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# ISIAQ NEWSLETTER

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## Special Edition

### **CARB Research Seminar: In-duct air cleaning devices: ozone emission rates and test methodology**

Webcast, Friday, November 08, 2013, 10:00 am PST

Current ISIAQ Vice President of Policy, Dr. Glenn Morrison, will be conducting this research seminar via webcast.



The California Air Resources Board's (CARB), air cleaner regulation limits ozone emissions from portable air cleaning devices, but in-duct devices were exempted due to the lack of test data and a test method. Dr. Morrison will share the results of a

collaborative study, which examined emission rates from electrically connected in-duct devices and resulting indoor concentrations of ozone in buildings. In their study, a detailed standard test method was developed in parallel with the construction and development of a laboratory test apparatus. Eleven electrically connected in-duct air cleaners (seven models) were tested on the laboratory test apparatus using the newly developed test method. Ozone emission rates in laboratory tests ranged from undetectable, to greater than 350 mg/hr. With some exceptions, emission rates were generally not sensitive to flow or temperature.

Dr. Morrison will be sharing results of field tests of electrically connected devices that were completed in seven residential buildings (1 in Tulsa, OK, 6 in the Davis/Sacramento area of California). One commercial unit was tested in a classroom. The incremental increase in the ozone concentration due

to the operation of these devices ranged from undetectable to greater than 150 ppb, with devices operating normally. Similarly, estimated emission rates in field sites ranged from undetectable to greater than 400 mg/hr. Two intentional ozone generators increased the ozone concentration in field residences by greater than 50 ppb. For a typical house, the mass-balance model predicts that an emission rate of approximately 150 mg/hr would raise the indoor concentration by about 50 ppb. A dynamic (time-dependent) multi-zone model found that separate rooms can have very different and elevated, indoor air concentrations even when the air handler is off, but the device is operating. Based on model analysis, laboratory testing and field studies, the project team concluded that the use of electrically connected in-duct air cleaners of the types studied in this research can increase residential indoor concentrations of ozone above the current California limit set for other ozone generating devices.

### **Information on how to participate in this webcast:**

For "external" users please check the external webcast calendar at:

<http://www.calepa.ca.gov/broadcast/?bdo=1>

For "internal" users please check the internal webcast calendar at:

<http://epanet.ca.gov/broadcast/?bdo=1>

Your e-mail questions will be aired during the Q&A period following the presentations. Please send your Q&A participation to: [sierrarm@calepa.ca.gov](mailto:sierrarm@calepa.ca.gov)

For more information on this seminar presentation please contact:

Jeffrey Williams, Ph.D. at (916)322-7145 or [sierrarm@calepa.ca.gov](mailto:sierrarm@calepa.ca.gov)

### Speaker Biography

Glenn Morrison, PhD., is a Professor of environmental engineering at the Missouri University of Science and Technology. Dr. Morrison has worked for 25 years on environmental chemistry and environmental engineering problems, focusing primarily on the indoor environment. In laboratory and field research, he has extensively studied the chemistry of ozone with indoor and

human surfaces and the impact that chemistry has on occupant exposure to ozone and chemical reaction products. Professor Morrison is an NSF CAREER awardee and a Fellow of the Academy of the International Society of Indoor Air Quality and Climate. He is also ISIAQ's President-Elect and served as the Technical Chairman of Indoor Air 2011, Austin, TX.

### About ISIAQ

With more than 800 members from more than 45 countries, ISIAQ is an international, independent, multidisciplinary, scientific, non-profit organization whose purpose is to support the creation of healthy, comfortable and productive indoor environments. We strongly believe this is achievable by advancing the science and technology of indoor air quality and climate as it relates to indoor environmental design, construction, operation and maintenance, air quality measurement and health sciences.

As a Society, our major role is to facilitate international and interdisciplinary communication and information exchange by publishing and fostering publication on indoor air quality and climate. We organize, sponsor and support initiatives such as meetings, conferences, and seminars on indoor air quality and climate; and we develop, adapt and maintain guidelines for the improvement of indoor air quality and climate.

ISIAQ's journal, *Indoor Air*, published six times per year, is the most respected and widely-cited source of scientific information relevant to building scientists and professionals. Our two major international conferences -- the Indoor Air 'xx and the Healthy Buildings 'xx conference series -- set the standard for high quality scientific information and its application to making healthy buildings. We also cooperate with government and other agencies and societies with interests in the indoor environment and climate.

### International Society of Indoor Air Quality and Climate—ISIAQ

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