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[Continued on next page]

(54) **Title:** SUSTAINABLE PROCESS FOR RECLAIMING PRECIOUS METALS AND BASE METALS FROM E-WASTE

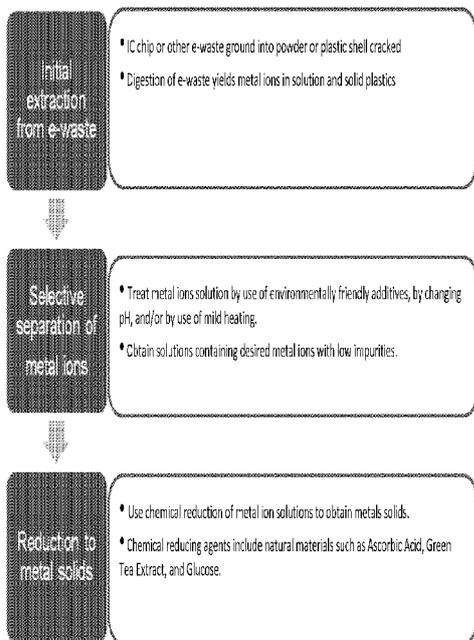


FIGURE 1

(57) **Abstract:** Processes for recycling electronic components removed from printed wire boards, whereby precious metals and base metals are extracted from the electronic components using environmentally friendly compositions. At least gold, silver and copper ions can be extracted from the electronic components and reduced to their respective metals using the processes and compositions described herein.

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A. CLASSIFICATION OF SUBJECT MATTER*C22B 11/00(2006.01)i, C22B 7/00(2006.01)i*

According to International Patent Classification (IPC) or to both national classification and IPC

B. FIELDS SEARCHED

Minimum documentation searched (classification system followed by classification symbols)

C22B 11/00; C22B 7/00; B01D 15/04; C22B 15/00

Documentation searched other than minimum documentation to the extent that such documents are included in the fields searched

Korean utility models and applications for utility models

Japanese utility models and applications for utility models

Electronic data base consulted during the international search (name of data base and, where practicable, search terms used)

eKOMPASS(KIPO internal) & Keywords: electronic, waste, scrap, metal, extract, pulverize

C. DOCUMENTS CONSIDERED TO BE RELEVANT

Category*	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
X	KR 10-2003-0006792 A (OH, CHI JUNG) 23 January 2003 See the abstract, page 3, line 8 - page 5, line 45, claims 1-3	1-3,30
A	US 2004-0179985 A1 (MARCO OLPER et al.) 16 September 2004 See the abstract, paragraphs [0017]-[0147], claims 1-12	1-3,30
A	KR 10-2001-0067641 A (IT GREEN CO., LTD.) 13 July 2001 See the abstract, claims 1-4	1-3,30

 Further documents are listed in the continuation of Box C. See patent family annex.

* Special categories of cited documents:

"A" document defining the general state of the art which is not considered to be of particular relevance

"E" earlier application or patent but published on or after the international filing date

"L" document which may throw doubts on priority claim(s) or which is cited to establish the publication date of citation or other special reason (as specified)

"O" document referring to an oral disclosure, use, exhibition or other means

"P" document published prior to the international filing date but later than the priority date claimed

"T" later document published after the international filing date or priority date and not in conflict with the application but cited to understand the principle or theory underlying the invention

"X" document of particular relevance; the claimed invention cannot be considered novel or cannot be considered to involve an inventive step when the document is taken alone

"Y" document of particular relevance; the claimed invention cannot be considered to involve an inventive step when the document is combined with one or more other such documents, such combination being obvious to a person skilled in the art

"&" document member of the same patent family

Date of the actual completion of the international search

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Box No. II Observations where certain claims were found unsearchable (Continuation of item 2 of first sheet)

This international search report has not been established in respect of certain claims under Article 17(2)(a) for the following reasons:

1. Claims Nos.:
because they relate to subject matter not required to be searched by this Authority, namely:

2. Claims Nos.: 15,17,23
because they relate to parts of the international application that do not comply with the prescribed requirements to such an extent that no meaningful international search can be carried out, specifically:

They are dependent on a claim which is not drafted in accordance with the second and third sentences of Rule 6.4(a).
Therefore, the scope of the claims are too broad to make meaningful search.

3. Claims Nos.: 4-14,16,18-22,24-29
because they are dependent claims and are not drafted in accordance with the second and third sentences of Rule 6.4(a).

Box No. III Observations where unity of invention is lacking (Continuation of item 3 of first sheet)

This International Searching Authority found multiple inventions in this international application, as follows:

1. As all required additional search fees were timely paid by the applicant, this international search report covers all searchable claims.

2. As all searchable claims could be searched without effort justifying an additional fee, this Authority did not invite payment of any additional fee.

3. As only some of the required additional search fees were timely paid by the applicant, this international search report covers only those claims for which fees were paid, specifically claims Nos.:

4. No required additional search fees were timely paid by the applicant. Consequently, this international search report is restricted to the invention first mentioned in the claims; it is covered by claims Nos.:

Remark on Protest

- The additional search fees were accompanied by the applicant's protest and, where applicable, the payment of a protest fee.
- The additional search fees were accompanied by the applicant's protest but the applicable protest fee was not paid within the time limit specified in the invitation.
- No protest accompanied the payment of additional search fees.

INTERNATIONAL SEARCH REPORT

Information on patent family members

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Patent document cited in search report	Publication date	Patent family member(s)	Publication date
KR 10-2003-0006792 A	23.01.2003	None	
US 2004-0179985 A1	16.09.2004	EP 1457577 A1 IT M120030468 A1	15.09.2004 13.09.2004
KR 10-2001-0067641 A	13.07.2001	None	