SUPPORTING INFORMATION

Dismantling of Printed Circuit Boards Enabling Electronic Components Sorting and Their Subsequent Treatment Open Improved Elemental Sustainability Opportunities

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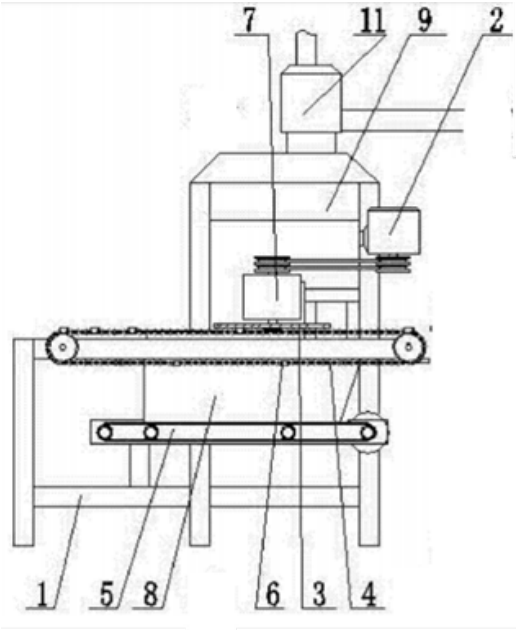

Figure S1 Diagram of the dismantling section, or ECs cutter unit, of the WPCBs recycling tool adapted from reference (Fang, Li et al. 2017) and described in the source article as composed of "a frame (1), a driving motor (2), two cutting knives (3), material carrier chain and belt (4, 6), an ECs collecting bin (5) with its bin support (8), a knife mounting fixture (7), a dust filter (9) and an exhaust fan (11)."

Figure S2 Water soluble ionic liquid-based reactor pilot (~1000 L) for the disassembly of WPCBs and the recovery of wide range of tin based solder alloys. Reproduced from CNIPA 2018 patent application CN201811488109.9A (Li, Dong et al.).

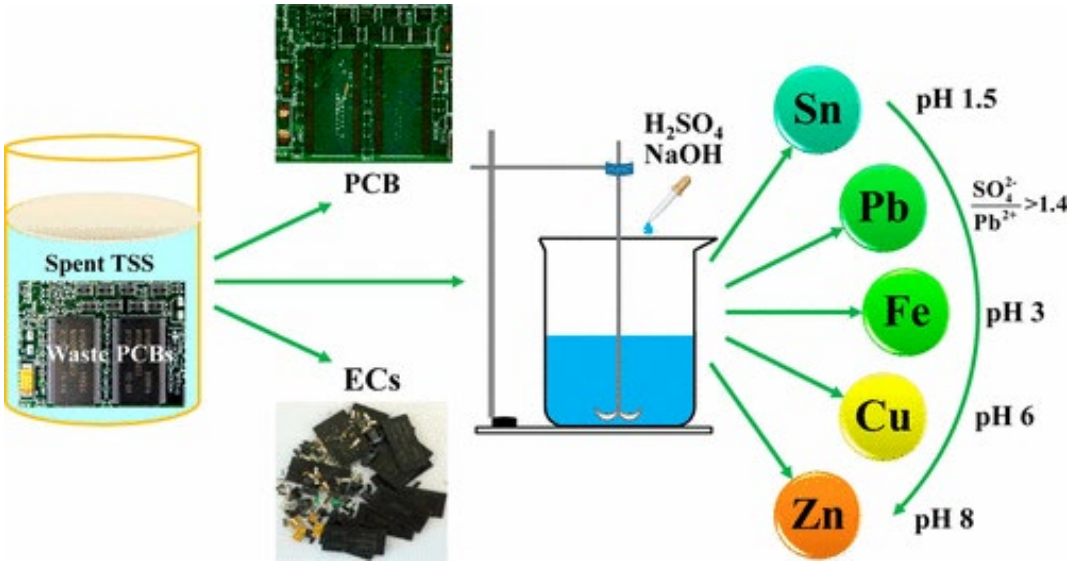

Figure S3 Process flow of the co-processing of WPCBs with spent TSS and metal recovery using selective precipitation. Reprinted with permission from (Yang, Li et al. 2017) Copyright 2017, American Chemical Society.

