

Scrap – An Excellent Raw Material

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Abstract

As the dramatically increasing prize for energy and also for raw materials shows we all are familiar with the prognoses of the Club of Rome: All raw materials on earth are limited and have a more or less long period until they are exhausted.

Another type of source for metals like iron, copper, nickel, silver or gold has grown up more and more within the last 10 years in Europe. Secondary raw materials as basis for the production of those metals are getting more significance in Europe and northern America as well as in Japan. But increasing amount of scrap leads to increasing environmental problems in terms of collection and processing of scrap.

One of the most important secondary material is electronic scrap. The increase in production of all kinds of electrical and electronic equipment and instruments offers chances to recycle containing base metals as well as precious metals. Nevertheless electronic scrap is a complex material, which has to be crushed and fractionised for further processing. Different sorting processes are necessarily used for the separation of the different fractions after crushing.

New legislation in the EU concerning electronic scrap indicates the problem arising worldwide. Although the export of electronic scrap is forbidden from the EU hundreds of tons are transported from Europe and additionally from northern America to Africa or Asia.

This paper shows the relevance and also the problems of processing scrap and, as an example, especially electronic scrap as a new type of raw material. Processing of secondary raw materials is more complicated as it seems at the moment. Toxic substances like PBB and PBDE as well as the problem of selectivity in the separation between iron/steel, nonferrous metals, light metals and plastics increase the importance of high quality in separation and processing without any pollution to the environment. Clean processes and high rates for recovery of metals as well as the reasonable usage of the comprehended energy are most important for the new and excellent raw material of tomorrow: Scrap.

Keywords: Scrap, recovery, copper, silver, gold, precious metals, secondary raw material.