NX Circular™

Our solution for waste-to-X

NEXTCHEM
MAIRE Sustainable Technology Solutions

About NEXTCHEM

NEXTCHEM is MAIRE’s company dedicated to Sustainable Technology Solutions. Leveraging our deep expertise in nitrogen, hydrogen, carbon capture, fuels, chemicals, and polymers, we deliver groundbreaking solutions and processes that fully enable the energy transition.

Building on the rich legacy of our group for over 70 years, we are dedicated to developing and offering technology solutions, processes, basic engineering designs, as well as proprietary equipment and catalysts, to drive global decarbonization efforts forward.

Creating value from waste

In today’s scenario, valorization of waste, decarbonization of waste management and chemical recycling are becoming pivotal. In this context, MyRechemical W2X technology is the most flexible and industrially proven technology for waste gasification.

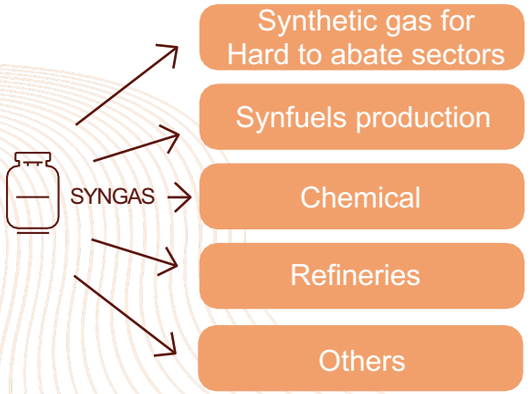
Our solution to transform waste into worth

This technology is applied for “Waste-to-X” solutions converting the syngas produced into circular chemicals and fuels bridging two sectors such as waste management and chemicals and fuels manufacturing, with substantial CO_2 savings from avoided waste incineration while decarbonizing the downstream sectors.
NEXTCHEM offers license, process design package (PDP), proprietary equipment (PEQ), training in existing facilities, digital & post-PDP services.

NX Circular™

Transforming waste into worth through valorization

Applications



Your benefits

1. Production adaptability, feedstock and capacity flexibility: all solid wastes and sludges from 8 to 20 MJ/kg (as mixture) including urban, industrial, agricultural and forestal residues

2. Operational efficiency (Modularity ~80 kt/year) Intrinsically clean syngas (no tars), easy to be coupled with chemical and biological synthesis

3. Environmental efficiency (EU Taxonomy compliant. In line with EU / USA legislation)

4. Financial efficiency (Two digit IRR due to three incomes: gate fee on waste, high premium products, carbon credits)

Technical overview

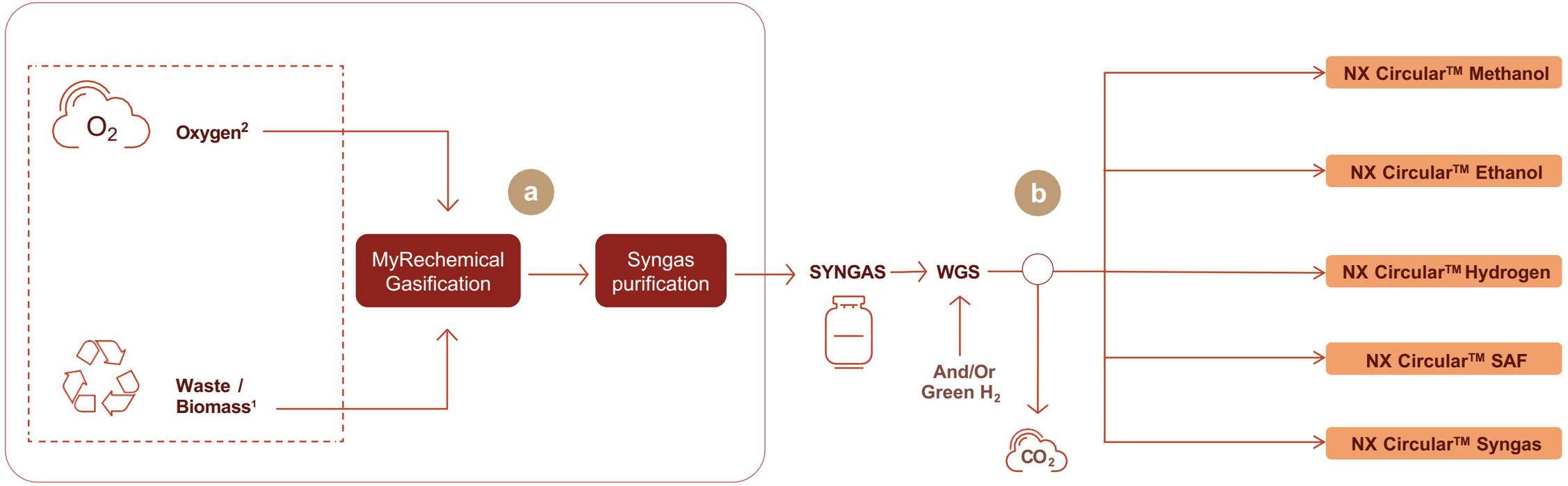
a

The feedstock undergoes a controlled partial oxidation thermally self sustained by full oxidation of part of C and H (Boudoir Equilibrium).

b

For conversion to H_2, SAF, Methanol, Ethanol the H_2/CO ratio is adjusted by WGS or adding external H_2.

NEXTCHEM proprietary technology



1. Feedstock can vary from unsorted urban or industrial waste, to RDF, plastic, end of life tyres, forest residue, sludges from 8 to 20 MJ/kg as mixture, with preference in the range 16 – 18 MJ/kg
2. Oxygen can be fed from Air Separation Unit or Water Electrolysis