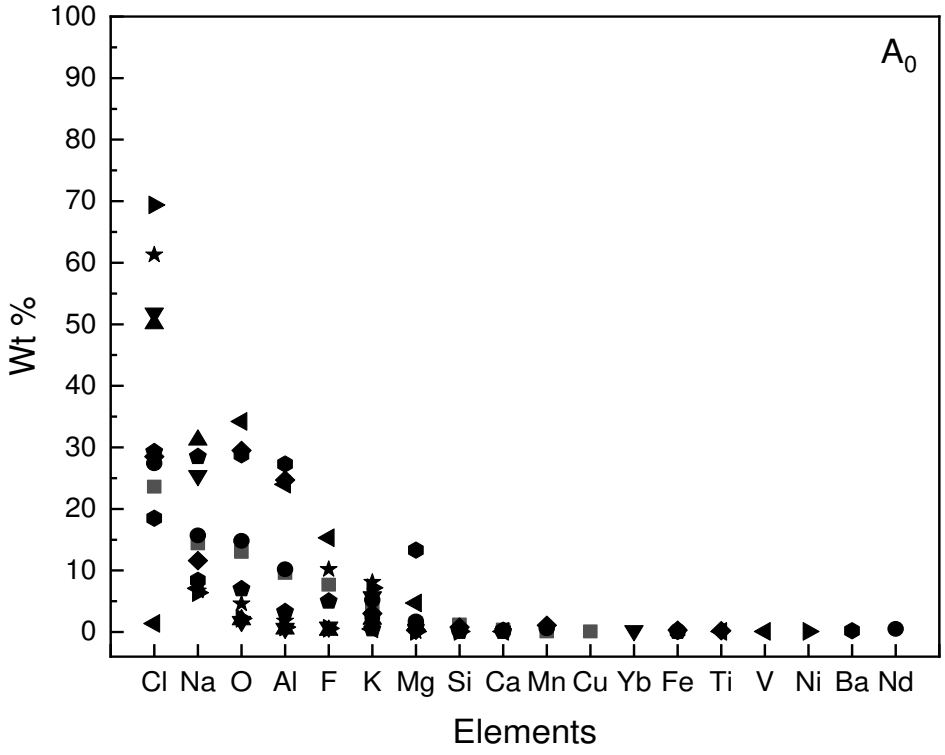
Table S1. XRF data of black dross from two different sources before (A_0, B_0) and after (A_1, B_1) salt-phase dissolution in glycerol and ethanol. SE = standard error.

Elements	Sample A_0		Sample A_1		Sample B_0		Sample B_1	
	Value %	SE %	Value %	SE %	Value %	SE %	Value %	SE %
Na	16.895	3.566	10.516	1.725	8.908	1.196	1.416	0.164
Mg	1.194	1.104	2.659	0.307	4.206	0.145	7.937	6.608
Al	20.761	6.32	28.504	11.445	28.122	2.56	53.981	3.862
Si	1.934	0.604	2.071	1.452	3.364	0.238	3.57	1.056
P	0.226	0.167	0.01465	0.00167	0.29	0.286	0.387	0.34177
S	0.04853	0.02077	0.06457	0.04957	0.06169	0.02031	0.08522	0.00158
Cl	35.765	0.856	11.206	2.85	26.665	3.238	6.802	4.158
K	7.873	2.221	3.046	1.177	10.346	0.4325	5.48	1.652
Ca	1.008	0.506	1.205	0.416	2.283	1.036	3.545	1.9
Ti	0.329	0.0418	0.379	0.174	0.392	0.23	0.746	0.384
V	0.169	0.0191	0.178	0.10207	0.03283	0.00653	ND*	
Cr	0.03625	0.00575	0.03541	0.01761	0.02193	0.02107	0.03343	0.02633
Mn	0.16	0.011	0.09229	0.03729	0.149	0.042	0.242	0.01
Fe	0.656	0.0163	0.518	0.2099	0.543	0.105	0.619	0.4336
Co	ND		0.00581	0.00475	0.00432	0.00432	0.01016	0.01016
Ni	0.02052	0.00862	0.01341	0.008075	0.0071	0.0053	0.00847	0.005899
Cu	0.264	0.0438	0.175	0.0491	0.07844	0.04326	0.093	0.0324
Zn	0.09546	0.03692	0.06651	0.02521	0.04146	0.03286	0.05995	0.03735
Ga	0.00153	0.00217	ND		0.00134	0.00134	ND	
Se	ND		ND		0.00276	0.00276	0.00287	0.00287
Br	0.02243	0.00993	0.00724	0.00724	0.0653	0.0603	0.0333	0.03052
Sr	0.143	0.1412	0.127	0.015	0.00778	0.00542	0.00994	0.001756
Zr	0.01255	0.04525	ND		0.01211	0.01211	0.01553	0.01397
Mo	0.00216	0.06646	ND		ND		ND	
Rh	0.01081	0.00569	0.00758	0.00276	0.0109	0.0109	0.00785	0.00785
Cs	ND		ND		ND		0.81	0.81
Ba	0.08866	0.05369	0.03942	0.01392	0.02127	0.02127	ND	
Ce	ND		ND		0.02229	0.02229	0.04035	0.04035
Pb	0.01373	0.00037	0.01014	0.00576	0.00825	0.00825	0.00733	0.004528
Bi	0.01272	0.00072	ND		0.0034	0.0016	0.00525	0.004037

