

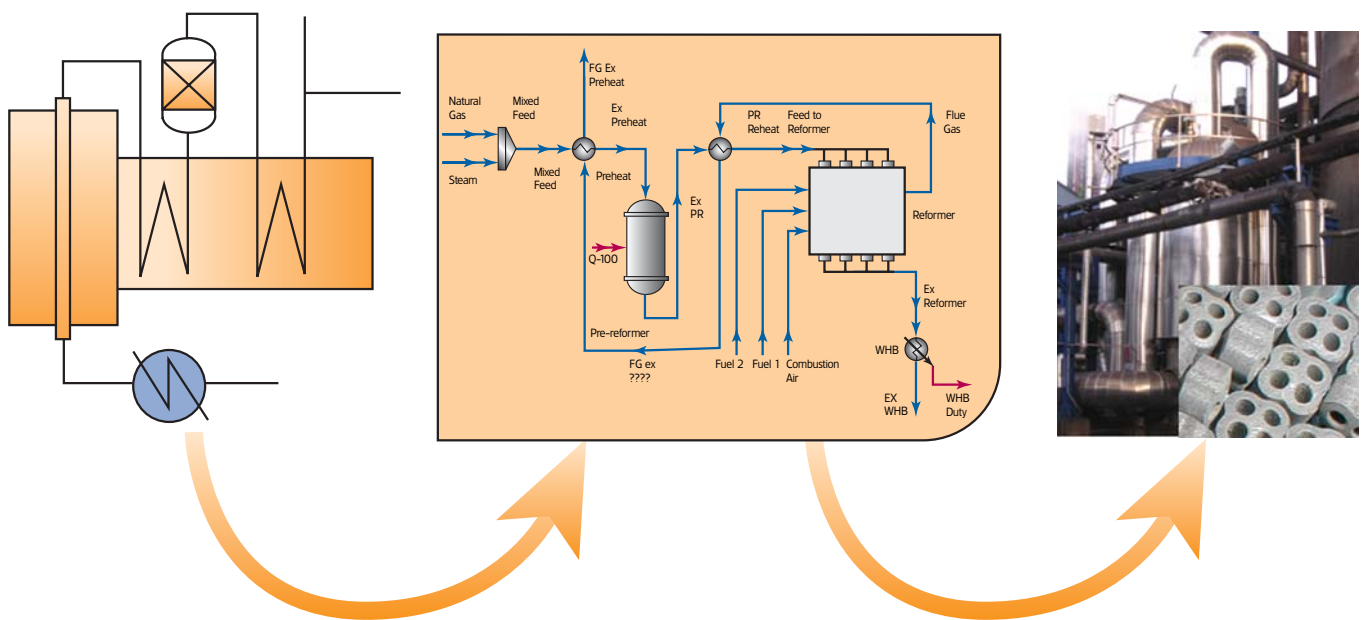
KATALCO_{JM} PERFORMANCE increases throughput

Ammonia plant revamps

With the increasing pressures on ammonia plant operators due to high natural gas prices, a highly competitive supply market place, improvements in ammonia plant technology and increased shareholder requirements for profits, all plant operators are under increasing pressure to maximize the profit derived from their plant. These improvements can typically be achieved in one of two ways,

- improvements in plant efficiency whilst maintaining production rate, or
- increased plant production rate whilst maintaining efficiency or, in some cases, improving plant efficiency.

There is a range of different options for revamping an ammonia plant, from simply optimizing operating conditions, optimizing the catalyst load out, operating excellence policies to the addition of new hardware. In the latter case this can include re-tubing the primary reformer and the addition of technology enablers such as a pre-reformer, modifications to the shift vessels or additional synthesis capacity.



It is important that the revamp is not restricted to the ammonia plant itself and that a full review of the site circumstances is taken into consideration. For example the value of steam on the site can fundamentally define what technology enablers can be applied to the plant.

KATALCO_{JM}™ PERFORMANCE offers a range of revamp activities to suit all operators needs including different levels of design studies, from concept engineering studies through to detailed engineering packages. Johnson Matthey has a wide variety of technology enablers that allow ammonia plant operators to economically and effectively revamp their plants. **KATALCO_{JM} PERFORMANCE** is in a unique position to serve the ammonia plant operator when revamping their plant since we,

- have a unique set of process plant modelling tools comprising of our outstanding, well proven data rationalization programs, the world leading primary reformer simulation package REFORM, the flowsheeting package HYSYS for AMMONIA, CFD and standalone unit operation models.
- are fully familiar with all the revamp options for an ammonia plant and as such are able to determine the effect on the ammonia plant and select the optimal options.
- understand the interconnectivity between the radiant and convection sections of the reformer and can determine the performance of these units using the reformer survey technique.
- fully understand the integration and optimization of catalysts and process to maximize the effect on an ammonia plant.
- have a deep understanding of the operation of all types synthesis gas plants and most especially ammonia plants.
- work daily in the design and modification of synthesis gas plants.
- are fully aware of the issues faced by ammonia plant operators.
- are fully knowledgeable of the different types of flowsheets on ammonia plants and their requirements

Because of all the above factors, **KATALCO_{JM} PERFORMANCE** can provide a comprehensive process and mechanical design service for ammonia plant operators when considering plant revamps.

For more information about the Johnson Matthey Catalysts range of **KATALCO_{JM}** catalysts and associated services please contact your local representative, visit our web site www.jmcatlysts.com or e-mail katalco.performance@matthey.com

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