



I - Introduction

Therefore, considering that the vehicular fleet of MASP equipped with there-way catalysts corresponds to 46% (vehicles from 1999 onwards) of In the last two decades, the ammonia emissions and their chemical the 7.9 milion light vehicles (CETESB, 2011), is reasonable that the presence of this technology has an impact in the urban emissions of ammonia > The purpose of this work is to evaluate the contribution of gaseous ammonia in exhaust vehicles systems fed with fossil fuels in São Paulo, Brazil. II - Metodology → Sampling Site – The Road Tunnel enos Aires • • Montevide G E N TINA 🗋 THE REAL PROPERTY OF Sources: ArcGis (ESRI); a - Veja, April, 2011; and b -Guatelli, Folha, 2008. Figure A: Aerial view of Sao Paulo. The marked points represent the location of the The contribution of vehicles to non-agricultural emissions of NH₃ could sampling sites (Jânio Quadros road tunnel and the Parque do Povo public square Source: Google Earth. significant until 1995, however, due to the not catalytic converters technology in light vehicles, the → Filter → Simplified Impinger System: ➔ Filter: Potassium Iodide (KI); \rightarrow Pneumatic Pump: Up to 2 Lmin^{-1;} 5x10° → Sampling Interval: 1 hour; ///// Fleet Gasohol Pneumatic -Age \rightarrow 41 solutions for each sampling site. Pump 4x10⁶ Flex Fuel H₂SO₄ 1mmol → Sampling Campaign: 04/05 – 10/05 3x10⁶ Gasohol Figure B: Impinger Sampler ///// →FIA-GD-C⁴D analytical $\rightarrow PM_{2.5}$, PM_{10} , CO, SO₂ used for NH₄+ system 1x10⁶ -Figure A: Number and aging Ethanol Diesel were measured and are of vehicles in Sao Paulo State determination by type of fuel. Source: being processed. Heavy Motorcycles Light (Brazl et al, 2011) **CETESB**, 2011.



reaction with atmospheric acids (sulfuric, nitric and hydrochloric), named Gasto-particle conversion, has been extensively studied. The formation of the secondary inorganic aerosols are strongly influenced by the ammonia and the precursors gases concentrations (NO_x e SO₂), temperature, relative humidity and solar radiation (Seinfeld and Pandis 2006, Behera et al., 2011). → Metropolitan Area of Sao Paulo (MASP) - 19 million inhabitants (IBGE, 2010), high socioeconomic variability, unique profile of the vehicle fleet. be considered incorporation of contribution to ammonia emissions vehicle becomes substantial (Fraser and Cass, 1998). ± 2x10⁶





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Ammonia Determination in a Road Tunnel of Metropolitan Area of Sao Paulo, Brazil

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CAPES

