

# **RSC Speciality Chemicals Symposium 2009: Catalysts for Change**

## **Going with the Flow - the Evolution from Batch to Continuous Hydrogenation**

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Hydrogenation is a technique widely used in many fields of the pharmaceutical and chemical industry. For low volume products, hydrogenation is typically carried out in batch mode using stirred tank reactors. Within GSK batch hydrogenation process design has evolved into a well understood, structured design methodology which ensures predictable scale-up. Continuous hydrogenation offers additional business benefit when applied to high volume products. The challenge for GSK and their IMPULSE partner CNRS Lyon was to demonstrate a viable continuous hydrogenation capability for high volume production which also managed the catalytic deactivation typically encountered in pharmaceutical hydrogenations.

Through a combination of process development to define optimal catalytic operating conditions and a duty/standby mode of operation with a packed bed reactor it could be conclusively proven that continuous hydrogenation is viable, which opens up this technology for wider application in the pharmaceutical and chemical sector.