WRITTEN COMMENTS
OF THE
MANUFACTURERS OF EMISSION CONTROLS ASSOCIATION
ON THE
U.S. ENVIRONMENTAL PROTECTION AGENCY'S
DRAFT CERTIFICATION PROCEDURE FOR LIGHT-DUTY DIESEL AND HEAVY-DUTY DIESEL ENGINES USING SELECTIVE CATALYTIC REDUCTION (SCR) TECHNOLOGIES

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MECA and MECA member companies have had the opportunity to review the draft guidance document on Certification Procedures for Light-Duty and Heavy-Duty Vehicles Using Selective Catalytic Reduction (SCR) Technologies. We support EPA's effort in issuing a guidance document that identifies key requirements that must be met to ensure that emissions control systems are functioning properly over their full useful life. Based on MECA member companies' experience, the following comments and recommendations are offered for EPA's consideration.

MECA is a non-profit association made up of the world's leading manufacturers of mobile source emission controls. MECA member companies have over 30 years of experience and a proven track record in developing and commercializing exhaust emission control technologies. A number of our members have extensive experience in the development, manufacture, and commercial application of emission control technologies for diesel engines. Several of our members have expertise in developing SCR catalyst technologies, urea dosing systems, and urea reducing agents for mobile and stationary applications worldwide.

MECA members consider SCR technology a proven NOx control strategy. SCR has been used to control NOx emissions from stationary sources for over 15 years. More recently, it has been applied to select mobile sources including trucks, passenger cars, and marine vessels. SCR using a urea-based reductant has been introduced on a large number of on-road diesel heavy-duty engines to help meet the Euro 4 heavy-duty NOx emission standards. SCR systems to date have demonstrated emissions reductions of up to 90% for NOx, 90% or more for HC and CO, and reductions of PM up to 40%. SCR has also been combined with DPF technology to provide simultaneous large reductions in NOx and PM emissions as well as reductions in CO and hydrocarbon emissions. Typical expected emission reductions of 85% for particulate matter and a 90% reduction in NOx have been demonstrated. Although SCR technology has been demonstrated across a broad range of application types in the U.S., it has not had to rely upon a large scale urea infrastructure for supply of quality reducing agent. The supply of quality reducing agent is the focus of our comments.

SPECIFIC COMMENTS RELATED TO THE DRAFT GUIDANCE DOCUMENT

MECA agrees with EPA that an important component of ensuring the usefulness and long term operability of an SCR system includes the availability and accessibility of high quality reducing agent. We believe that product quality and supply chain integrity are interdependent and essential to catalyst durability and we believe deserve more rigorous consideration in the guidance document.

With respect to product quality, we agree that the interested key parties must establish an industry wide quality standard and specifications similar to the AUS 32 Standard or ISO 22241-1:2006 used in Europe. Our concern is in the interpretation of the term "commercially available reducing agents" used in the draft document. Greater than 90% of the urea that is commercially available today is targeted for the agricultural market to be used as fertilizer. Therefore, the understanding of what constitutes commercially available today is not adequate for use in SCR catalyst emission control systems. Much of today's urea is a concentrated granular product containing impurities which are unacceptable for

durability of catalyst technologies. Proper dilution with purified water is essential to eliminate the introduction of Group I metals (e.g., sodium and potassium) and Group II metals (e.g., calcium and magnesium). The manufacturing process must be controlled to limit the possible introduction of ash forming phosphates or transition metals such as copper, zinc, iron, and chromium, among others. Extremely low levels of these constituents are important to the long term performance of any catalyst-based technology. Furthermore, the agricultural grade of commercial urea is dosed with unacceptable levels of formaldehyde (0.30-0.35%) which can reduce system performance due to injection nozzle fouling and deposition in the urea dosing system and on catalysts. These are adequately treated in AUS 32 which calls for <5 ppm aldehydes in the 32.5% solution, rules out the use of commercial grade, granular urea as a feedstock and requires the use of high purity water in the make-up of the urea solution.

This brings us to the second recommendation regarding availability of quality reducing agent within the context of supply chain integrity. MECA in general supports EPA's reducing agent availability schemes that are touched upon in the guidance document. MECA members' concerns lie in the integrity of the diesel urea solution supply chain. As we transition from a primarily agriculture based supply chain to one that must handle large quantities of significantly different grades of urea, some consideration and emphasis must be placed on the potential cross contamination that may occur if the transportation supply chain is not differentiated and secured from the conventional, agricultural based system. Once again, the concern is with possible introduction of impurities such as nitrogen compounds, phosphates, or potassium (NPK) commonly handled by today's conventional urea supply chain. Co-mingling of these compounds is of no concern for the agricultural end users but would be detrimental to catalyst durability. Availability and accessibility of reducing agent are crucial to the implementation of the 2010 on-road heavy-duty emissions standards. The implementation will not be successful if availability of high purity urea via a secure supply chain is not part of the planning process.

CONCLUSION

MECA shares EPA's desire to ensure that the SCR technologies that will be available to reduce emissions from heavy-duty diesel engines function properly and are not tampered with or deactivated. This guidance document is an important first step in providing a roadmap to certifying SCR technologies for new vehicles. Widespread public acceptance of the technology relies on both reductant quality and a secure supply chain to deliver a quality product from the plant to the consumer. We may perhaps take example from the rapid growth of biodiesel fuel that we have seen in the past years. Although an ASTM quality standard exists, the lack of proper quality procedures, adequate monitoring, and supply chain integrity has resulted in claimed estimates that 50% of biodiesel sold is out of specification. We would like to thank EPA for their consideration of the above comments and recommendations. We look forward to working with EPA, the engine and equipment manufacturers, the end users, and others as the Agency moves forward in certifying SCR NOx control systems in preparation for the new 2010 on-road heavy-duty emission standards.