

## Supplementary Materials

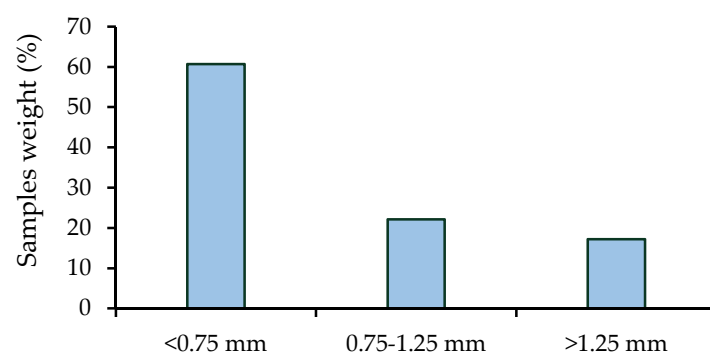
**Table S1.** Elemental composition (wt %) of microchip pieces detached from PCBs after leaching with Fe<sup>3+</sup>.

|                |           |           |           |           |           |           |           |           |           |
|----------------|-----------|-----------|-----------|-----------|-----------|-----------|-----------|-----------|-----------|
| Biotic sample  | <b>Sn</b> | <b>Cu</b> | <b>Ag</b> | <b>Ba</b> | <b>S</b>  | <b>Fe</b> | <b>P</b>  | <b>Gd</b> | <b>K</b>  |
|                | 44.73     | 30.39     | 8.30      | 6.49      | 5.13      | 2.96      | 0.79      | 0.56      | 0.29      |
|                | <b>Si</b> | <b>Mg</b> | <b>Sr</b> | <b>Cl</b> | <b>Al</b> | <b>Na</b> | <b>Ca</b> | <b>Ni</b> | <b>Zn</b> |
|                | 0.18      | 0.12      | 0.06      | bdl       | bdl       | bdl       | bdl       | bdl       | bdl       |
| Abiotic sample | <b>Ba</b> | <b>Cu</b> | <b>Sn</b> | <b>S</b>  | <b>Ag</b> | <b>Fe</b> | <b>Si</b> | <b>Al</b> | <b>Ca</b> |
|                | 34.32     | 19.10     | 18.06     | 10.95     | 5.67      | 3.65      | 1.87      | 1.60      | 1.15      |
|                | <b>P</b>  | <b>Gd</b> | <b>Mg</b> | <b>Ni</b> | <b>K</b>  | <b>Na</b> | <b>Cl</b> | <b>Sr</b> | <b>Zn</b> |
|                | 0.94      | 0.62      | 0.56      | 0.38      | 0.34      | 0.34      | 0.33      | 0.10      | 0.04      |

