**(SFJW Abstract Sample)**

Characterization of the particulates emissions of Euro5 vehicles: GDI vehicles versus Diesel vehicles.

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Road transport is an important source for particulates emissions (around 15% in Europe urban areas). Those emissions are ruled by European standards (Euro1 to 6). Particles number started to be regulated with the application of Euro5, especially for those superior to 23 nm. Nevertheless, it has been found out that particles below 23 nm diameter size are often associated to VOCs suspected to be strongly involved into nucleation or condensation processes giving rise to Secondary Organic Aerosols (SOA) as soon as it exhaust the tailpipe.

We have studied two Euro5 cars on a chassis dynamometer test bench at IFSTTAR in Bron - France. One Diesel car (type 1.5 DCI) and one gasoline direct injection car (GDI) (type 1.2 TSI). The two vehicles experienced a first urban ARTEMIS cycle at cold start, in the morning, and then a series of nine highway ARTEMIS cycles at hot start. We connected our instruments on a Constant Volume Sampler (CVS). During the cycles we measured the particles sizes and numbers (SMPS+E, CPC, Mini Particle Sampler using TEM grid), the amount of black carbon (MAAP), the morphology of the particles (Mini Particle Sampler using TEM grid, and TEM analyses), and only for the diesel car, the chemical composition of the particles (AMS).

On the basis of each day’s driving cycle program we could observe a different kind of emission patterns not only due to the different engine types but also due to the depollution system that the diesel car was equipped with.

**Keywords**: vehicle emission, DPF, nucleation, cold start, ultrafine particles.