KATALCO$_{JM}$ PERFORMANCE models key process equipment

Computational fluid dynamics (CFD)

In a syngas plant it is important to understand how key process equipment will perform at changing conditions.

Johnson Matthey Catalysts has many years of experience in using Computational Fluid Dynamics (CFD) to simulate the fluid behaviour in complex parts of the process equipment. The technique uses rigorous modelling to calculate velocities, temperatures and compositions of the process streams. These simulations can be used to understand such phenomena as mixing, combustion and fluid distribution.

Our CFD capability is built from commercial software that has been extended and customized better to suit the needs of a syngas plant. The models have been validated through detailed studies and measurement of actual plant conditions.

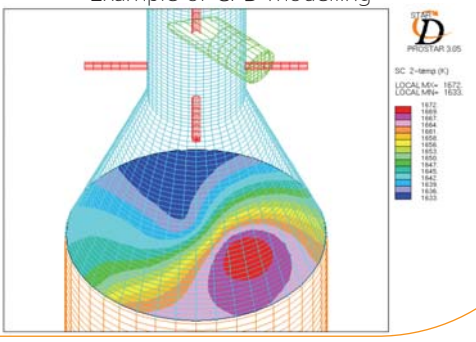
The Johnson Matthey Catalysts CFD modelling techniques are normally used by experienced engineers to address such issues as:

- fluegas flow in steam reformers
- combustion and mixing in secondary reformers
- gas distributors in catalyst reactors
- catalyst support and gas collector systems

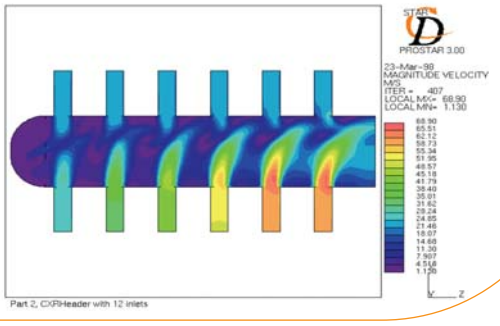
Our direct experience with CFD techniques for process modelling has identified the following benefits:

- clear understanding of complex flow situations
- expert application of modelling tools
- potential for redesign to improve plant operation

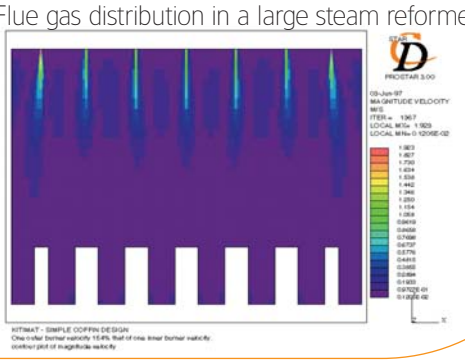
Example of CFD modelling



CFD modelling to show flows in a process header



Flue gas distribution in a large steam reformer



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.jmcatalysts.com or e-mail katalco.performance@matthey.com

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