Electronic Supplementary Material (ESI) for JAAS.


**Table S1** Effect of various modifiers on ion signals.[a] (n = 5)

| | Relative signal | | | | | | |
|---|---|---|---|---|---|---|---|
| | Cu | As | Cd | Sb | Hg | Pb | Bi |
| No modifier | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| 1.0% m/v EDTA | 1.49± 0.11 | 0.94±0.04 | 1.05 ± 0.12 | 0.34± 0.02 | 0.94± 0.11 | 2.04±0.14 | 1.00± 0.09 |
| 1.0% m/v TAC | 0.92± 0.06 | 0.98± 0.07 | 1.19± 0.08 | 1.19± 0.08 | 1.81± 0.16 | 1.14±0.09 | 1.19± 0.09 |
| 1.0%m/v Ascorbic acid | 0.77± 0.09 | 0.66±0.15 | 1.29±0.14 | 1.11±0.16 | 0.15±0.05 | 0.69±0.02 | 0.71± 0.08 |
| 1.0% m/v citric acid | 0.86± 0.09 | 0.55± 0.11 | 0.99± 0.09 | 1.10 ±0.09 | 0.48±0.12 | 0.81±0.01 | 0.69± 0.07 |

[a] Values are means of five measurements ± standard deviation. All data were relative to no modifier. Slurry solution contained 1% m/v sunscreen, 1.0 μg $L^{-1}$ of Cu, As and Cd, 0.5 μg $L^{-1}$ of Hg and Bi, and spiked with various modifiers.

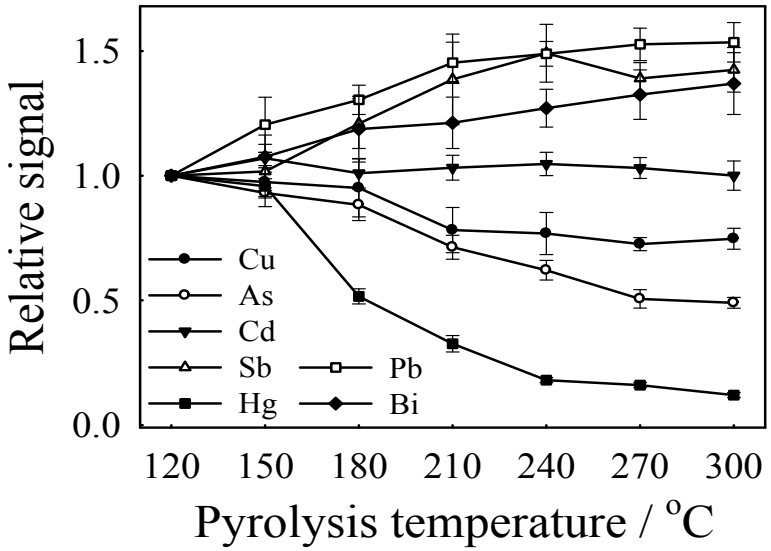


**Fig. S1** Effect of pyrolysis temperature on ion signals. Slurry solution contained 1% m/v sunscreen, 0.5% m/v TAC, 0.2% v/v $HNO_3$, 0.1% m/v Triton X-100 and spiked with 1.0 μg $L^{-1}$ each of Cu, As, Cd and 0.5 μg $L^{-1}$ each of Hg and Bi. Vaporization temperature was set at 1500°C. Each data point represents the mean of five measurements. All data were relative to the first point.

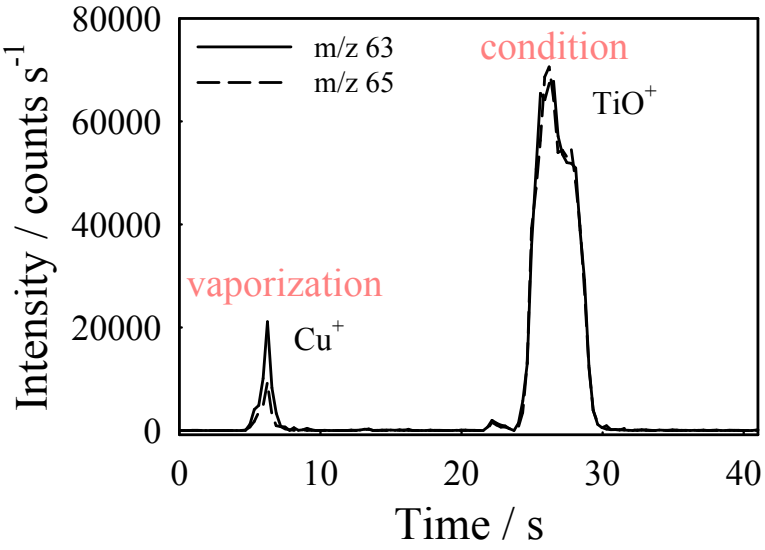


**Fig. S2** ETV-ICP-MS ion signals at m/z 63 and m/z 65. Slurry solution contained 1% m/v Sunscreen 3, 0.5% m/v TAC, 0.2% v/v $HNO_3$, 0.1% m/v Triton X-100. Pyrolysis temperature was set at 150°C; Vaporization temperature and condition temperature was set at 1500°C and 2700°C, respectively. USS-ETV-ICP-MS operating conditions are listed in Tables 1 and 2.