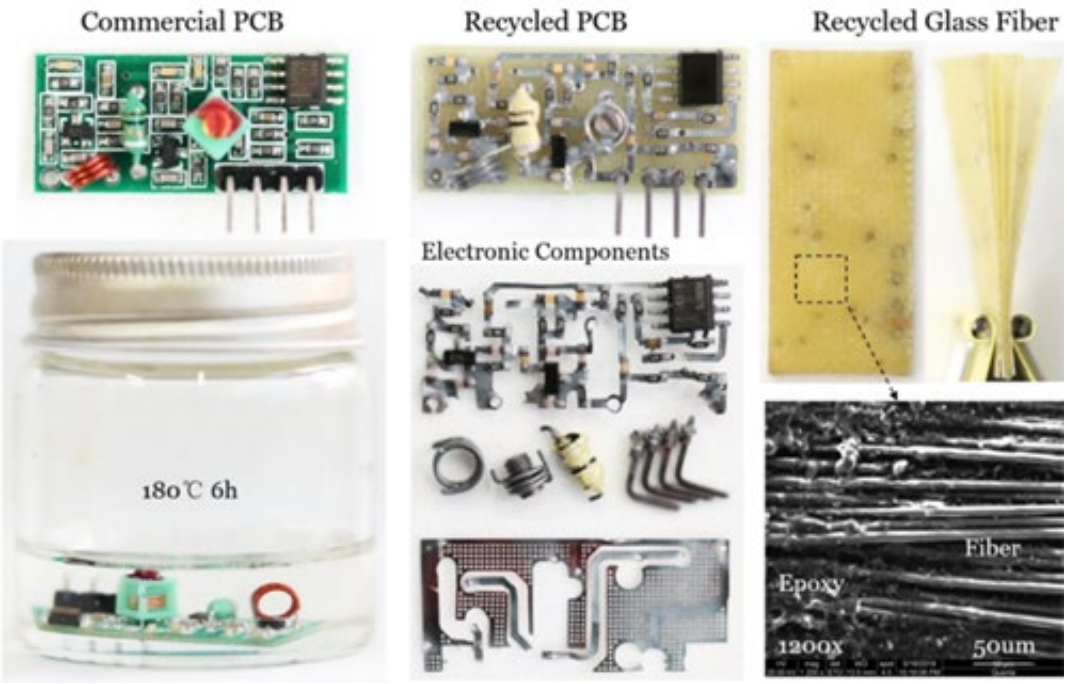

Figure S4 Recycling of WPCB by epoxy dissolution. (a) WPCB and the re-acting vessel. (b)The recovered PCB with its ECs. (c) Recovered fiberglass fiber with their SEM micrograph. Reprinted with permission from reference (Chen, Yang et al. 2019). Copyright 2019, Springer Nature Limited

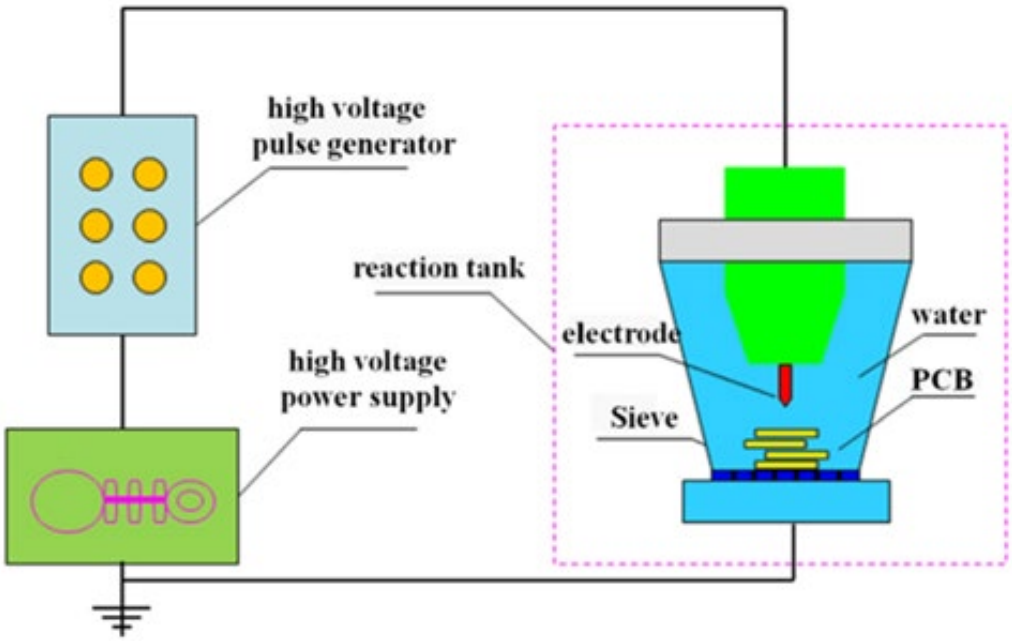

Figure S5 Schematic illustration of SELFRAG Lab High Voltage Pulsed Power Fragmentation System. Reprinted with permission from reference (Duan, Han et al. 2018). Copyright 2018, Elsevier

