

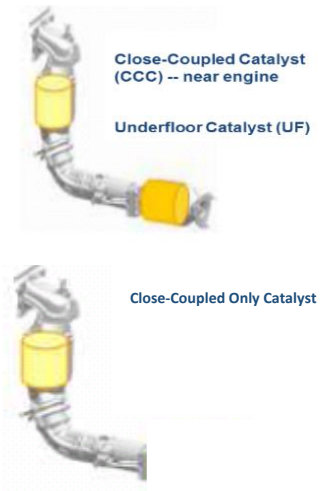
BMARS™ Technology

Initial Vehicle Testing Results

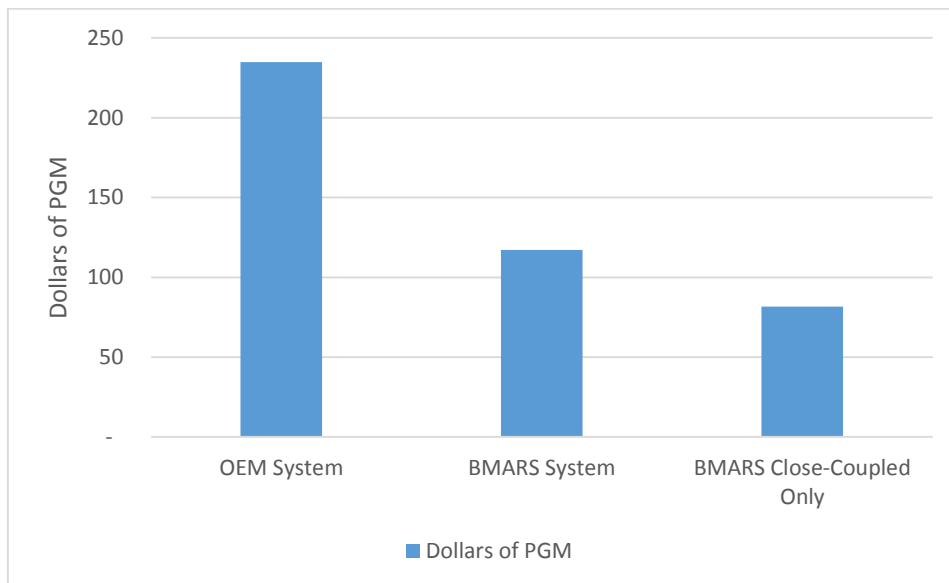
Testing was conducted on a 2014 Buick Regal passenger car with a 2.0 liter turbo-charged gasoline direct injection (GDI) engine and an EPA-certified Tier 2 Bin 4 catalyst system (the “OEM system”).

Three separate catalyst systems were compared.¹

- 1) **OEM system:** Close-Coupled catalyst (0/98/8.8) and Underfloor catalyst (0/51/8) using a total of 9.1 grams of PGM per vehicle.
- 2) **BMARS system:** Close-Coupled catalyst (0/49/4.24) and Underfloor catalyst (0/25.5/4) using a total of 4.6 grams of PGM per vehicle.
- 3) **BMARS “Close-Coupled only” system:** Close-Coupled catalyst (0/49/4.24) using a total of 3.2 grams of PGM per vehicle.



PGM usage costs of these catalyst systems²:

