

Guide

CATAGEN Ageing Metric Providing Efficient Data-driven Replication Of Catalyst

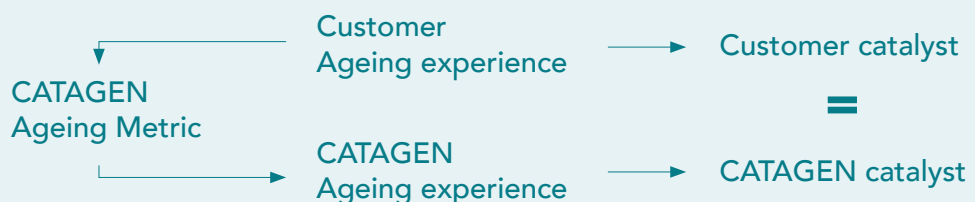
Objectives

- Partner was a light-duty German OEM
- Hardware needed to be aged equivalent to bespoke ageing protocol of the OEM
- OEM had a product launch deadline that had to be met
- Accurate and repeatable results were required for homologation

A key challenge for every OEM is generating aged catalysts accurately and repeatably for calibration. Any uncertainty over aftertreatment system performance will cause delays to product launch or larger safety margins for emissions performance

Approach

- The CATAGEN toolset, specifically the CATAGEN Ageing Metric, was used to quantify the bespoke customer ageing experience.
- An equivalent CATAGEN ageing cycle was specified and executed with industry leading control and repeatability. This is shown in the process diagram.
- As the CATAGEN Ageing Metric evaluation is embedded into the in-house OMEGA control software, the catalyst ageing experience is monitored on a second-by-second basis, allowing certainty to be placed on the extent of the catalyst ageing.



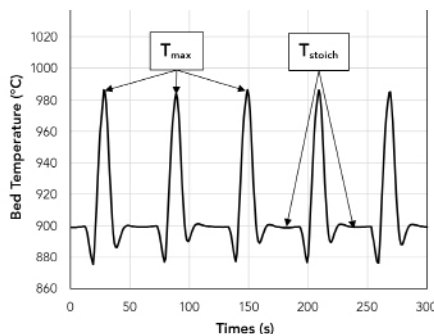
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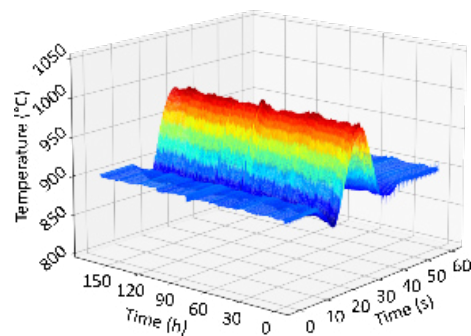
Outcome

- Representatively aged target catalyst generated to OEM's bespoke conditions
- The above was achieved 25% faster than if done on OEM's test bench
- The equivalency of the CATAGEN-aged hardware was validated through customer test bench characterisation

Standard Bench Cycle At Elevated Temperatures



Catalyst temperatures throughout 175hrs of SBC



Conclusion

Accurately and repeatably generating aged catalyst hardware is a challenging process. In this study, the CATAGEN toolset facilitated the development of a CATAGEN ageing cycle equivalent to a bespoke customer cycle. Ageing was complete with **high repeatability and accuracy** on the OMEGA test vehicle, with catalyst equivalency validated on the customer test bench.

Interested?

Contact one of our technical experts

