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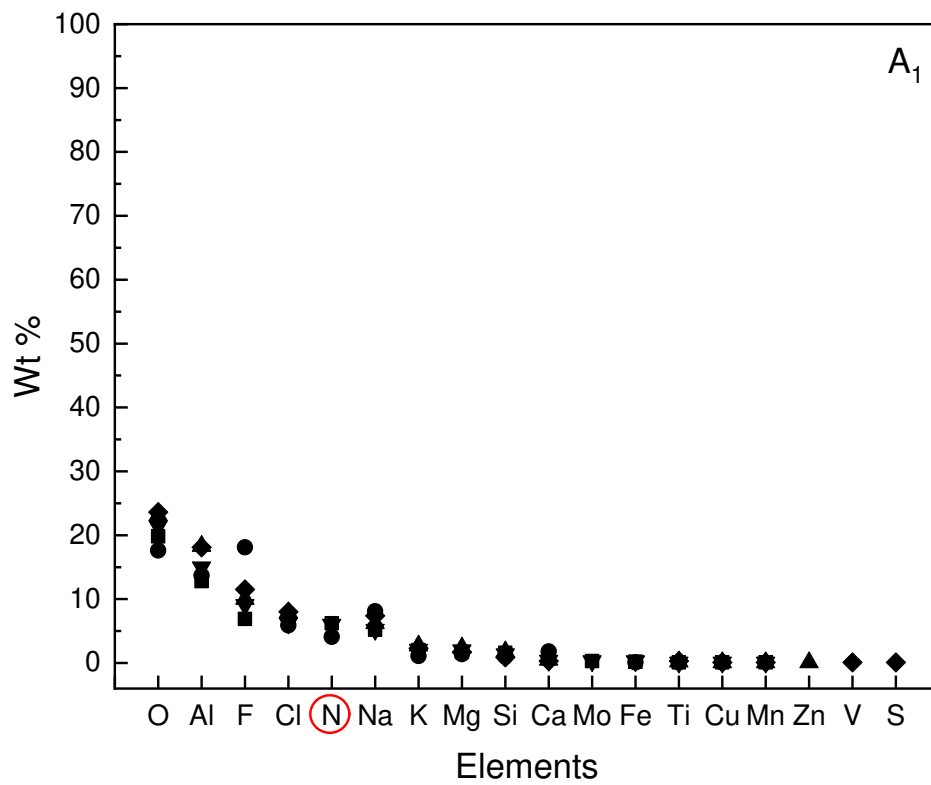
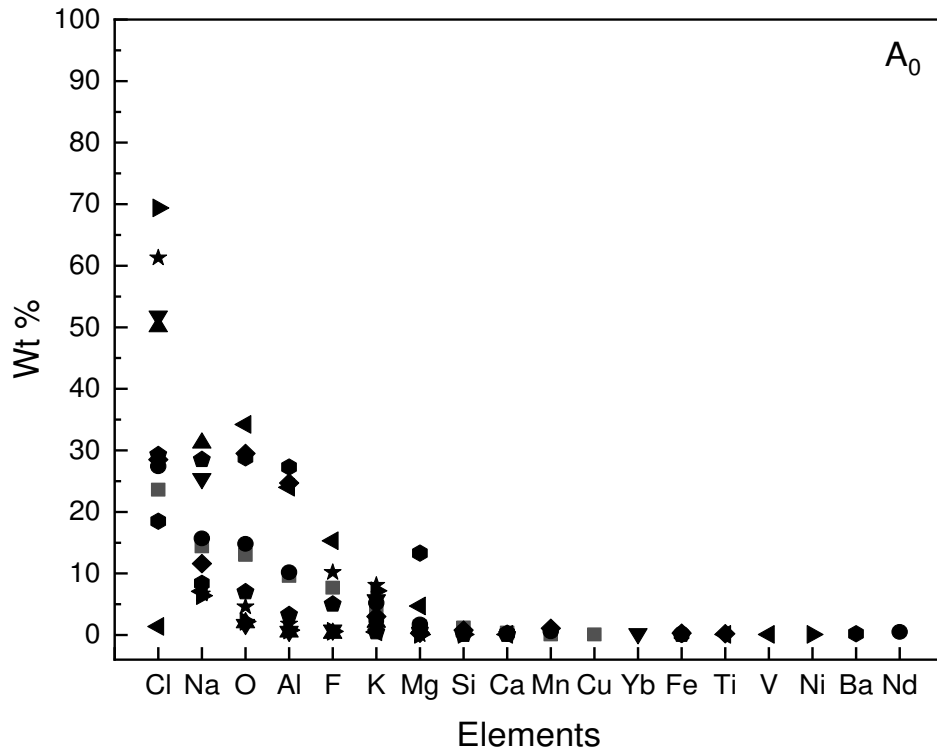


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Table S1. XRF data of black dross from two different sources before (A₀, B₀) and after (A₁, B₁) salt-phase dissolution in glycerol and ethanol. SE = standard error.