* Not detectable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Wt %
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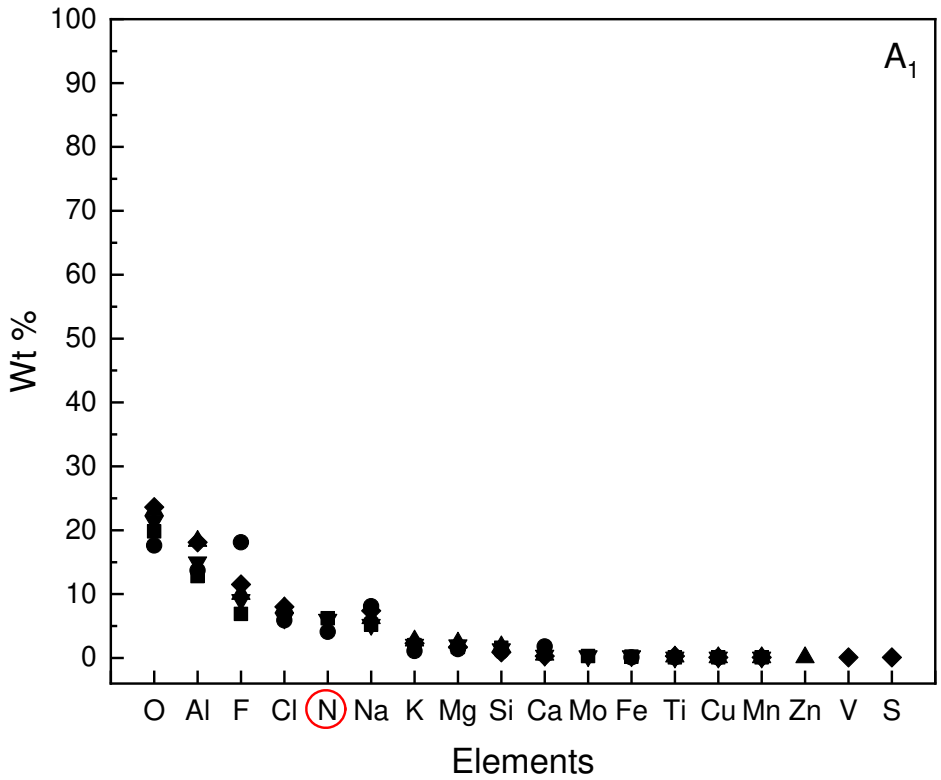
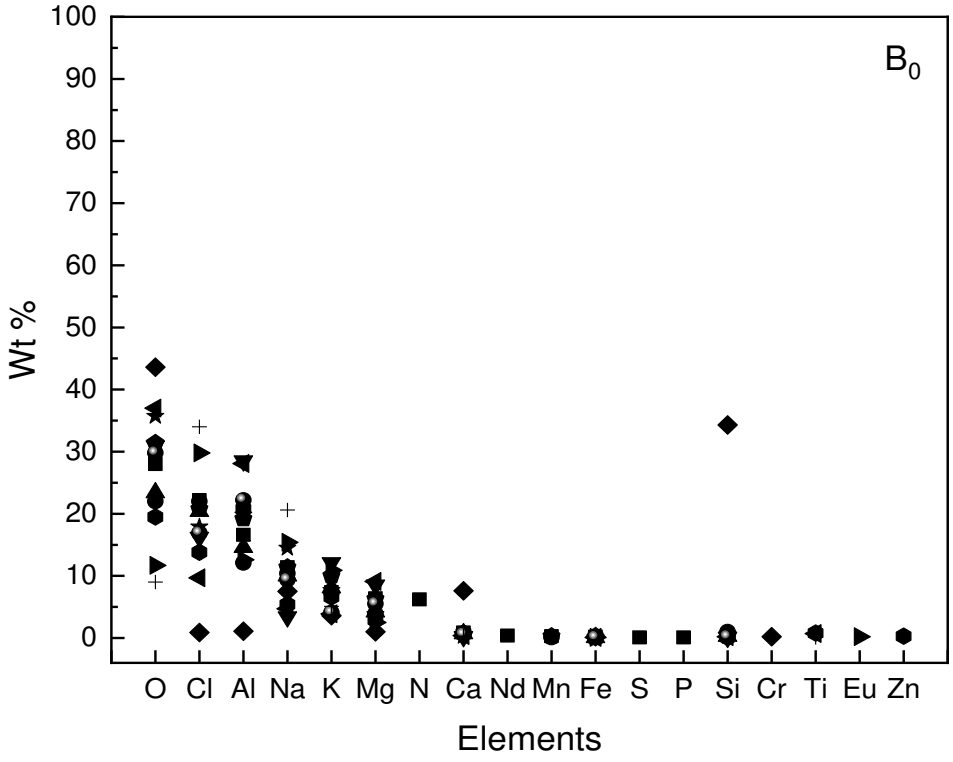
90
80
70
60
50
40
30
20
10
0
Cl Na O Al F K Mg Si Ca Mn Cu Yb Fe Ti V Ni Ba Nd
Elements


