Eddy Current Separation of Crushed Materials of Laptop Computers

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Eddy current separation technique to separate non-ferrous metal particles (Al, Mg, Cu, Sn, Pb, Zn, etc.) and non-metallic particles (plastic, ceramic etc.) of crushed materials of laptop computers was established.

As preliminary treatment, laptop computers was shredded and optical sorting machine segregated PCB from Non-PCB. Non-PCB sample was pulverized by cut crusher under the size of 12mm for liberation. Upward flow air separator and magnetic separator were used for eliminated shredding dust, vinyl, paper, and ferrous metal particles from Non-PCB sample.

The sample was injected into drum type eddy current separator. Recovery of metals was not enough to separate the sample, the non-conducting part (non-metals part) was repeatedly injected into separator.

Recovery of metals increased as the step of repetition, but the cumulative recovery until 4th repetition did not exceeded 65%. However, metal content of non-ferrous metals part (the bounced material) was high and it did not change the grade as the repetition. Therefore, drum type eddy current separator has low recovery in case of small particles but also has the advantage of getting high grade non-ferrous metal.

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