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PRESS RELEASE

AECC DEMONSTRATES ZERO-IMPACT EMISSIONS FROM A GASOLINE CAR

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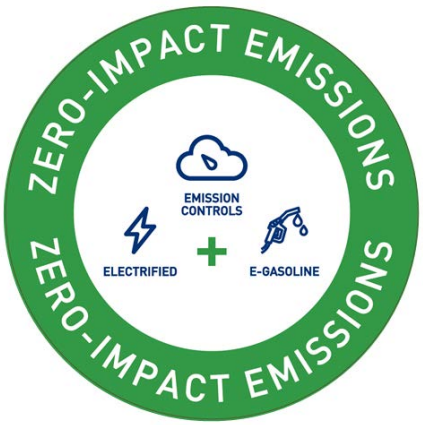
The Association for Emissions Control by Catalyst, AECC aisbl, demonstrates zero-impact emissions from a gasoline vehicle for meeting air quality and climate targets. This is achieved through an integrated powertrain approach. Pollutant emissions are reduced across a wide range of driving conditions using advanced emission control technologies with an electrified combustion engine. At the same time, Well-to-Wheel (WtW) CO_2 emissions are substantially reduced by running the vehicle on an e-fuel.



Impressive results were achieved during a rigorous technical programme co-funded by the International Platinum Group Metals Association (IPA), and undertaken at engineering company IAV in Berlin, Germany. E-fuel testing was conducted together with Aramco Overseas Company.

A Euro 6d 1.5 litre C-segment mild-hybrid gasoline car was used as the base vehicle. The original emissions control system was substituted by state-of-the-art components including a close-coupled electrically heated catalyst and three-way catalyst (TWC), underfloor gasoline particulate filter (GPF), a second TWC and an ammonia slip catalyst (ASC).

A challenging RDE test for cold-start was conducted down to -10 °C, showing the smart combination of technologies significantly reduces the initial cold-start peak for gaseous pollutants compared to the already low Euro 6d levels. Near-zero emissions are achieved within the first kilometre of driving, and maintained during all subsequent kilometres, independent of the testing conditions. These ultra-low results are also achieved for other species, e.g., ultrafine particles and ammonia.

The ultra-low emissions results were confirmed when running on an e-gasoline. An objective WtW CO_2 assessment shows this type of fuel has the potential to reach near-zero CO_2 emissions from a combustion engine.

At a time when the future of internal combustion engine vehicles is being discussed, these results clearly show that it is possible to continue to reduce their emissions to zero-impact levels. The data has been made available to the Euro 7 process and AGVES working group.

This zero-impact emission demonstrator car is being presented on 27-29 April 2022 at the Vienna Motor Symposium and is available for driving.

A handout is available at www.aecc.eu/wp-content/uploads/2022/04/220427-AECC-LDgasoline_demo_handout.pdf.

References:

1. “Ultra-low Emissions of a 48V Mild-Hybrid Gasoline Vehicle with Advanced Emission Control Technologies and System Control”, J. Demuynck, et al., SAE Technical Paper 2021-24-0070, 2021.

2. “Zero-impact emissions from a gasoline car with advanced emission controls and e-fuels”, J. Demuynck, et al., 43rd Vienna Motor Symposium, 2022.

AECC is an international non-profit scientific association of European companies operating worldwide in the research, development, testing and manufacture of key technologies for emissions control. Their products are the ceramic substrates for catalysts and filters; catalysts (substrates with catalytic materials incorporated or coated); adsorbers; filter-based technologies to control engine particulate emissions; and speciality materials incorporated into the catalyst or filter. Members’ technology is integrated in the exhaust emissions control systems of cars, commercial vehicles, buses, non-road mobile machinery and motorcycles in Europe. More information on AECC can be found at www.aecc.eu.

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