




BEST

Bioenergy and Sustainable Technologies



 Bundesministerium
Digitalisierung und
Wirtschaftsstandort

 Bundesministerium
Klimaschutz, Umwelt,
Energie, Mobilität,
Innovation und Technologie



 Für die
Stadt Wien




From Waste to Value – Infrastructure and Research at Syngas Platform Vienna

Wieselburg, 23rd of September 2025

Philipp Graefe



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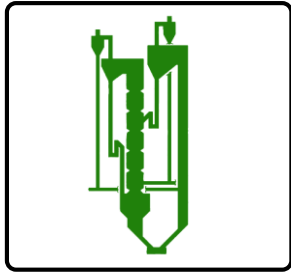




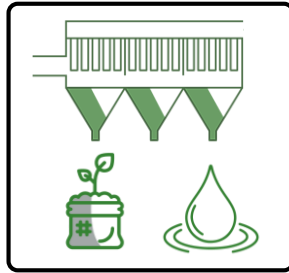
Area 1.3: Syngas Platform Technologies

TECHNOLOGY DEVELOPMENT enabling SUSTAINABLE PROCESS CHAINS in INDUSTRIES

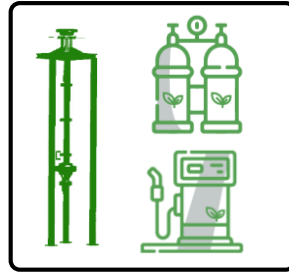
Strategic fields of action



Dual fluidized bed
(DFB) processes



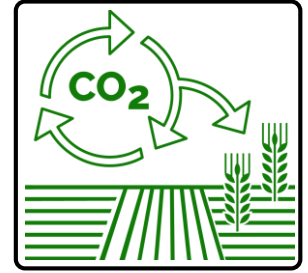
Linking process
chains



Gas upgrading and
synthesis



High value
products from
residues



Negative
emissions

**Lab-, pilot- and demonstration-scale infrastructure for
experimental de-risking to enable industrial implementation**



SYNGAS PLATFORM VIENNA

A **research hub** featuring a Waste2Value process chain: 1 MW **DFB gasification** + 250 kW **Fischer-Tropsch** synthesis demo

A connected **laboratory** supplied **with real syngas** for gas cleaning, and upgrading

Syngas Platform Vienna: facilities



DFB Gasification demo

Industrial site of



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Syngas Platform Vienna



Fischer-Tropsch



Fischer-Tropsch



Aqueous phase



Feedstock containers



Analytics lab



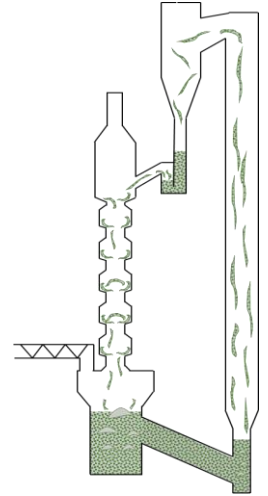
Temperature
swing adsorption

Dual fluidized bed (DFB) gasification



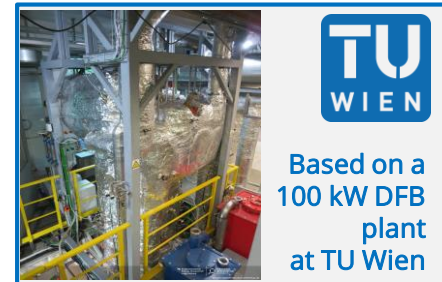
1 MW demonstration-scale plant for long-term campaigns of multiple weeks continuous operation

Advanced DFB gasification (aDFB) reactor design upscaled from 100 kW



Typical syngas composition

H_2	CO	CO_2	CH_4	C_2H_4
41%	24%	23%	10%	



TU
WIEN

Based on a
100 kW DFB
plant
at TU Wien

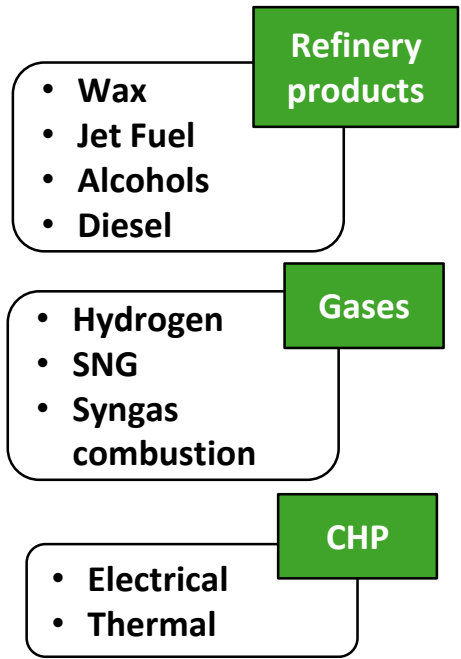
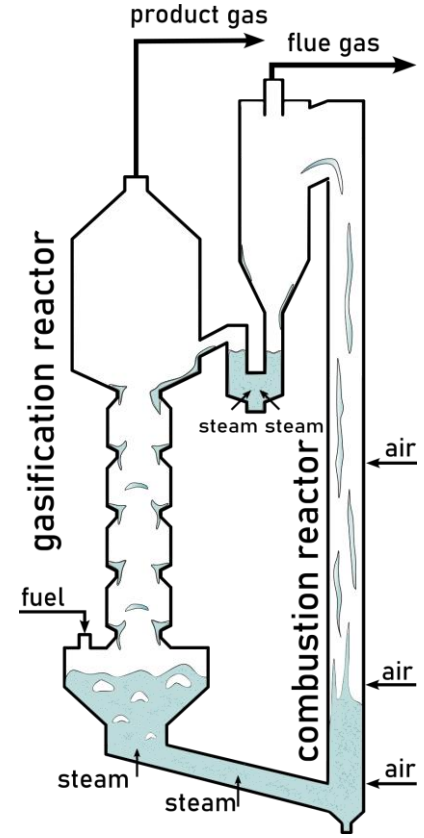
Shifting research focus in advanced DFB



Shifting Research Focus



Residues and waste
forestry, agriculture, industry
and WWT



Shifting Research Focus

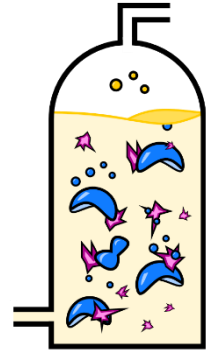
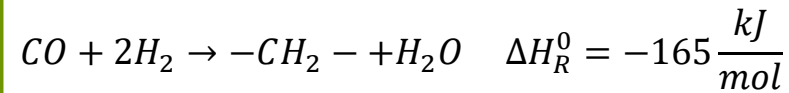
Fischer-Tropsch Synthesis



Slurry-Bubble-Column-Reactor (SBCR):

250 kW pilot-scale Fischer-Tropsch plant
for long-term campaigns of multiple
weeks continuous operation

Reaction and process:



Process conditions:

Temperature: 200 - 230°C
Pressure: 20 - 22 bar(g)
Catalyst: Co/ γ -Al₂O₃ (commercial)



Pilot-scale FTS



Lab-scale FTS



Strong industrial and scientific partnerships



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