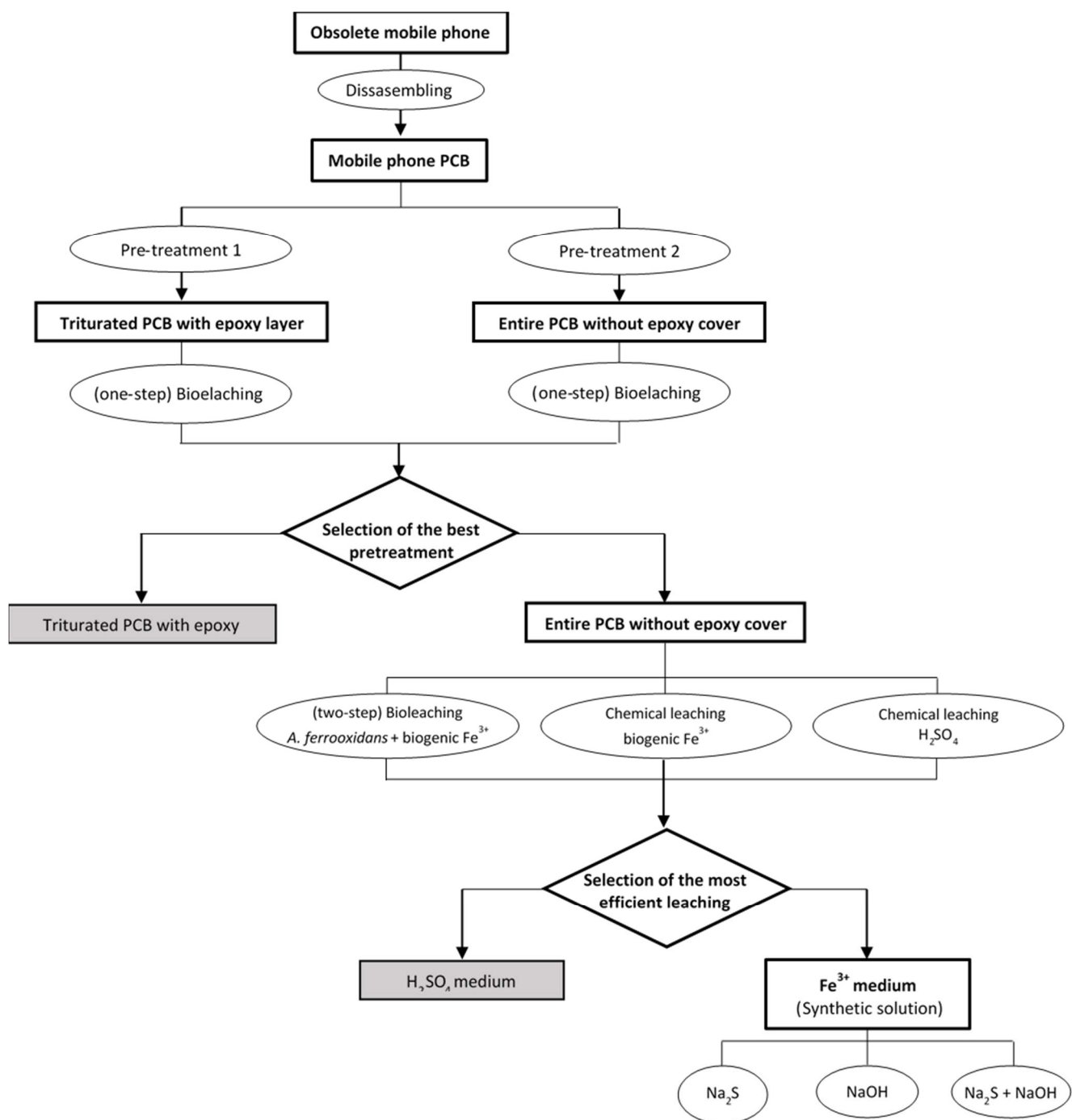
bdl = below detection limit

**Table S2.** Elemental composition (wt %) of submillimetrical components detached from PCBs after leaching with Fe<sup>3+</sup>.

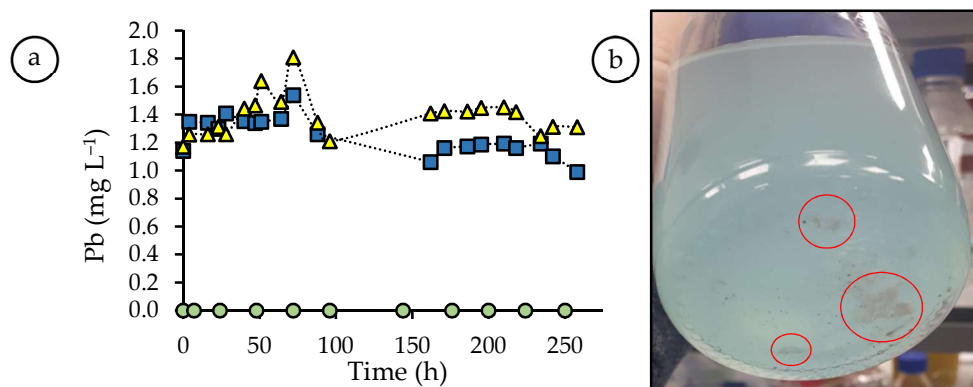
|                |           |           |           |           |           |           |          |           |           |
|----------------|-----------|-----------|-----------|-----------|-----------|-----------|----------|-----------|-----------|
| Abiotic sample | <b>Ni</b> | <b>Ba</b> | <b>Sn</b> | <b>Ti</b> | <b>Fe</b> | <b>Zr</b> | <b>S</b> | <b>Al</b> | <b>Ag</b> |
|                | 31.36     | 26.53     | 7.89      | 7.73      | 6.36      | 5.26      | 3.20     | 2.70      | 2.65      |
|                | <b>Si</b> | <b>Cl</b> | <b>Sr</b> | <b>Cu</b> | <b>K</b>  | <b>Pb</b> |          |           |           |
|                | 1.74      | 1.30      | 1.20      | 1.04      | 0.76      | 0.29      |          |           |           |



**Figure S1.** Particle-size distribution of pulverized PCB.



**Figure S2.** A schematic flowchart illustrating the experimental design.



**Figure S3.** (a) Lead concentration during the two-step bioleaching experiment (blue square) and leaching experiments in abiotic medium, employing biogenic Fe<sup>3+</sup> (yellow triangle) or H<sub>2</sub>SO<sub>4</sub> (green circle) as leaching agents. (b) PbSO<sub>4</sub> precipitate formed in the leaching medium containing H<sub>2</sub>SO<sub>4</sub>.