

Conversion of Solar Energy into Synthetic Fuels

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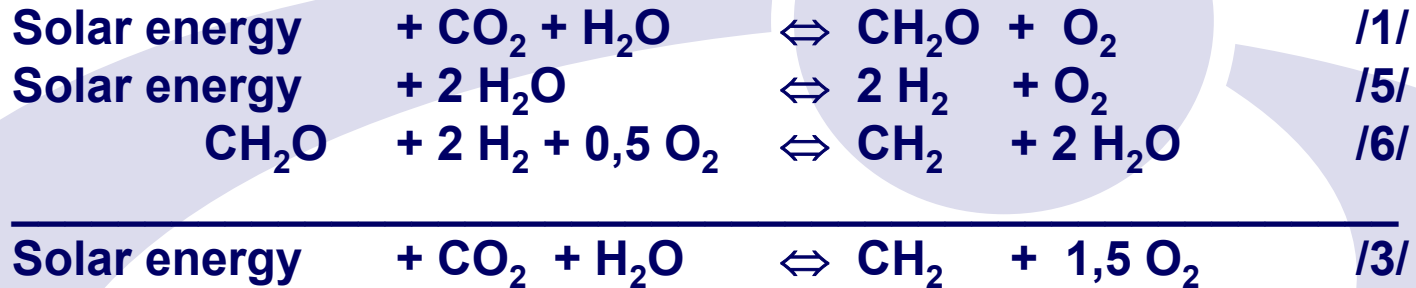
Synthetische Brennstoffe aus Biomasse

Synthetic Combustion Fuels from Biomass



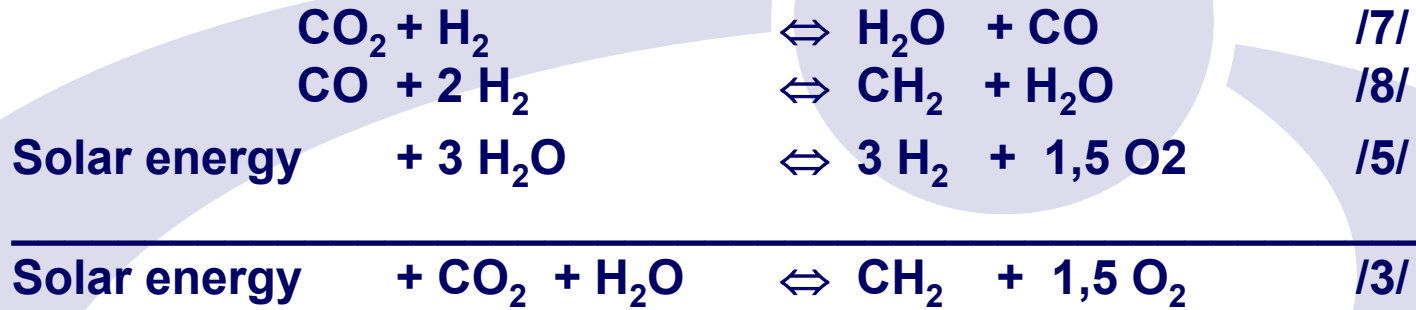
Synthetische Brennstoffe aus Biomasse und regenerativer Energie

