Deliverable D4.4

Pilot Product, Projects and Declarations

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4 Executive Summary

D4.4 – Pilot Products, Projects and Declarations report contains examples of the SME case studies results either in an improved/eco-designed product, a successful implementation of LCA knowledge in business processes (e.g. to calculate and communicate environmental life cycle data) and/or to compile environmental declarations for a given product.
D4.4 report is the direct outcome of each of the tasks in WP4 and constitutes prototypes, demonstrators, and reports, depending on the nature of the individual case study.

Bio-based plastic sector: Bio-based plastics sector: The improvement of medium size and small size PLA/PBS plastic carrier bag from Valsay was the subject of an eco-design activity which was based on the results of the LCA. ITENE has assisted Valsay in order to explore several eco-design strategies based on the initial LCA outcomes. After this step, it was finally to focus on changes with regard the amount of ink used and the reduction of material use. In case of the use of ink, several printing patterns and font sizes were analysed achieving ink savings up to 59.6% as function of the printing patter. Furthermore, the size of the bags was optimized through changes in the bag dimension and die-cut, while keeping the volume and resistance to tear of the bags. The raw material savings after optimization were 3.2% and 4% for the medium and small size bags, respectively. An average improvement of 3.5% in terms of environmental impact has been achieved. This is a very interesting result, since a carrier bag is a very simple product which does not allow significant changes.

Industrial Machines sector: The two case studies were carried out with two SMEs. In both cases the Use phase was the most significant life cycle phase for both case study SMEs. It has been presented that the Use Phase accounts between 85% and 97% of the total impact over the life cycle, depending on the Use Scenario and the country in which this scenario is implemented. The companies have also learned how to collect data and to physically measure energy consumption of their processes or components within their products.

Electronics sector: The case study comprises the compilation of an Environmental Data Sheet for MicroPro's iameco v3 Integrated PC, launched back in 2011. The assessment is based on the LCA to go approach for the electronics sector although done with the fully operational excel version of the beta webtool, which is in the stage of finalisation at the time of completion of WP4. The methodology and excel tool delivers sound results not only for the assessment of the case study product, but also in comparison with a generic standard product. The environmental savings due to a rigorous business policy to implement Design for Repair and longevity in MicroPro's computer products yields a substantial carbon footprint reduction of more than 50% compared to a benchmark product and similar resource savings with respect to some of the most critical raw materials found in IT products.

Sensor sector: The case study on sensor systems proofed to deliver sound and meaningful results, which are considered highly relevant for communicating

environmental benefits to a client in energy-intensive industries. As a suitable communications tool a template for a PowerPoint presentation has been developed as the "communications prototype", being a major outcome of Task 4.4. This template now is ready for use in combination with the LCA to go tool for the sensors sector.

Photovoltaic sector: Two different demonstrators as the results of the PV case study have been presented: one PV system has been used to improve its design and one system has been used for the implementation of an Environmental Product Declaration (EPD). In the case of the improved design, different technologies available were assessed and the most environmental sound configuration was selected for the final design. With regard to the implementation of the EPD, the procedure and the shape of EPD was presented giving detailed results on environmental parameters of the system.

Printed Circuit Boards sector: It has been presented the practical application of the "LCA to go" tool for an Environmental Declaration for PCBs creation as well as for improvement of PCB design. It has been presented the examples of the reduction of water consumption up to 56%, energy consumption during production processes of PCBs up to 34% for sensor sector as well as reduction of Carbon Footprint – up to 65% obtained for the PCB for Smart Textiles application.

Smart Textile sector: The optimisation of the SensFloor demonstrator installation was presented. It was shown, that optimizing the operation mode of the integrated radio modules within the SensFloor underlay and reducing their number per square meter can reduce the power dissipation from 1021mW/m² to less than 10mW/m² (reduction 99%). Concerning the composite structure of the SensFloor underlay, the change from polyester as a base material to cork reduced the eco-cost from 1.04 Euro per square meter to 0.06 Euro per square meter (reduction 94%).