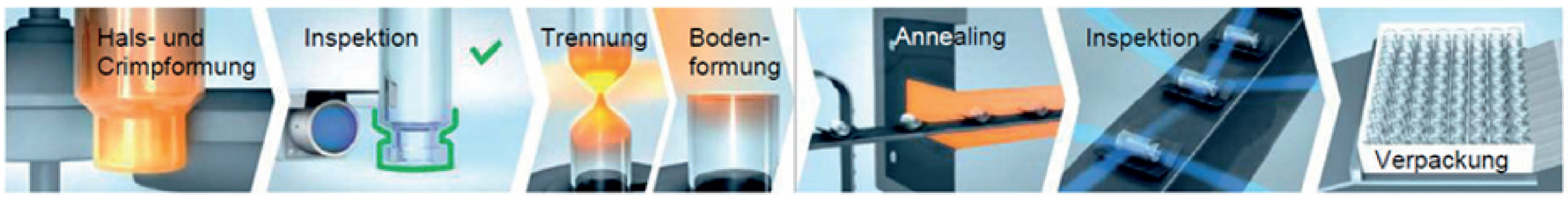
The MIGWa project

Gas- und Wärme-
Institut Essen e.V.

Investigations into the use of natural gas/hydrogen blends and hydrogen for decarbonization in the glass industry

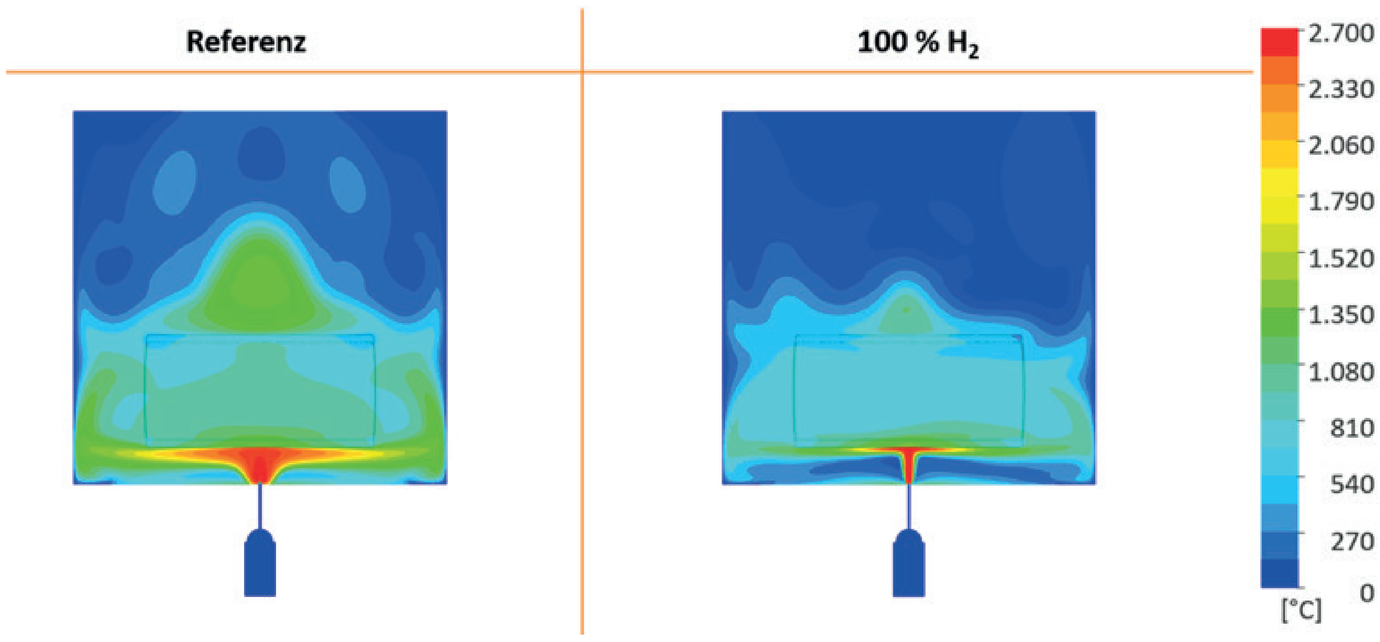
www.gwi-essen.de



PROCESS STEPS FOR THE MANUFACTURE OF PHARMACEUTICAL VIALS MADE OF GLASS TUBES (SOURCE: SCHOTT AG)

