CANMILK

GREENHOUSE GAS REDUCTION IN AGRICULTURE USING PLASMA-BASED SOLUTIONS

CANMILK in a nutshell

- **Duration:** September 2022 - August 2026
- **Funding:** approx. 3M€ budget from EC and UKRI
- **Cooperation** between 7 partners from 5 countries

Background

- Agriculture accounts for about 10% of total greenhouse gas emissions at European level, with around 54% of these being methane.
- Methane (CH_4) is 80 times more potent than carbon dioxide (CO_2) in heating up the Earth on a 20-year timescale.

The solution

The CANMILK project is developing an innovative technology based on (non-thermal) plasma which will help farms to cut down methane emissions inside barns.

- The CANMILK system will be simple, safe and low maintenance so that it may be easily integrated to existing barn infrastructures.

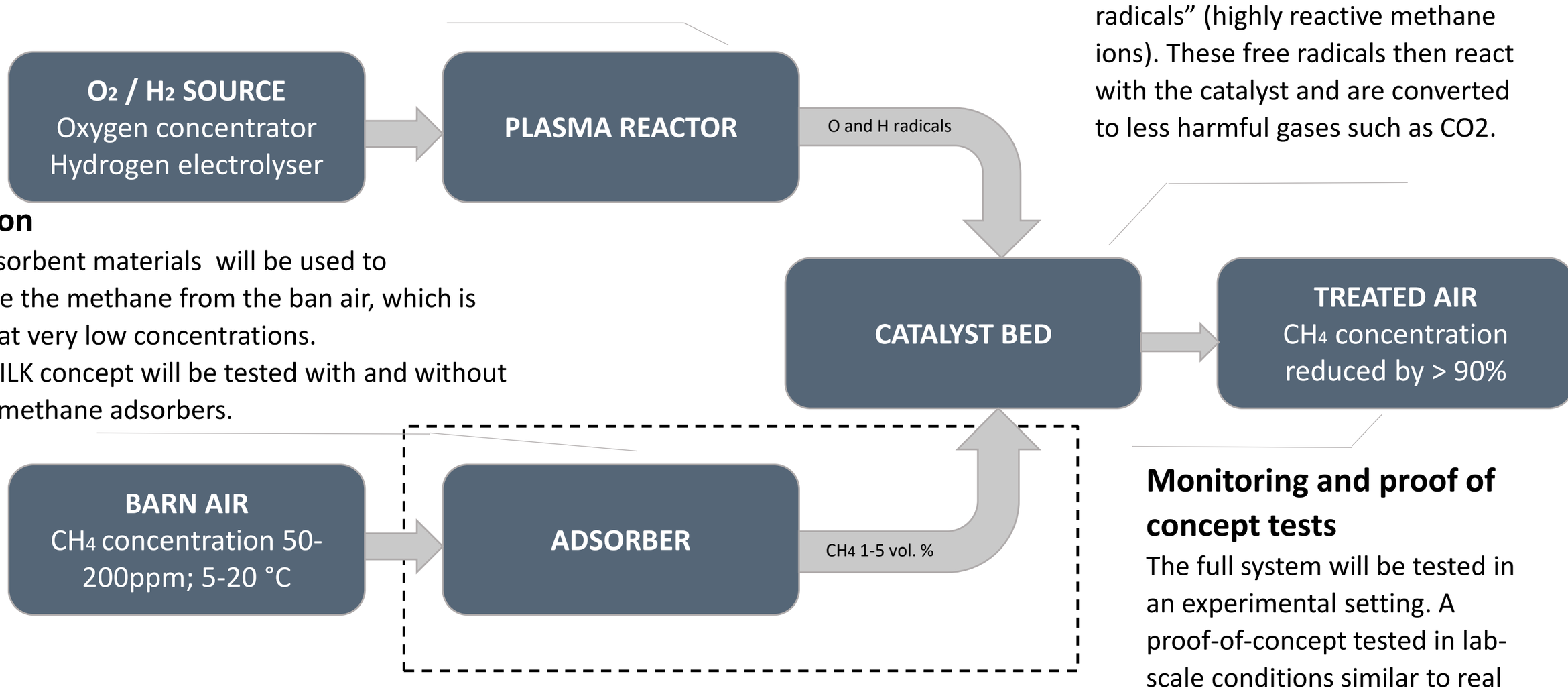
CANMILK Concept and approach

Plasma activation

Cold plasma is electrically charged matter in its gaseous state. CH_4 conversion will be studied by a combination of plasma experiments and modeling.

Catalysis

The oxygen and hydrogen plasma react with the methane and air mixture, creating methane "free radicals" (highly reactive methane ions). These free radicals then react with the catalyst and are converted to less harmful gases such as CO2.



Adsorption

Advanced sorbent materials will be used to concentrate the methane from the ban air, which is otherwise at very low concentrations.
The CANMILK concept will be tested with and without the use of methane adsorbers.

Monitoring and proof of concept tests

The full system will be tested in an experimental setting. A proof-of-concept tested in lab-scale conditions similar to real barns will follow.

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