

Recycling of Metals from Electronic Wastes

Metallurgists develop new strategies in order to recover raw materials from old mobile phones. For copper smelting plant the smartphones are rather small raw materials mines. These melt old telephones (mobile) and recover out of these aluminium, zinc, lead, gold, silver, palladium and platinum. But there are still 20 additional metals perhaps rare earth materials in the instruments, the quantities of which per smartphones are so scanty that there were no economical recycling methods for that previously.

One must consider where one finds these rare earth materials with which one can recover corresponding quantities which pay for recycling – clarifies Christiana Scarf, metallurgist at the Helmholtz centre Dresden Rossendorf. That strikes me as for example metal alloys which are found among others in automobiles and aircrafts. The Kfz recycling as per individual material charges is fully ripe. With that the light metal fraction can contain also magnesium alloys. With these together one could restore the sound vibration system of mobile phones in order to recover the rare earth materials Praseodymium (Pr), dysprosium (Dy), neodymium (Nd).

A totally different strategy aims at the recovery of indium out of LCD displays the portion of its weight is about 1 mg per smartphone. Indium occurs in very small quantities in natural ore and therefore assails on with lead and zinc production. One could reverse the process in which one used the in ore occurring natural partnership. In order to enrich the meagre quantities of adjacent metals in a convenient principal metal. When I want to have a flow of material which should contain lot of indium, then I investigate this to give in the lead metallurgy – clarifies Schart. That in natural ores the same mixture occurs, the separation lead and indium out of that so recovered secondary raw material in metal smelting plant is standard.

A decisive hurdle for both recycling strategies is admittedly that the mobile phones first must be analyzed in order to the displays and vibration system

to be able to set up unalloyed in the corresponding process. In Germany the workshops makes the help of help of life because it is a costly manual work in that country.

With the construction of smart phones, the light dismantling or repair work do not have a high priority that also is a basis for the short longevity of instrument. If the individual parts are defective, a new Smartphone must immediately be here and the usual two year agreement of net provider does an extra. With that many users use their Smartphone for a longer period when they can exchange individual modules.

“We do research with a finish – start up that under the production name puzzle phone” says Karsten Schischeke of Fraunhofer Institute for reliability and micro integration IZM in Berlin. Established firms have eyes on that but a modular instrument will be certainly first of all only a nice product. Similarly it is valid for fair-phone, in between the second version in the market that consists of light exchangeable building stone and in spite of that not falls in pieces with first support in the contrary. Schischke says “The moveable connectors are in need for the sustainability and with this association of robustness and reparability are given already two basic assumptions for long product life. “A long utility duration economizes not only resources like palladium of praseodymium. There are big quantities of process chemicals to that, which are invested nonreturnable. But also the dissociated smart phone is only recycled when finally it lands in electronic scraps and not in rubbish barrel. The Bifa Environment Institute in Augsburg has investigated before a couple of years the household rubbish in Germany. We have found in that per head and year about 1.7 kg on electronic instruments, electronic and information techniques under that in Germany 0.11 mobile phones per person reports Siegfried Kreibe representative of Bifa business leader.

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