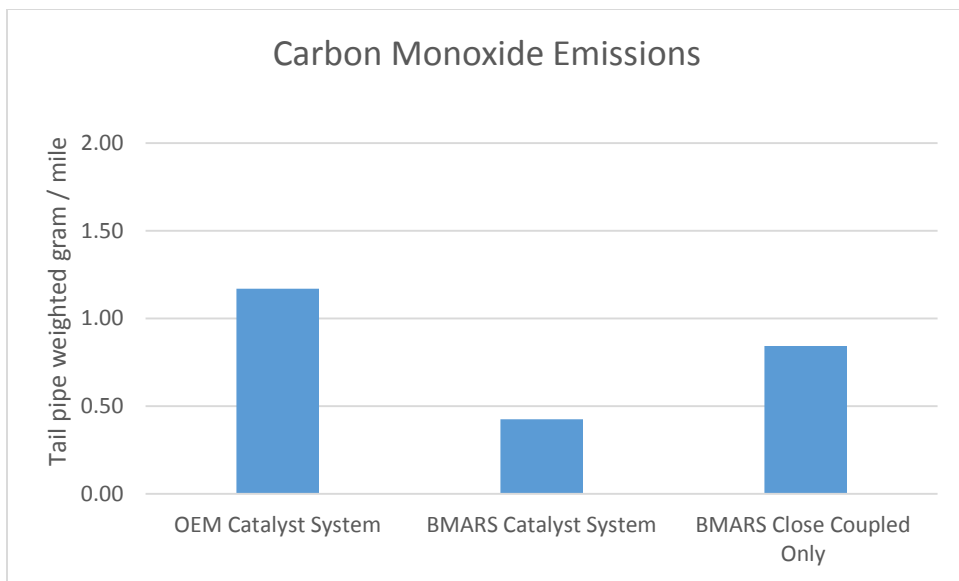
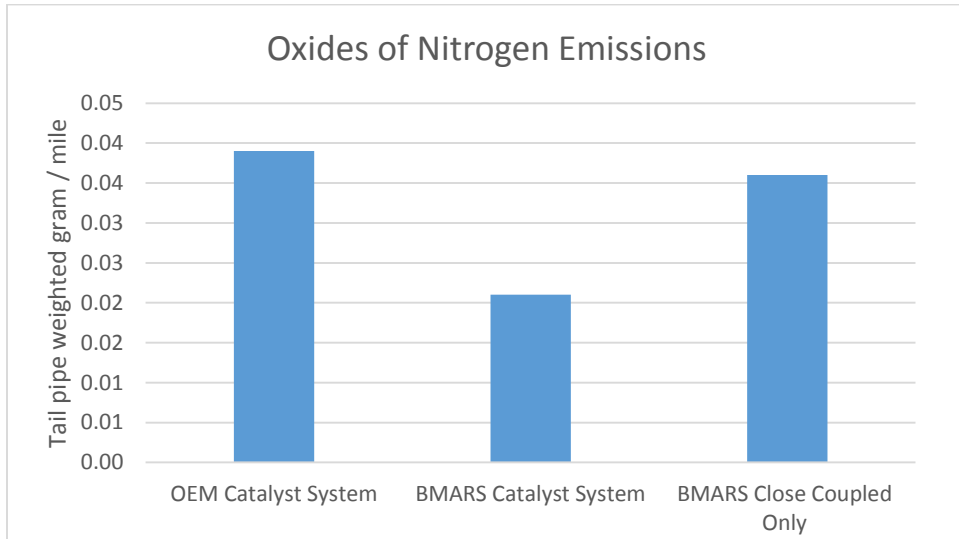


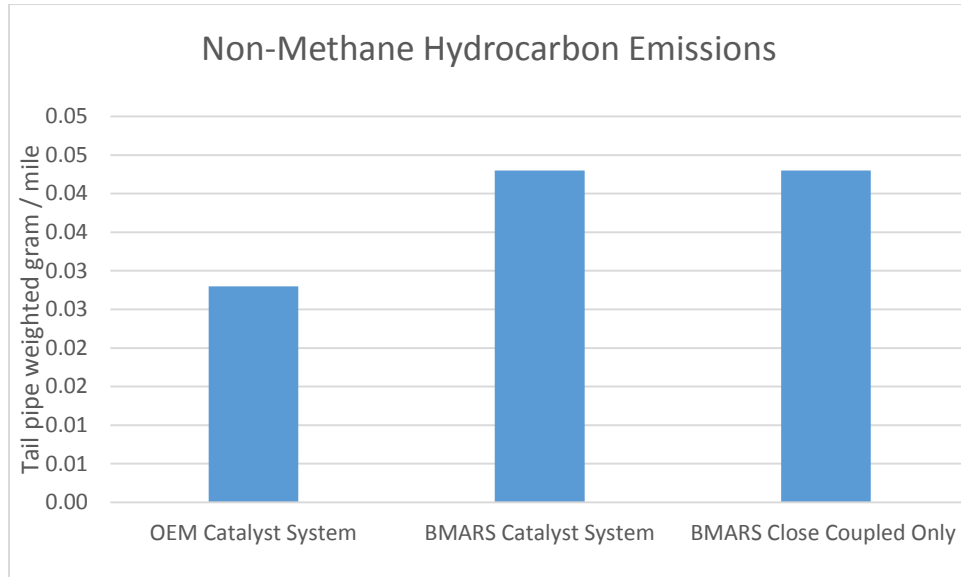
¹ Platinum Group Metal (PGM) usage = (Platinum/Palladium/Rhodium)

² PGM prices as of May 1, 2015



Initial tests indicate that the BMARS catalyst system utilizing 50% less palladium and rhodium outperformed the OEM’s system in reducing oxides of nitrogen (NOx) and carbon monoxide (CO) and met tailpipe regulations for the reduction of hydrocarbons (HC). Further demonstrating the NOx reduction power of BMARS, the “close-coupled only” system also outperformed the OEM’s system for NOx and CO reduction and met HC regulations utilizing just 35% of palladium and rhodium. The Federal Test Procedure (FTP) results for NOx, CO and HC are shown below.





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