

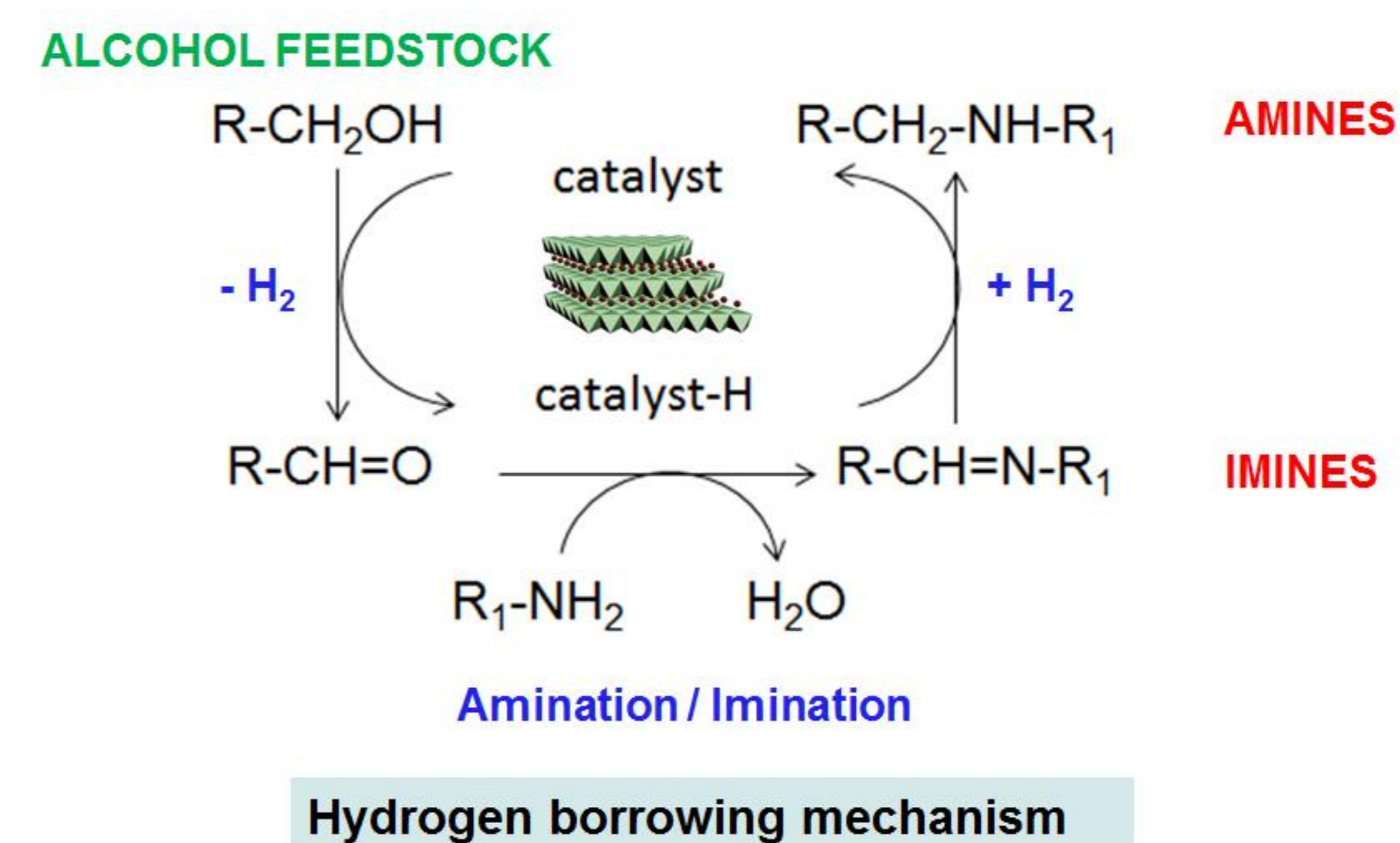
CATALYTIC AMINATION OF ALCOHOLS

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Introduction

- Catalytic amination of alcohols is a green, one-pot solvent-free catalytic reaction under mild conditions
- More atom-economical than other amination routes
- No or reduced need for hydrogen
- The process can valorize various renewable alcohol sidestreams

Multi-step reaction



Project aim

- Develop and produce green drop-in (poly)amines/imines and novel amines/imines using renewable alcohol feedstock:
 - Carbohydrate type alcohols from lignocellulosic streams e.g. furfuryl alcohol, 5-(hydroxymethyl)furfuryl alcohol
 - Fatty alcohols
 - Other alcohols
- Develop cheap catalysts with high selectivity in amination/imation and benchmark with commercial catalysts
- Test and valorize amines/imines in various applications at industrial partners

Field of application

AMINES

- Amines and their derivatives find applications as:
 - Agrochemicals
 - Pharmaceuticals
 - Food additives
 - Personal care products
- Polyamines starting from diols (towards polyamine building blocks for polymers)

IMINES

- Highly versatile intermediates for imine functionalization, stereoselective synthesis of amines and N-heterocycles
- Generation of hydrogen gas upon selective imination

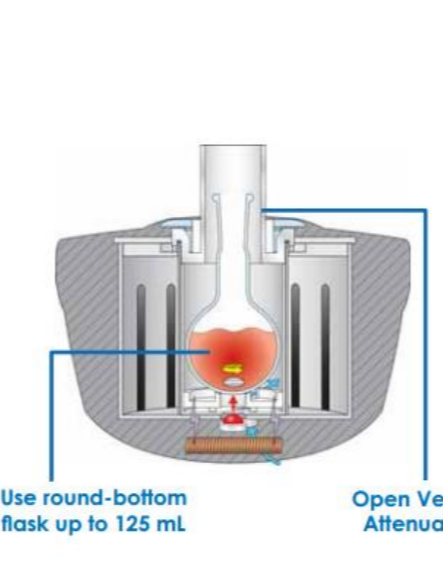
What can we offer?

- Catalyst development: co-precipitation of hydrotalcite-type catalysts: fine-tune chemical composition to influence selectivity in amination/imation
- Catalyst characterization: Large set of characterization techniques
- Catalyst scale-up: towards kg-scale
- Catalytic testing set-up: lab to pilot scale



Atmospheric or high pressure set-up

Microwave testing



Consortium

- We look for partners with:
 - Production of amines and/or imines and their derivatives
 - Interest in valorizing their alcohol (side)streams
 - Producers of carbohydrate alcohols (e.g. furan type)
 - Interest in producing bio-based polymers (starting from polyamines or derivatives) within chemical industry

For more information

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