

AECC POSITION ON REPLACEMENT EMISSIONS CONTROL SYSTEMS

Position Paper – March 2017

Air quality has become a public-health issue in many urban areas across Europe. Transport is one of the pollution sources and, as such, needs to contribute to mitigating urban air quality issues. In that context, the emissions control industry that AECC, the Association for Emissions Control by Catalyst, represents will continue to foster state-of-the-art aftertreatment technologies.

The regulatory framework on tailpipe emissions from new cars, vans, and heavy-duty vehicles has strengthened over the last years. Major steps include notably the Euro VI requirements that have applied to all new heavy-duty vehicles since January 2014 and will be strengthened with regards to urban driving emissions with the Euro VI D stage introduced from 1 September 2018, but also with the introduction of Real-Driving Emissions (RDE) requirements for new cars and vans that will phase in from 1 September 2017 onwards.

In Europe, legislation on emissions from mobile sources focusses on type-approval of new vehicles. Provisions are nevertheless also included for the approval of replacement pollution control devices that are sold as aftermarket systems.

While legislative requirements are considered relatively robust for original equipment, concerns on quality, performance and durability of replacement components remain. In particular, durability requirements are lacking for replacement pollution control systems for cars and, as a consequence, low-quality and non-durable replacement products can be placed on the EU aftermarket.

AECC believes that emissions compliance to the type-approval standard should also be guaranteed after replacement of a component that is critical for the vehicle's emissions such as catalytic emissions control devices, filters, sensors, etc. Commission Regulation (EU) 2016/1718 that recently amended the heavy-duty Euro VI Regulation (EU) No 582/2011 provides a good example of how durability requirements for replacement components could materialise (see Annex XI to Regulation (EU) No 582/2011). It consists here in a data collection phase and a service accumulation schedule that will ensure that replacement pollution control devices are not only efficient when they are new but that their performance remains for a reasonable period of time.

A similar initiative is needed for passenger cars to ensure that tailpipe emissions from vehicles equipped with aftermarket emissions control systems are controlled not only on the regulatory test cycle, be it NEDC or the future WLTC, but also under the Real-Driving Emissions (RDE) test procedure, and that their performance remains for a reasonable part of the useful life of the vehicle.

UN Regulation 103 provides “Uniform provisions concerning the approval of replacement pollution control devices for power-driven vehicles contents” and was amended in 2014 to align in particular durability requirements with those of the 07 series of amendments to UN Regulation 83 (Euro 6-equivalent). For Euro 6 compression ignition (diesel) cars and light commercial vehicles, no assigned Deterioration Factors have been defined, therefore mileage accumulation similar to what is conducted with original systems is to be run to demonstrate the Type V test (durability) compliance on the regulatory test cycle. For positive ignition (gasoline) vehicles though, it allows the use of assigned Deterioration Factors in emissions measurement on the regulatory test cycle. This cannot ensure that only durable aftermarket products are placed on the EU market.

In Germany, the “Blue Angel” (“Blauer Engel”) Environmental Label¹ can be issued to replacement catalytic converters if the products guarantee sufficiently low emissions and remain fully functional in the long term. Replacement catalytic converters qualifying for the Blue Angel Environmental Label are subjected to an artificial ageing process, i.e. under hydrothermal conditions in an oxidizing atmosphere in a suitable oven, and then tested again to demonstrate their durability performance. In addition, there is a determination of the precious metals content. Due to varying quality in the production process, regular monitoring of the products in the form of yearly follow-up tests is prescribed within the award process for the Blue Angel Environmental Label. The award criteria are valid for replacement catalytic converters that are approved as separate technical units in accordance with UN Regulation 103.

Neither UN Regulation 103, nor the Euro 5&6 implementing Regulation (EC) No 692/2008 include any provisions on demonstration of compatibility of replacement pollution control devices with the Real-Driving Emissions test procedure and Not-To-Exceed Emissions requirements.

The vehicle type-approval framework Directive 2007/46/EC also includes provisions for the approval of components and separate technical units. Its Annex XIII includes a list of parts which have a significant impact on the environmental performance of the vehicle, their performance requirements and appropriate test procedures. Nevertheless this table has remained empty.

The European Commission has proposed to overhaul current legislation and its proposal COM(2016)31 for a Regulation on the approval and market surveillance of motor vehicles offers an opportunity to ensure sound and effective durability requirements, including for replacement parts fitted on cars. In this document, a similar Annex XIII is proposed but again remains empty and subject to the development of a delegated act in the future.

In the new type-approval framework Regulation, AECC recommends to already list pollution control devices in the second table of Annex XIII (parts with impact on environmental performance of vehicle) and to require demonstration of their emissions control performance not only on the regulatory test cycle but also in real-world, during the Real-Driving Emissions test procedure.

Should you need more information, you can contact AECC at info@aecc.eu.

22.03.2017

References:

[1] RAL-UZ 184, <https://www.blauer-engel.de/en/products/business/catalytic-converters>

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.

AECC's members are: BASF Catalysts Germany GmbH, Germany; Ibiden Europe B.V. Stuttgart Branch, Germany; Johnson Matthey PLC, United Kingdom; NGK Europe GmbH, Germany; Solvay, France; and Umicore AG & Co. KG, Germany.

AECC is registered in the EU Transparency Register under n° 78711786419-61.