Synthetic Combustion Fuels from Biomass and Regenerative Energy



Synthetische Brennstoffe aus Kohlendioxid und regenerativer Energie

Synthetic Combustion Fuels from Carbon Dioxide and Regenerative Energy



DAIMLERCHRYSLER



VOLKSWAGEN

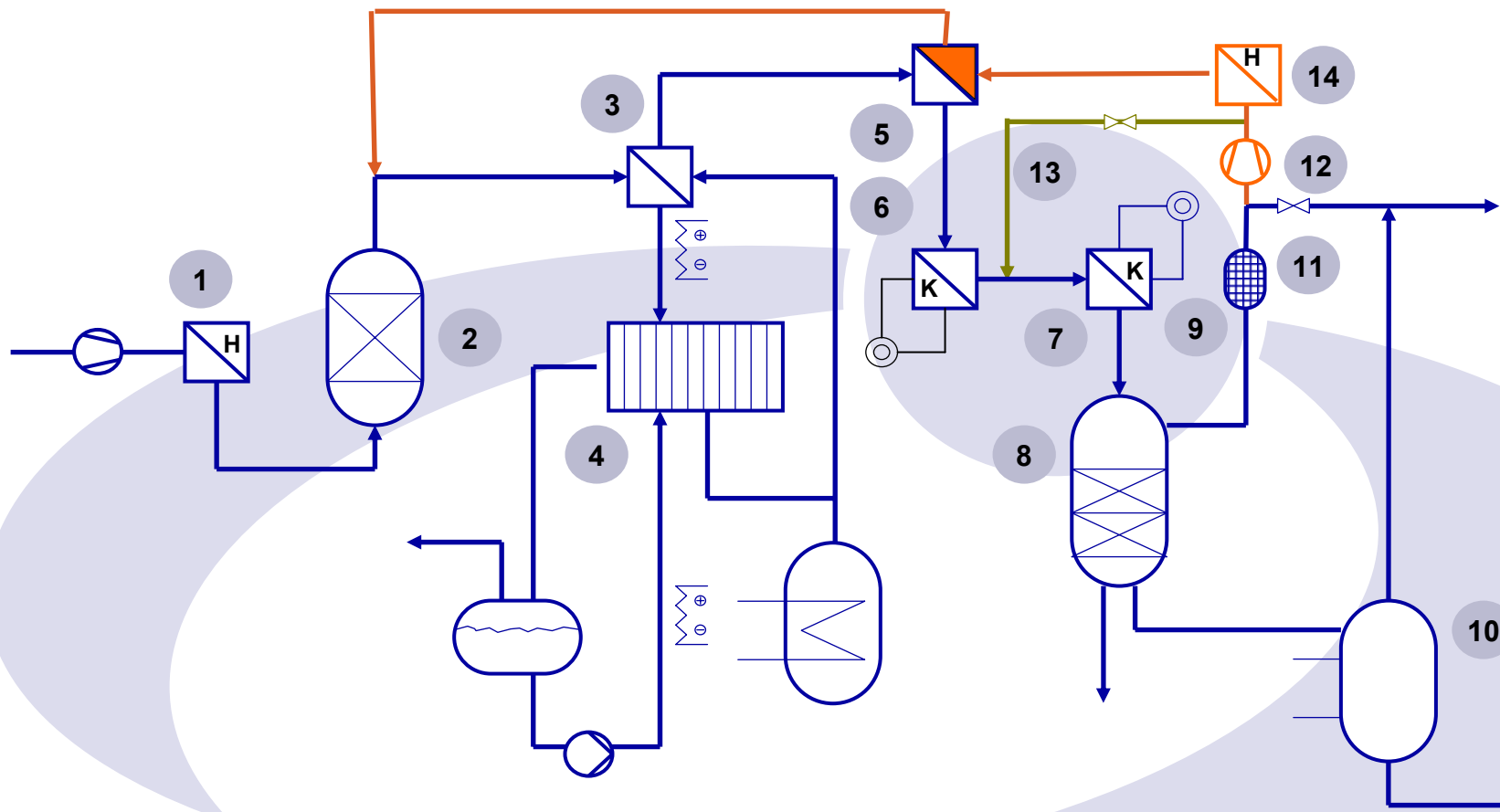


Dr. Ulrich Eichhorn
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Prof. Dr. Herbert Kohler
DaimlerChrysler AG



