

Engler-Bunte-Institut Teilinstitut Verbrennungstechnik (EBI-vbt)

## **Chemischer Gleichgewichtsrechner**

Probieren Sie auf dieser Seite unser Programm für die Berechnung des thermodynamischen Gleichgewichtes einer Gasmischung  
mehr ...

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## **Bachelor- und Masterarbeiten**

Aktuelle Angebote für das Anfertigen von Bachelor- und Masterarbeiten finden sie auf der folgenden Seite.  
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## **Energy Efficient Coil Coating Process**

Coil coating is an important industrial process applied in a major part of industrial steel and metal alloy production and associated with big facilities and large primary energy consumption.

A major part of the overall plant size and the energy demand of coil coating facilities is associated with the drying/curing process that occur inside a curing oven, which is the bottleneck concerning the increase of the production capacity. In this drying/curing process, organic solvents are vaporized from the applied liquid coating film and since they are flammable, the usually applied curing ovens with convective air drying technology have to be operated far below the Low Explosive Limit (LEL), due to safety constraints.

ECCO proposes a novel solution for the curing oven operation, which can not only drastically increase the compactness and energetic efficiency of the system, but leads to an increased production flexibility due to a fuel-flexible, modular and potentially energetically self-sustainable process. The main idea is to heat the metal strip by IR-radiation and operate the curing oven well above the Upper Explosive Limit (UEL), thus, performing the drying and curing process in an atmosphere mainly consisting of the solvent vapours, which are used as fuel in IR radiant porous burners. This solution leads to a size/ production capacity ratio reduction of 70% and

Starting from previous activities at TRL 4, an interdisciplinary approach is foreseen, based on advanced-materials, combustion technology and prediction tools for system design/ optimization, with active participation of key industrial stakeholders, to bring this technology to TRL 6 and realize a prototype furnace at industrially relevant size and environment.

[IMAGE]  
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Nach oben  
KIT - Die Forschungsuniversität in der Helmholtz-Gemeinschaft

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