Plasma Reformer

OxEon's low energy Plasma Reformer technology has an established record with commercial customers for use in syngas/hydrogen production as well as hazardous gas neutralization via oxidation. This technology can provide a substantial price advantage against direct and substitute products in the small size range of ≤ 10 MMSCF per day of H2 or synthesis gas (i.e. carbon monoxide and hydrogen) production. The plasma reformer technology can convert any hydrocarbon that can be vaporized into synthesis gas (syngas).

Plasma Reformer

OxEon Plasma Reformer is part of the DAVINCH system for chemical weapons destruction at Kobelco facility in Kanda, Japan.

FEATURES

Sulfur insensitive
- No reformation catalyst used, plasma acts as self-renewing catalyst
- High sulfur hydrocarbons can be reformed and sulfur can be removed later in the gas phase if necessary

Fuel flexibility
- Light (methane) to heavy hydrocarbons (diesel, JP-8, etc) reformation

Variable operating temperature
- Driven by equilibrium thermodynamics
- 800 - 1050 deg C typical

High reaction zone activity
- Compact reformer size
- Soot free operation

Low electric power requirement for plasma
- Equivalent to < 2% fuel feed rate heating value
- < 8% of heat of reformation

Use cases

OxEon's Plasma Reformer can be sold at pricing that is at least 30% below current competitive products making it a viable, economical option. Reformers can be designed and tailored to customer's specific needs and resource constraints.

Synthesis Gas Production

Reformer sizes from 5 kW to 100 kW (thermal) have been fabricated for integrated energy systems to produce synthesis gas from methane and other hydrocarbons.
- CGE > 80 % heat rate product/reactant
- CO selectivity > 80% (feed CHn basis)
- Reformate residual CH4 < 0.25 %
- Reformate C2 not detectable

Reform Fossil Fuels

Field installation of a large reformer to reform tars and oil from bio-gasifier output at a flow rate of 500 cubic feet per minute.

Combustible Gas Reformation

Commercially installed and operated in several countries in oxidation mode to destroy combustible gas.

Multiple Mode Operation

- Partial Oxidation (Pox) : incurs a 35-50% efficiency penalty, but only air and fuel required for operation. Works quickly on cold start.
- Autothermal Reformation (ATR): steam and air used to reform fuel.
- Multi-mode operation: Starts in POx mode before transitioning to ATR operation.

OxEon's focus on component and systems development establishes revolutionary and accessible pathways to bring the implementation of renewable energy Beyond Current Potential. ™

OxEon Energy, LLC
257 River Bend Way, Suite 300
North Salt Lake, UT 84054, USA

info@oxeonenergy.com
+1-801-677-3000
OxEonEnergy.com

Beyond Current Potential