

HOLISTIC APPROACH TO INCREASE REFORMING CAPACITY. OVER 60 REVAMP STUDIES COMPLETED

Reformers Revamping & Troubleshooting Services

for
**Ammonia
Methanol
Hydrogen
Oxo-Syngas Plants**

SINCE 2006

Revamping & Re-Rating Reformers

by Kinetics Process Improvements, Houston

KPI-Houston is an Independent Process Technology, Design & Engg Consulting group specializing in Ammonia & Methanol Plants Revamps since 2006 to improve Capacity, Efficiency, Reliability & CO₂ footprint. Over 100 Revamp Studies completed

Objectives & Key Benefits

- To Improve Plant Capacity, Efficiency, Reliability & Emissions
- Identify Best Revamp Options using Cost-Benefit Analysis
- Practical & Cost-effective Solutions

Resources & Expertise

- Rigorous Reformer modeling
- Experience in all Reformer types
- Experience in Re-rating Radiant Section/Coils
- Experience in designing & optimizing Convection Section/Coils
- Experience in Burners & Combustion System upgrades
- Experience with APH, ID FD Fans
- Integrated Chilling* (patented)
- Basic Design Package
- Experienced Team of Process, Technology, Thermal Engineering

References

CFI, NUTRIEN, SABIC, CSBP, CHEMANOL, METHANEX, METHANOL HOLDINGS, SYNGAS Energy, OCI

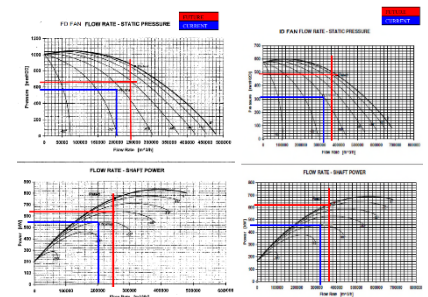
* Two Patents granted and one pending to reduce firing & CO₂ footprint in Ammonia & Methanol plant Reformers

Reformer Revamp Services

- Reforming System upgrades
- Radiant Section & Coil Re-rating
- Reformer Re-harping Studies
- Convection Replacement Studies
- Estimate Max. TMTs
- SCR sizing NO_x Emissions
- Reliability Review all systems
- Basic design & API datasheets
- Customized Training

Reformer Troubleshooting

- Reformer Performance Audits
- Review & Analysis of Design & Operational Limitations
- Process & Controls issues
- Heat transfer limitations
- WHB/Steam System issues
- Pressure drop/draft issues
- Temperature excursion issues
- Combustion & Firing issues
- Air Preheater issues
- FD and ID Fan limitations
- SCR/NO_x issues



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