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## **LIFE CYCLE ASSESSMENT OF TOXICITY POTENTIAL OF METALLIC ELEMENTS AND PROCESS STAGES IN ELECTRONICS: A CASE STUDY OF ELECTRONIC CONNECTOR LEADS**

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### **Abstract**

The electronic waste (e-waste) is increasingly flooding Asia, especially in developing countries. E-waste could precipitate a growing volume of toxic input to the local environment if it was not handled properly. This brings the evaluation of environmental impact from electronics an essentially important task for the life cycle assessment (LCA) and the end-of-life management of electronic products. This case study presented a quantitative investigation on the environmental impact analysis on electronics connector lead via LCA. A single connector lead can have a considerable toxicity to the environment as referred to hazardous metallic elements. LCA using SimaPro7 software showed that carcinogenic effect is the serious impact of electronic part on human health (57.33%). However, the metallic constituents in the electronic connector leads and its process stages indirectly become major contributor to the environmental impact. This suggests a major concern for the environmental impact of the total e-waste with such a large mass since most electronics are similar in composition, but the other electronic products and processes are much far and multiple times heavier than this small electronics part. LCA tool is good benchmarking to impact assessment even though several supporting tools complement each other to solve e-waste issue.

**Key words:** electronic connector led or pin, electronic wastes (e-waste), Life Cycle Assessment (LCA), Life Cycle Impact Assessment (LCIA), SimaPro7 Software

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