



## **Optimisation of recycling systems – research activities at the University of Miskolc**

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The Department of Materials Handling and Logistics at the University of Miskolc has taken part in several recycling related R&D projects. Within the frame of this work authors summarise the milestones of the research activities, as follows:

- estimating methods for quantity and areal-distribution of the annual used products,
- optimisation of the number of collecting stages, number and location of collecting places of each collecting level, and the attribution of the used product types to the adequate collecting places and the different collecting places,
- method for selection and classification of used products which take account of the amortisation degree of the products and the applied disassembly technology,
- method for determination of the adequate loading unit forming device, storage mode and the transporting- and loading equipment of used products,
- methods for disposition of the transportation of the collected products between stores in every stage,
- design method of an information system for monitoring of the whole life cycle of used products,
- designing methods for logistics system of the disassembling process which involve: the storage, classification and stock registration of the incoming used products; the process of the transportation between the disassembling lines and workplaces, storage and loading; logistic tasks of quality assurance, classification and storage of parts generated after the disassembly; loading unit forming, storage and loading-out of the

products and wastes to reprocessed and out-loaded, which coming from disassembling place; designing method of the information system of the disassembly logistics.

logistical oriented scheduling of the disassembly process and scheduling of the incoming and out-going transportation and stock managing,

conception of build-up, operation and logistical system of Recycling Parks, and system-plan,

system-plan of the Virtual-Company which complete the logistical tasks of the closed-loop economy. This system-plan involves: the partner companies, institutes and other organisations of the virtual-company and the structure of it; the controlling (disposing) tasks of the virtual-company, information service; the division of labour of the units of the virtual-company; collection of strategies of the logistical system-controlling process used by virtual-company,

calculation methods for the recycling costs of used products and for the prospective sales turnover.