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## Secondary aerosol formation potential of vehicles representing different transport sectors

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The exhaust emissions from transport sector as well as their air quality impacts have been steadily decreasing in urban areas due to the more stringent emission limits. The secondary aerosol formation process from inorganic and organic gaseous precursors emitted by traffic remains poorly characterized and is likely very different for different vehicles. The aim of this study is to explore the influence of fuel, engine technology and aftertreatment systems on the secondary aerosol formation potential from exhaust emissions by different traffic sectors.

The measurement data utilized in this abstract originates both scientific literature and from various national and international projects spanning the period from 2014 to 2024, including both laboratory and field studies. In studies, secondary aerosol formation was investigated employing an oxidation flow reactor (OFR). In addition, in most studies a comprehensive characterization of the physical (e.g. particle number, size distribution, PM, volatility) and chemical properties (e.g. BC, organics, inorganics) of fresh (before OFR) and aged exhaust (after OFR) was conducted. The secondary aerosol formation potential is compared between transportation sectors as well as for different fuels, engine and aftertreatment technologies. The results from the conducted campaigns show a large variation in secondary aerosol formation potential for different vehicles and vessels. While conducted studies contribute to the analysis of factors influencing secondary aerosol formation, they also indicated significant gaps in our understanding regarding the secondary aerosol formation.

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