

Recommendation for standardized testing of Aqueous Phase Reforming catalysts

The recommended test considered the use of both batch and continuous reactors, as both types of equipment are used during catalyst development. For the standardized tests, the feed chosen consisted on a mixture of 50% sorbitol and mannitol in water.

An activation protocol consisting on heating up the catalyst under H₂ at 375°C for a minimum of two hours under atmospheric pressure should be employed.

Subsequently, the standardized testing would be carried out, in brief, as follows:

- Batch reactor:
 - 30 bars pressure using N₂
 - 225°C
 - 2h
 - Gas collected and analyzed *via* GC, allowing calculation of activity and selectivity of the catalyst
 - Liquid analyzed *via* HPLC and CHN if required
 - Catalyst hydrothermal stability determined using TGA

- Continuous reactor:
 - 30 bar N₂ with a N₂ flow of 0.5NI/min
 - 225°C
 - 1-2 stabilization time prior to data collection
 - Gas collected and analyzed *via* GC, allowing calculation of activity and selectivity of the catalyst
 - Liquid analyzed *via* HPLC and CHN if required
 - Catalyst hydrothermal stability determined using TGA