Project objectives

- Development of efficient and low-emission H_2-oxy-burners
- Reduction of CO_2 emissions by substitution of fossil fuels
- Development of microwave emitters for the directed mircowave transfer into the glass melt
- Demonstration of the technology investigated in production plants



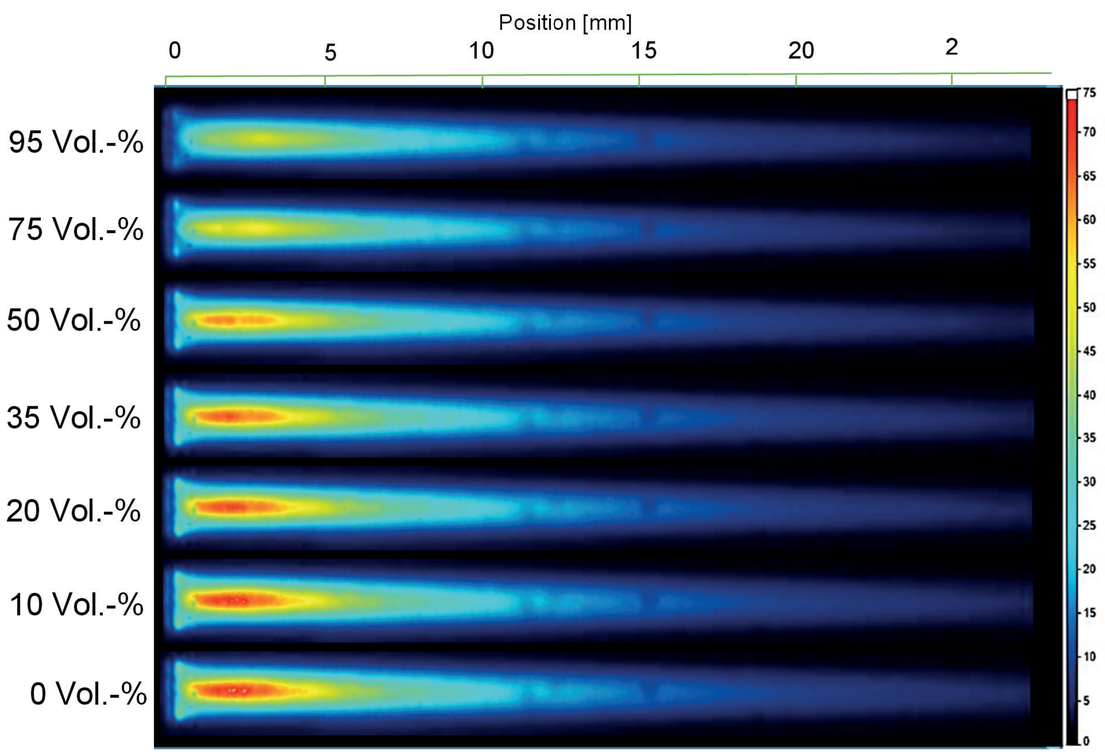
SIMULATION OF THE TEMPERATURE DISTRIBUTION IN THE GASEOUS PHASE AND IN A GLASS BODY IN LONGITUDINAL SECTION (SOURCE: GWI)

Subgoals (almost) CO_2-free glass production process

- Melting raw materials by using microwaves and melting electrodes
- Further melting (fining) by means of H_2 burners and melting electrodes
- Hot forming based on H_2 burners

Planned developments

- Pilot-plant scale microwave melting process
- H_2-oxy flame reaction model for use in glass melting furnaces
- Pilot-plant scale H_2-oxy burners in two output classes



OH*-INTENSITIES OF AN OXY-FUEL BURNER FLAME WITH DIFFERENT H_2 CONTENTS OF THE FUEL GAS (SOURCE: TUBAF)

Project partners:

SCHOTT
glass made of ideas

TECHNISCHE UNIVERSITÄT BERGAKADEMIE FREIBERG
Die Ressourcenuniversität. Seit 1765

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