A1
Wt %
100
90
80
70
60
50
40
30
20
10
0
O Al F Cl N Na K Mg Si Ca Mo Fe Ti Cu Mn Zn V S
Elements



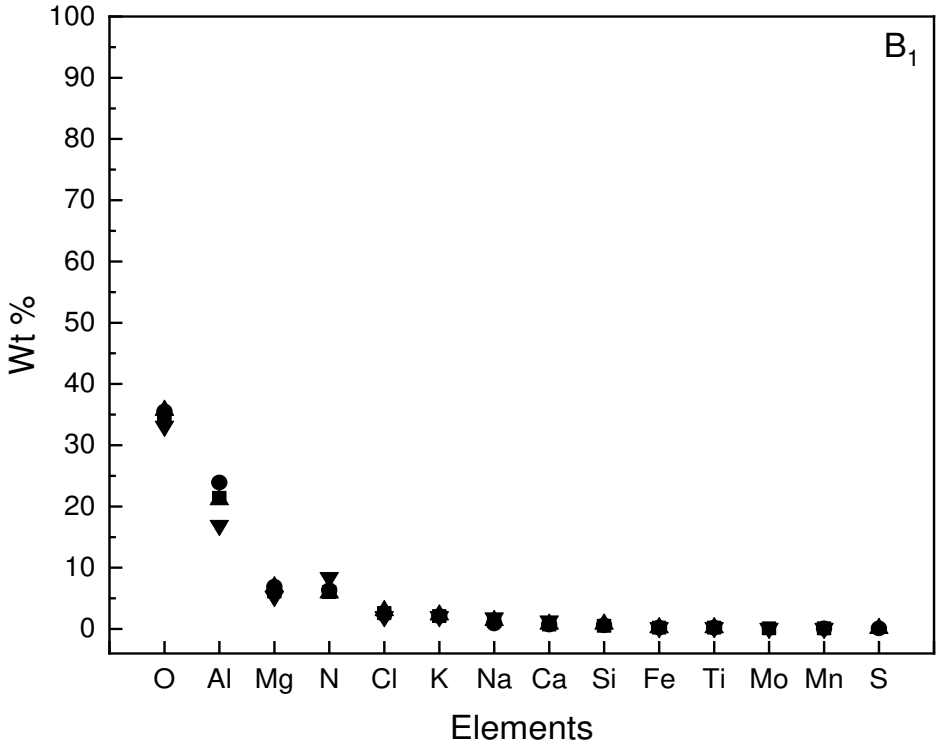


Fig. S1. Chemical analysis of aluminium black dross from two different sources before (A0, B0) and after (A1, B1) salt-phases dissolution in glycerol and ethanol by EDX (The various symbols represent the values for elements obtained from multiple scans)

Table S2. Elements existence in both samples by XRF and EDS

Elements	Detectable in XRF (*), in EDS (√), Not detectable (–)			
	A_0	A_1	B_0	B_1
O	√	√	√	√
Al	*√	*√	*√	*√
Cl	*√	*√	*√	*√
Na	*√	*√	*√	*√
K	*√	*√	*√	*√
Mg	*√	*√	*√	*√
Si	*√	*√	*√	*√
Ca	*√	*√	*√	*√
Fe	*√	*√	*√	*√
Ti	*√	*√	*√	*√
Mn	*√	*√	*√	*√
N	–	√	√	√
Zn	*	*√	*√	*
S	*	*√	*√	*√
Mo	*	√	–	√
Nd	√	–	√	–
F	√	√	–	–
Cu	*√	*√	*	*
V	*√	*√	*	–
Yb	√	–	–	–
Ba	√	–	–	–
Ni	*√	*	*	*
P	*	*	*√	*
Cr	*	*	*√	*
Eu	–	–	√	–
Co	–	*	*	*
Ga	*	–	*	–
Se	–	–	*	*
Br	*	*	*	*
Sr	*	*	*	*
Zr	*	–	*	*
Rh	*	*	*	*
Cs	–	–	–	*
Ce	–	–	*	*
Pb	*	*	*	*
Bi	*	–	*	*