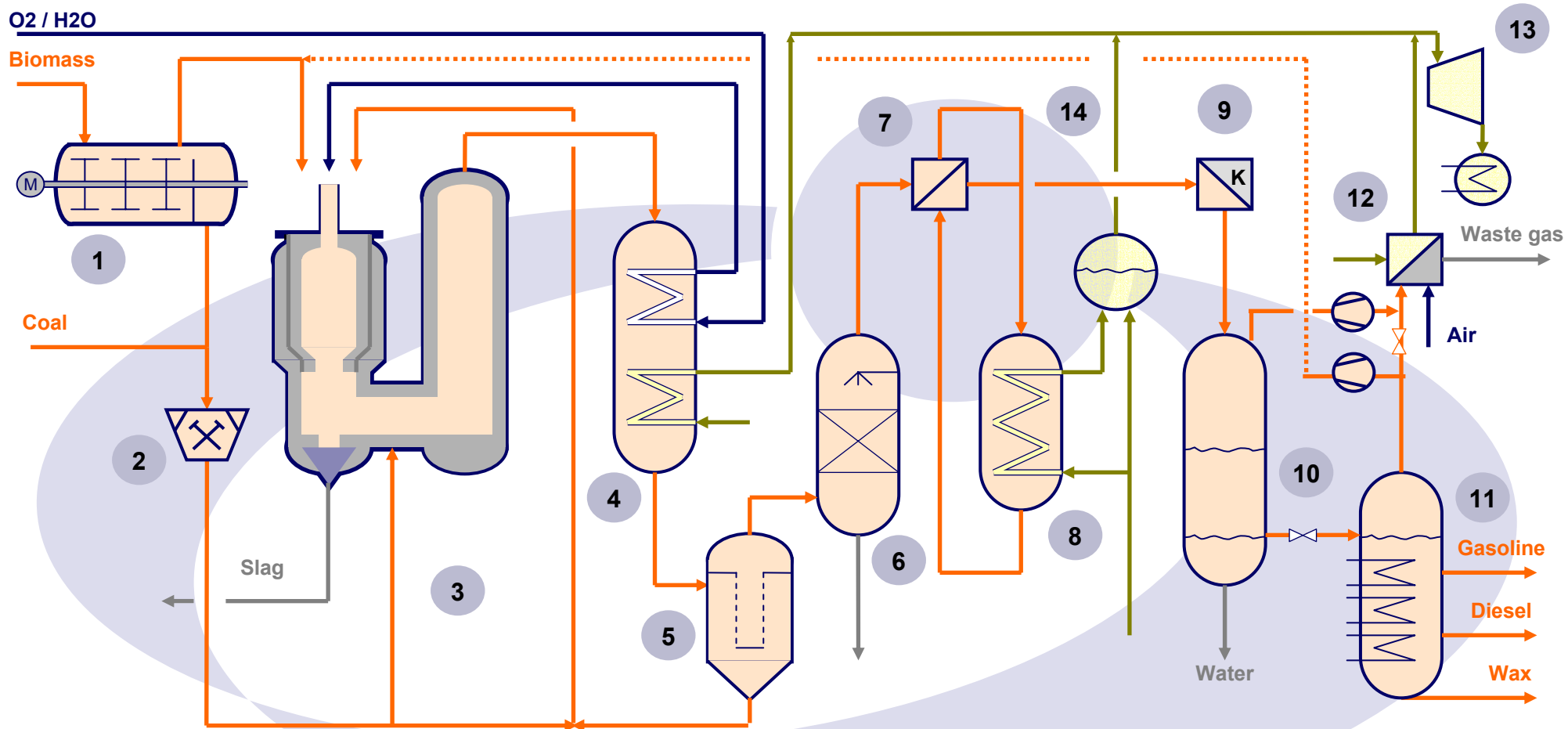


- 1 Steam-heated gas preheating unit
- 2 Fine purification of gas
- 3 Heat exchanger and aux. electrical heating
- 4 Synthesis reactor with boiling water heating
- 5 Gas heat exchanger
- 6 Gas cooling unit
- 7 Product condenser

- 8 Separator for product water
- 9 Aerosol separator
- 10 Raw product flash tank
- 11 Pressure maintenance unit
- 12 Circulation blower
- 13 By-passing the synthesis unit
- 14 Preheating recycle gas



CHORENFuel® Process – Automotive Fuel from Biomass and Coal



- 1 Low-temperature gasifier (NTV)
- 2 Coal/coke grinder
- 3 Two-stage Carbo-V® reactor
- 4 Preheating gas
- 5 Removing dust from gas
- 6 Multi-stage gas purification
- 7 Gas-gas recuperator

- 8 F-T boiling water reactor
- 9 Product condenser
- 10 Product separation
- 11 Distillation
- 12 Evaporator
- 13 Steam turbine unit
- 14 Common steam mains





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Betriebsgelände

 **UET**

Umwelt- und Energietechnik
Freiberg GmbH

Carbo-V - Pilotan



Fossil Combustion Fuels

crude oil

oil shale & oil sand

natural gas

coal

Solar Energy

biomass*

wind and water power

radiation

refinery

residue

synthesis gas production, purification and processing

O₂

electricity generation/ electrolysis

CO₂

H₂

synthesis

offshore CO₂ conversion

existing automotive fuel infrastructure

nat. gas

conventional automotive fuels

GtL

CtL

BtL / Sunfuel

hydrogen

* partly for vegetable oil, biogas, ethanol



Using solar energy to allow technical work to take place

