

**RC-LowCAP**  
**Research Center for Low Carbon**  
**Special Powertrain**

Programme: COMET – Competence  
Centers for Excellent Technologies

Programme line: COMET-Project

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## CO<sub>2</sub> FOOTPRINT IN EARLY-STAGE DEVELOPMENT - A NEXT STEP TOWARDS ECO-MINDED CATALYTIC CONVERTER PRODUCTION

THE CO<sub>2</sub> FOOTPRINT ASSESSMENT OF A CATALYTIC CONVERTER COATING  
PROCESS LEADS TO INSIGHTS INTO ECO-RELEVANT PRODUCTION PROCESSES

Heraeus Precious Metals, a German world-wide leading company in the field of precious metals services and products as well as Tier-1 Supplier of emission catalytic converter coatings (Figure 1), and the RC-LowCAP research team of the University of Applied Sciences Upper Austria under the lead of Dr. Peter Hehenberger, made a major step towards a CO<sub>2</sub> footprint calculation methodology for an early-stage assessment of catalytic converter coating processes.

In the framework of the RC-LowCAP the sub-project X-LCA deals with the development of an abridged carbon footprint calculation methodology to allow developers to calculate the carbon footprint of product design concepts, before a product is made. Within most companies, the typical CO<sub>2</sub> life-cycle

assessment is done when products are stepping through the gateway of start of production. Adaptations are then often associated with a significant effort and high costs. This was true for Heraeus Precious Metals also, but changed with the first industrial case study of the RC-LowCAP X-LCA project.

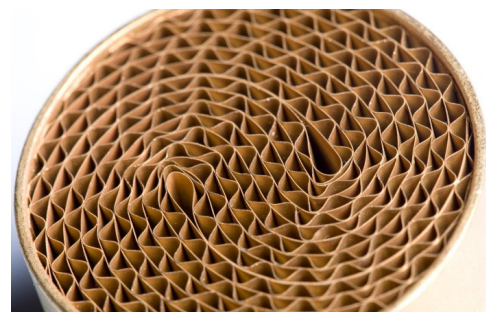


Figure 1: Catalytic converter. © Heraeus Precious Metals

## SUCCESS STORY

With this case study, it was demonstrated how to assess the CO<sub>2</sub>-balance of the catalytic converter coating process at Heraeus Precious Metals (Figure 2) in a very early design stage. So major changes in raw material supply, production processes and even transport and logistics can be made in order to minimize the environmental impact of the products. A hotspot analysis raised awareness of critical raw materials and production process steps with high CO<sub>2</sub> emissions.



Figure 2: Catalytic converter coating facility. © Heraeus Precious Metals

## Impact and Effects

The generated knowledge serves as a first step towards an abridged CO<sub>2</sub> footprint calculation methodology for an early-stage development assessment. By use of selected aspects of the proposed methodology, several design concepts and production paths can be simulated and compared against each other. Derived data like the carbon emission of single production stages enable the developers and process engineers to optimize the product for best performance and lowest CO<sub>2</sub> footprint.

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### Project coordination

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