

PM10 Conformity determinations: The equivalent emissions method, Submitted to Transp Res Part D (2002)

ABSTRACT

Equivalent emissions is a new PM10 transportation conformity method described in the Southern California Association of Government's 1998 Conformity Analysis that was designed to introduce flexibility into transportation conformity findings. In this paper, we review the equivalent emissions calculations and evaluate the new method based on the accuracy of its predictions. Predictions from equivalent emissions are compared to predictions from a mechanistic air quality model that uses non-linear chemical mechanisms to predict secondary PM10 formation. Results indicate that the equivalent emissions method overestimates reductions of secondary PM10 formation allowing the primary fraction to rise while secondary PM10 is not actually declining in the atmosphere. This suggests that the equivalent emissions method, and air quality models which assume linear chemistry, are inaccurate methods for conformity determination in regions where secondary particulate matter contributes significantly to average annual PM10 concentrations.