



CoRe Pro B.V

Lab- & pilot-scale equipment



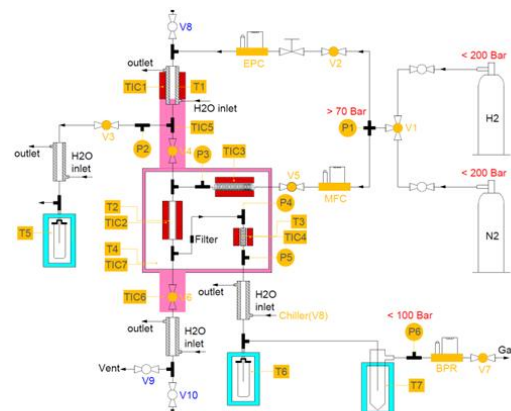
Catalytic (hydro-)Pyrolysis Unit (CPU)

This patented unit offers a solution for pyrolysis of solid and/or liquid renewable feedstock (either waste or model compound) using a heterogeneous catalyst *via* an *in-situ* or *ex-situ* approach under N₂ at an atmospheric pressure (catalytic pyrolysis) or under H₂ at a high pressure (catalytic hydro-pyrolysis).

Introduction

Catalytic upcycling circular carbon such as lignocellulosic biomass or plastics, contributes to a circular (bio-)economy. R&D is often performed in a lab- & pilot-scale unit, requiring:

- a universal feeding of solids and liquids (preferably in a continuous manner);
- collection of all the gaseous, liquid, and solid products for mass/carbon balance and offline qualification/quantification;
- 'catalytic reaction - catalyst regeneration' cycles for catalyst life-time and regenerability;
- an operation at high temperatures and pressures.



A schematic diagram of CoRe Pro - CPU system.

Functionality

A standard catalytic (hydro-)pyrolysis unit (CPU) includes:

- two pneumatic locking systems, which separate the pretreatment reactor, pyrolysis reactor, and solid residue collection;
- a catalytic upgrading
- a 3-stage condensation system, which condenses and separates gaseous and liquid products;
- a front and back pressure controlling system, which maintains the pressure. system;

Control

An integrated controlling system including a programmable logic controller (PLC) and a human-machine interface (HMI) enables an automatic operation with good reliability and repeatability. A unique transport of the solid feedstock and separation of the solid residue enables (semi-)continuous operation.

The pneumatic switching systems enable rapid and timely processing and product collection.



Pneumatic locking.



3-Stage condensation.



PLC and HMI.



Contact us for the following product sheets:

- Continuous (co-)FCC
- Continuous (co-)hydrotreating
- Continuous catalytic (hydro-)pyrolysis
- Continuous catalytic dehydrogenation
- Continuous catalytic wet air oxidation

CoRe Pro B.V.

co-FCC & Hydrotreating

info@corepro.eu

www.corepro.eu

Osloweg 4-17, 9723 BL Groningen
The Netherlands

Scan these codes to start chat with us.



WhatsApp



WeChat



CoRe Pro mini-industry

Lab- & pilot-scale equipment



Catalytic (hydro-)Pyrolysis Unit (CPU)

Specification of a standard CPU*	
Feedstock	<ul style="list-style-type: none"> • Solid (10 - 50 g/h, (semi-continuous)) • Liquid (10 - 100 g/h, (continuous))
Gas	N ₂ or H ₂ (20 - 100 ml/h)
Catalyst	Solid (particle size of 300 - 500, 800 - 1000 μm, 5 - 20 g)
Pretreatment reactor	25 °C - 250 °C
Pyrolysis reactor	400 °C - 600 °C
Catalysis reactor	400 °C - 600 °C
Reaction pressure	1 - 60 bar
Condensation	3-Stage condensation (from -40 °C to 5 °C)

- A solution for the integration of a customized CPU to your existing catalytic conversion system can be offered. This provides an additional feed line for the co-conversion of circular carbon to circular products;
- A solution for the integration of an in-situ or operando analysis system to a standard/customized CPU can be offered.
- Various circular carbon such as waste plastics, sludge, sawdust, and non-edible vegetable oil, and the pyrolysis protocols can be offered to catalyst players for testing the refinery catalyst for the (co-)conversion of circular carbon;
- Various state-of-the-art refinery catalysts such as zeolite and E-cat, and the modified catalysts can be offered to bio-refinery for testing the circular carbon for the (co-)production of circular (bio-)based fuels and chemicals.

Options

* A customized CPU can be designed and offered upon request.



Catalytic upgrading.



Liquid sample.



High pressure for hydro-pyrolysis.



Aluminum profile framework.



Gas preheater.



Contact us for the following product sheets:

- Continuous (co-)FCC
- Continuous (co-)hydrotreating
- Continuous catalytic (hydro-)pyrolysis
- Continuous catalytic dehydrogenation
- Continuous catalytic wet air oxidation

CoRe Pro B.V.
co-FCC & Hydrotreating

info@corepro.eu
www.corepro.eu
Osloweg 4-17, 9723 BL Groningen
The Netherlands

Scan these codes to start chat with us.



WhatsApp



WeChat