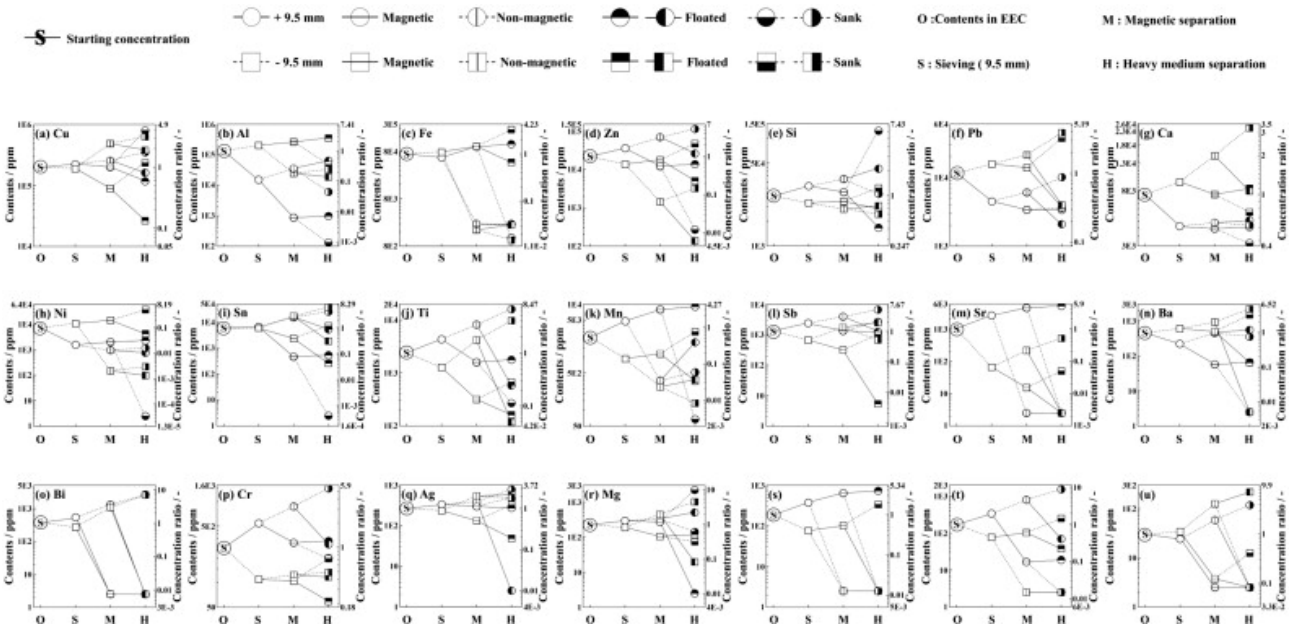

Figure S6 Variation of an element concentration for each step of the sorting process. Reprinted with permission from reference (Lee, Kim et al. 2012), Copyright 2012, Elsevier B.V

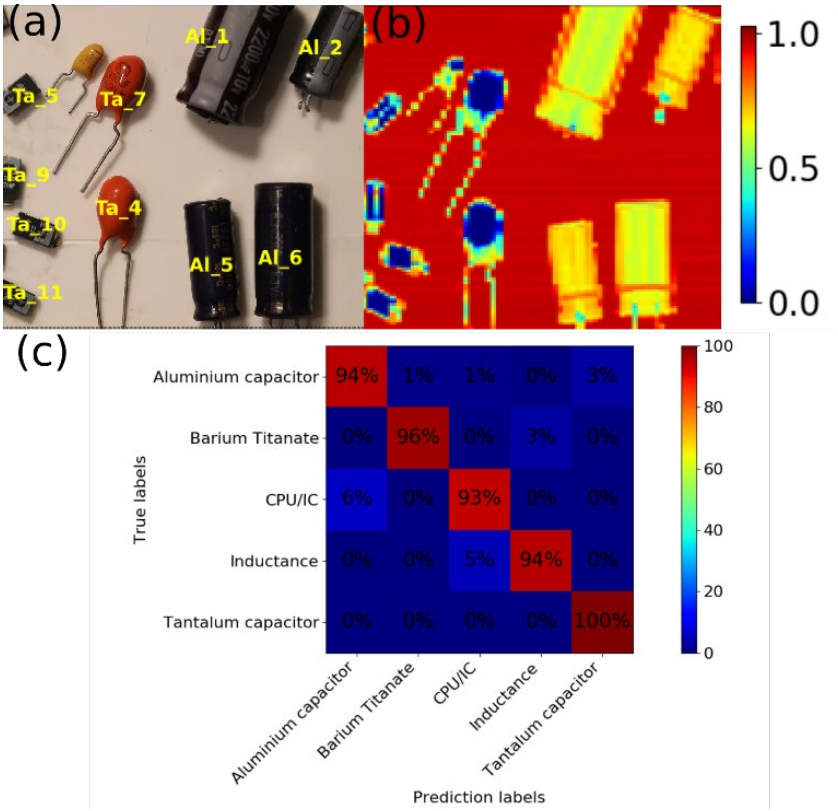

Figure S7 Optical Image (a) and X-ray transmission image (b) of dismantled Tantalum and Aluminium capacitors. The components are manually labelled for the training of the neural networks. (c) Normalised confusion matrix showing the predictions accuracies of the combined model for each class

NOTES AND REFERENCES

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