

PRESS RELEASE

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Saving energy - conserving resources: Fraunhofer IFAM in Dresden develops concept for energy-efficient debinding processes

The Fraunhofer Institute for Manufacturing Technology and Advanced Materials IFAM in Dresden is constantly working on optimizing its processes. Particularly in processes in which near-net-shape components are manufactured, the high energy demand is addressed and solutions are found to reduce energy consumption.

In binder-based additive manufacturing processes, for example, organic binders have to be removed from the component by thermal treatment, a process which has so far been very energy-intensive. Researchers at Fraunhofer IFAM have succeeded in controlling these debinding processes to the point, thus saving a considerable amount of energy.

Up to now, experience has mainly been used and the processes have generally been carried out for longer and at higher temperatures than actually necessary. In the "KonAIR" project (Konzentrationsabhängige Industrieofen-Regelung, i.e. Concentration-dependent industrial furnace control), funded by the BMWi. Fraunhofer IFAM Dresden has found the key to controlling these processes with pinpoint accuracy by measuring the process atmosphere in the furnace.

The results show that the gas composition and the condition of the components in the sintering furnace clearly correlate with each other. On this basis, the process temperature and duration can be adjusted in real time to the level actually required individually for each batch. These precise settings enable energy savings of 25 to 30 percent compared to the conventional procedure.

In addition, the component quality is improved and less scrap is produced.

What was investigated at laboratory level within the project has now also been demonstrated in industrial production plants. And not only for powder metallurgical processes, but also for the production of ceramic and carbon-based materials. The results are also directly relevant for the gasification of biomass or in waste combustion.

Editor

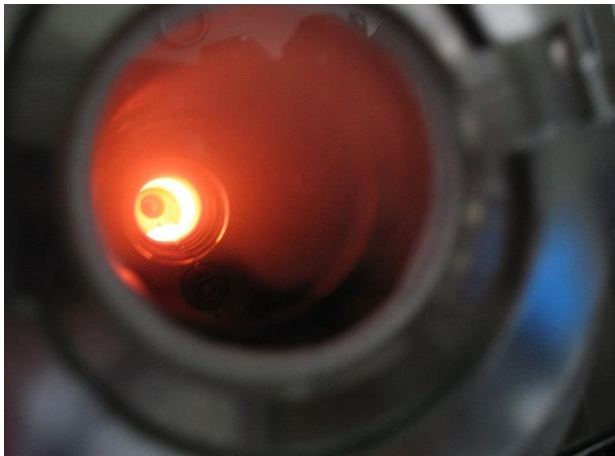
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Further information on [activities at Fraunhofer IFAM Dresden](#) and on the [KonAIR project](#).



View into a sintering furnace.

Editor

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