



Oras discovered savings opportunities through material audit

Motiva's material audit provided Oras Oy with a functional tool for visual presentation of materials usage and waste flows and for identification of potential savings linked to material efficiency. The material audit at the Rauma plant discovered clear opportunities for savings linked to material flows, with 18 suggestions for improvements.

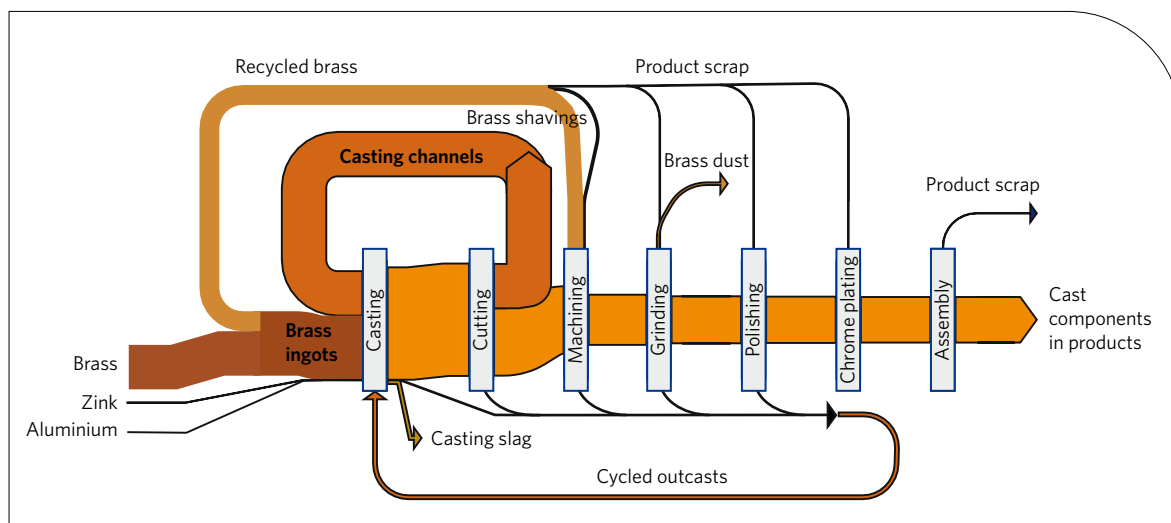
The main objective of the project set by Oras was to improve waste utilisation. In the course of the project, other targets for improvement in relation to material savings were also identified. During the audit, process-specific material balances were drawn up for Oras, described in flow diagrams (Sankey diagrams). The material balances helped to identify areas with possible savings related to material flows.

The audit gave a good overview of material flows and savings opportunities

According to Oras's Production Technology Manager **Jukka Koskinen**, the Sankey diagram of the company's material balance provides a very good



- **Oras Oy** is a family business established in Rauma in 1945.
- Main products are lever and automatic taps, electronic taps, and ancillary products, such as showers and valves.
- Plants in Finland, Poland, Germany and the Czech Republic, with a combined workforce of 1,400 in 2013.



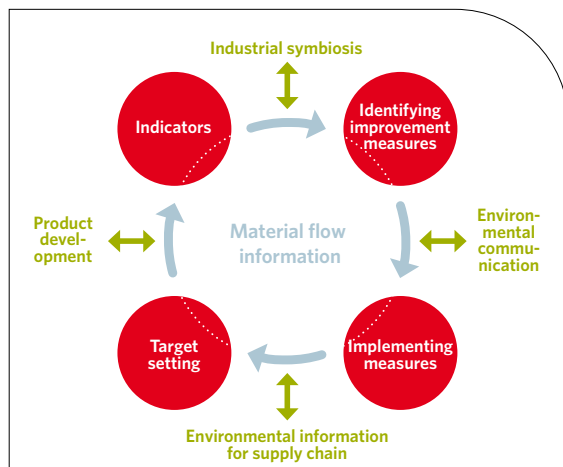
The thickness of the arrows in the Sankey diagram represents the volume of material moving from one phase to another in the process. The example is from the brass cycle at Oras Oy.

overall picture of the material and waste flows and their potential for improved efficiency. Koskinen believes that the overall audit procedure would work even better if it were also possible to take into account and utilise the experiences and improvement measures of other companies.

– The audit report gives a very good overview of the company's opportunities and means of influencing its material efficiency. All in all, this kind of systematic investigation with its brainstorming workshop makes it possible to find completely new savings opportunities. In addition, the audit report can be used to provide grounds for improvement proposals. The tool is a good way of combining the relevant know-how of an expert organisation like Motiva and that of the target company, says HSEQ Manager **Katja Äärilä**.

Audit stimulated implementation of development measures

A total of 18 suggestions for improvement on these points were put forward, including numerous concrete measures. These measures were at different levels, some easily implemented and some still at an idea stage. A systematic method for generating



Motiva's material audit

- Systematic means of seeking concrete measures for improvement
- Material flows analysed in terms of volume, cost, quality, and environmental aspects
- Brings out direct and indirect costs related to materials usage and wastage
- Visual (Sankey) and graphic presentation of material flows
- Audits carried out so far have discovered a savings potential of EUR 300,000 – 1 million/year
- Launches a continuous development process and provides valuable information for the company's development activities

Material audit's findings

- 18 improvement proposals
- systematic method of collecting initiatives and ideas

Top 3 actions

- new binding agent for central cores
- reducing the number of rejects in the chrome plating plant
- improving material efficiency by utilising simulation in product design

ideas for improvement was also created, involving gathering information and initiatives from the company's personnel in a half-day workshop.

A couple of years after the material audit Oras has set into motion a number of the development measures proposed in the report. Material efficiency has been improved through measures such as increasing the accuracy of tool setting in machining. This also improved the accuracy of the process phases after machining, thus saving significant quantities of materials. Research has discovered a new, less hazardous binding agent for central cores. The use of the new binder improves the surface quality of the products and the air quality in the factory while boosting the potential for recycling the sand used in casting the central cores. The new binder is already used in several new products. Projects related to reducing certain waste streams have also been initiated.

In addition to improving its production, Oras is also proactively increasing its material efficiency through product development. To this end, Oras intends to make use of simulation and digitalisation to improve the quality and ease of manufacture of the products and to facilitate the design process and collaboration between design and production.



tel. +358 (0) 424 2811
www.motiva.fi/en