



Mobile Smog Simulator

New Capabilities to Study Urban Air Mixtures

The U.S. Environmental Protection Agency's Air, Climate, and Energy Research program conducts comprehensive inhalation toxicity testing of combustion emissions. A smog simulator developed by EPA scientists and engineers has unique capabilities that will provide information for assessing the health impacts of relevant multipollutant atmospheres and will identify the relative contribution of specific sources on these processes.

Research Objectives:

- Generate novel atmospheres containing secondary organic aerosols and other reaction products.
- Study multipollutant health effects, including types, classes and activity that affect various health indicators.
- Perform cell (in vitro) screening for mutagenicity, cytotoxicity and oxidative stress markers.
- Conduct acute cardiopulmonary health testing of atmospheres using animal models of cardiac stress, hypertension, metabolic syndrome, respiratory infections and allergic asthma.
- Assess effects of temperature changes on smog formation.
- Support EPA's evaluation of air mixtures for setting the National Ambient Air Quality Standards (NAAQS).

SMOG SIMULATOR FEATURES:

Controllable conditions and reaction times

Various pollutant condition simulations

Unique temperature control capability

Simultaneous *in vitro* and *in vivo* testing

Steady-state mode enables extended testing times

Contact:

Dr. Ian Gilmour
919-541-0015

gilmour.ian@epa.gov