

Refinery Hydrogen Management



Our expertise

Air Liquide operates over 400 units globally and annually invests around \$ 2bn in research and development. This knowledge and expertise is made available through licensed process technology and a range of services including design, engineering and start-up for a broad spectrum of leading-edge processing facilities for the refining and petrochemical industries.

Customer services

- Revamp of Pressure Swing Adsorption (PSA) to meet your process requirements and enhance your plant profitability
- Hydrogen optimisation audits and studies
- Asset life extension programmes for existing facilities
- Optimization of operations for maximum return on investment

References

- Steam Methane Reformer (SMR) > 130 units
- Membranes > 140 units
- PSA > 70 units

Air Liquide Engineering & Construction is your safe and reliable partner for hydrogen, combining global experience in licensing and engineering with decades of operational expertise.

The challenge

With the ever increasing need to satisfy stringent product regulations, efficient hydrogen management is essential to modern refineries.

- What are the enablers that allow refineries to minimize hydrogen production costs?
- How to achieve the highest efficiency?
- How to ensure safe and reliable operations?

Our solutions

We optimise your existing systems and integrate our suite of hydrogen technologies. The total cost of ownership is minimised through optimised design, continuous feedback from our own operations, experience and technologies.

Hydrogen production

SMR is designed for maximum hydrogen reliability and availability in operation.

- Top fired, compact and efficient units
- Lower production cost through internal process heat recovery

Hydrogen purification

- Pressure swing adsorption (PSA) for purities up to 99.99%
- Membrane units for purities more than 99%
- Low temperature shift plus downstream methanation for high hydrogen yields

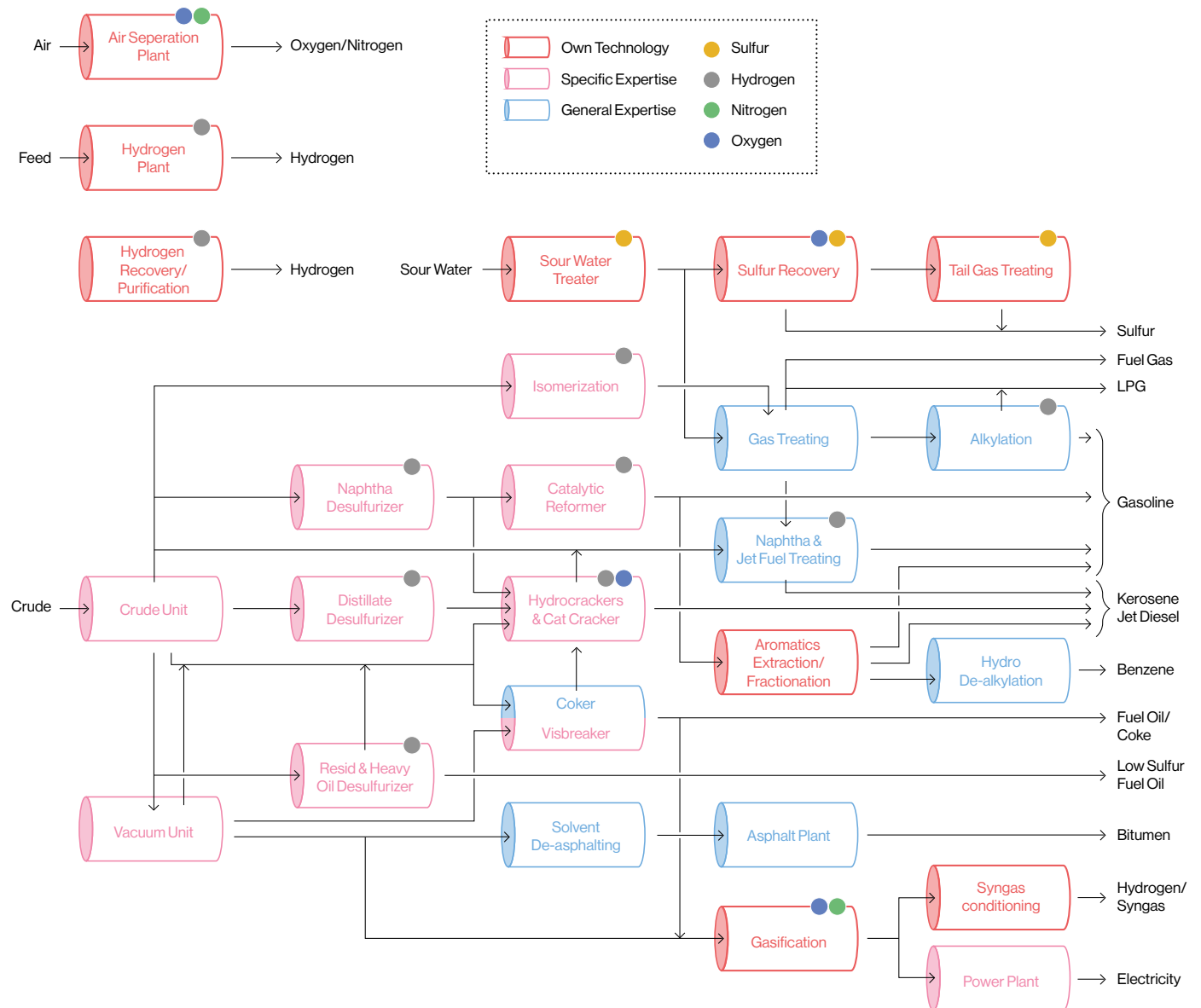
- Cryocap™ for cryogenic separation of CO₂ from hydrogen rich streams increases H₂ yields by 10%, when combined with PSA.

Partial oxidation

Proprietary Multi Purpose Gasification MPG™ of the "Bottom of the Barrel" is the non-catalytic partial oxidation of liquid feedstock (heavy residue), producing syngas. It provides:

- Maximum feedstock flexibility
- Long burner lifetime
- Inherent plant safety by pressurized water cooled burner tips
- Moderate and uniform wall temperature profiles with high onstream factor.

Air Liquide Engineering & Construction refining experience and expertise



Contact us

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