

Supplementary Material

Compositions and data resources of two target products

Table S1 Main components and materials of PSU

Components Composition	Quantity (p)	Materials Composition	Weight (g)	Weight (%)
Iron Casing	1	Iron	5.59E + 02	43.00%
Transformers	6	Copper	2.08E + 02	16.00%
Aluminum heatsinks	2	Plastic	1.41E + 02	10.90%
Inductors	8	Aluminum	1.36E + 02	10.40%
Transistors	6	Magnetics	9.07E + 01	7.00%
Aluminum Electrolytic Capacitors	14	Glass reinforced polymer	6.44E + 01	5.00%
Internal connectors	8	Ceramic	4.41E + 01	3.40%
PWB	1	Lead	1.08E + 01	0.80%
Ventilators	1	Tin	6.80E + 00	0.50%
Wires	1	Au	2.68E-03	0.00%
External connectors	3	Ag	4.68E-02	0.00%
Screws	4	Pd	6.50E-04	0.00%
Other smaller fractions	1	Other materials	2.80E + 00	3.20%

Table S2 LCI Analysis database for PSU

Life Cycle Inventory Process data	Reference	Data Features
Composition data (by components)	Field test in an anonymous WEEE treatment plant in China	Site-specific data
Composition data (by materials)	Laboratory test in a precious refining company in Europe	Site-specific data
Dismantling data	Field test in an anonymous WEEE treatment plant in China	Site-specific data
Materials recovery data	Literatures in China and Field test in an anonymous WEEE treatment plant in China [1]	Secondary data/ Site-specific data
Manufacture data	Literatures and field investigation of manufacture companies in China [2]	Secondary data
Basic data (Including energy system data, basic materials extraction and production data, transportation data)	RCEES 2012 database [3]	Secondary data
Other data	Ecoinvent database	Secondary data

Table S3 LCI data source for LCA of obsolete refrigerators

Life Cycle Inventory Process data	References	Data Features
Composition of refrigerator and dismantling process	Literature [4]	Secondary data
Materials recovery data	Literature and field investigation in an anonymous WEEE treatment plant [5]	Secondary data/ Site-specific data
Manufacture data	Literatures and field investigation of manufacture companies in China [2,6]	Secondary data
Basic data (national energy system\raw materials\transportation)	RCEES 2012 database [3]	Secondary data
Other data	Ecoinvent database	Secondary data

References for Supplementary Material

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4. Li Y, Pan J, Hu Z, Wang L, Chen W. Research on key recycling technologies of obsolete refrigerators. *Recycling Research*, 2006(1): 23–26 (in Chinese).
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