| 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



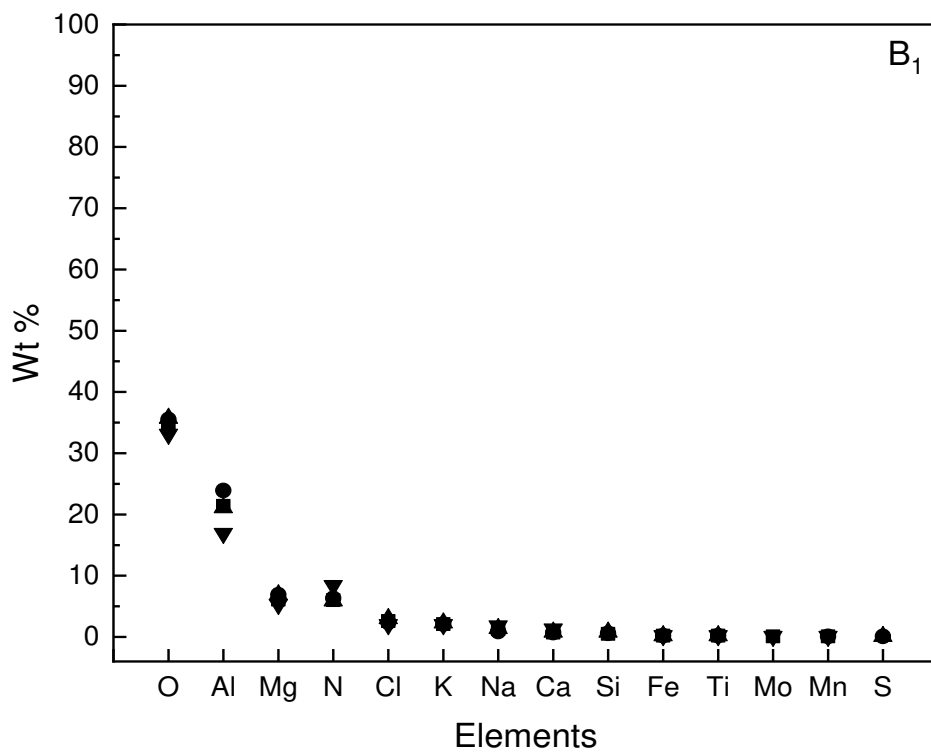
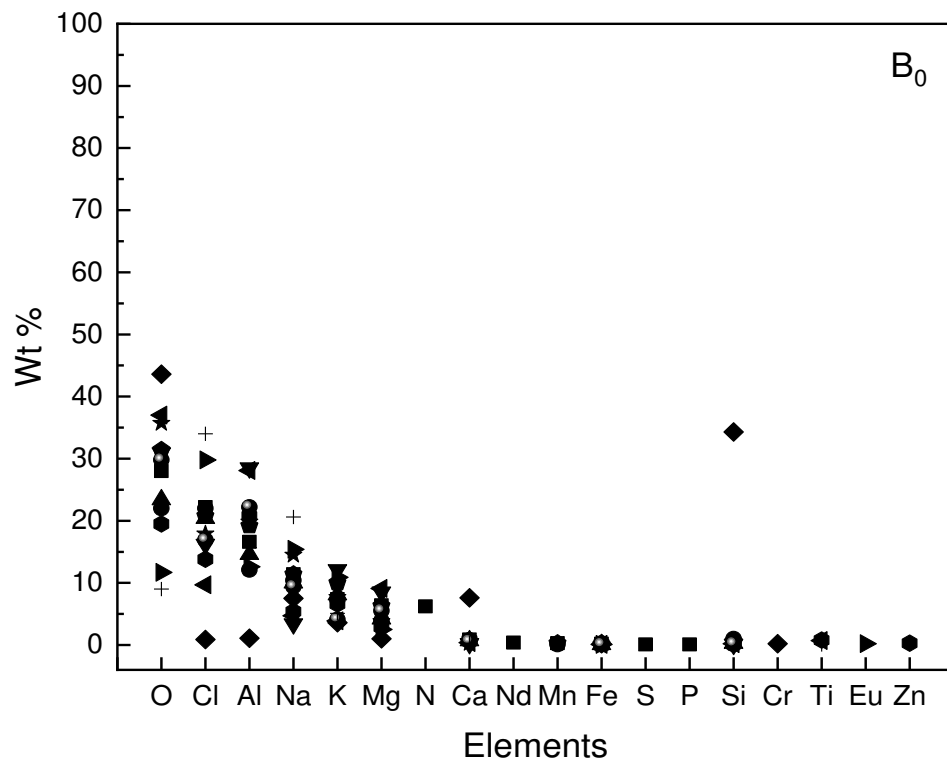


Fig. S1. Chemical analysis of aluminium black cross from two different sources before (A₀, B₀) and after (A₁, B₁) salt-phases dissolution in glycerol and ethanol by EDX (The various symbols represent the values for elements obtained from multiple scans)

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 | * | – | * | * |