

ISO WD 19612 -DETERMINATION IN REAL LIFE CONDITIONS OF THE PARTICULATE FILTRATION EFFICIENCY OF DIESEL FUEL FILTER

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The new common rail technologies impose the fuel circuit to be as clean as possible in terms of particles just upstream to the nozzles of the injection equipment. That is the reason why the main diesel fuel filter manufacturers (MAHLE, MANN+HUMMEL, DONALDSON, HENGST, UFI, CUMMINS, PARKER) are requested to propose the most efficient fuel water separators to the FEI manufacturers (such as BOSCH, DELPHI, SIEMENS).

Therefore, there is a need of the most representative standards to evaluate the particulate filtration efficiency of diesel fuel filters and then to make certify a given particulate cleanliness level just upstream to the FEI (for instance pollution code 14/8 as per ISO 4406).

The existing standards such as ISO 19438, SAE J 1985 don't fit exactly with the reality; there is no simulation of "start and go", no consideration of the filter position inside the engine. In two years, there is a working group combining the experience of most of the filter users and manufacturers to establish a new standard (referred as ISO 19612) which proposes to be included cyclic flow variation, vibration, a test fluid viscosity of 2-3 cSt equivalent to the diesel fuel and a particle size distribution of the pollution much closer to the real ones.

The paper is describing the first results obtained on some diesel fuel filter and more deeply the impact of both the cyclic flow rate variation and the vibration upon filtration efficiency. A first proposal based on these first results had already been written and given for approval to the filter manufacturers and users.