MCCEM Questions and Answers

How Does MCCEM Work?

. MCCEM is a user-friendly software product that estimates indoor air concentrations using a mass balance approach.
. Maintains a library of residences, containing data on zone or area volumes, interzonal air flows, and whole-house exchange rates.
. Allows you to tailor your analysis to a particular location, and to model air concentrations in as many as four zones for a given residence.
. Estimates exposure for periods ranging from 1 hour to 1 year. Develops seasonal or annual exposure profiles using a long-term model.
. Offers several different options for dealing with 'sinks'. A sink is a material (e.g., carpeting, wallboard) that can absorb chemicals from the air; the absorption can be either reversible or irreversible.

What Do I Need to Use MCCEM?

. Data on the indoor environment to be modeled, including type of residence, zone volumes, interzonal air flow rates, and air exchange rates. You can enter your own site-specific data or access the model's library to select default data from different types of residences in various geographic areas.
. A measured or estimated pollutant emission rate as a function of time.
. Rate constants and areas for the sinks (sinks are optional and do not need to be used to run MCCEM).
. Occupant activity pattern (for inhalation exposure calculations).

How Are MCCEM Data Used?

You can use MCCEM to estimate inhalation exposures to chemicals released from products or materials in residential settings or other indoor environments.

What Type of Computer System Do I Need?

Hardware: IBM-compatible computer with 16K RAM and a pentium processor.
Software: Windows 95 operating system.

What Is MCCEM's Status and Availability?

The program is now available for use in a Windows 95 operating environment.

EPA is currently working on transitioning MCCEM into a web-based environment on OPPT's IGEMS.

Q: Where can I find information about how MCCEM calculates indoor air concentrations and exposures?

A: The model documentation is contained in the help screens within the model.

Q: Has MCCEM been peer reviewed?

A: An external (i.e., by scientists outside of EPA) peer review of MCCEM was conducted in 1998. Revisions to the model in response to the peer reviewers' comments was completed in April, 1999.

Q: Has MCCEM been evaluated to ensure that the model calculations are being done correctly?

A: Yes. See the model evaluation help screen in MCCEM.

Q: One of the required inputs to MCCEM is an emission rate. How can I obtain this input?

A: The emission rate of a chemical from an indoor source sometimes can be estimated (e.g. the rate at which a volatile chemical is released from an aerosol consumer product) or it can be measured using small or large testing chambers. The American Society for Testing and Materials (ASTM) has published a standard guide for small chamber testing of organic emissions from indoor materials and products. (ASTM D 5116-90).

Q: Is there a user's guide available for MCCEM?

A: A user's guide for MCCEM is not currently available, but is under development.

Q: What updates occurred between version 1.1 and 1.2 (February 2001)

A: In the previous version (1.1) of MCCEM, errors in assignment of zone-specific concentrations to the exposed individual, based on the primary/secondary/override patterns from the Activities input screen, sometimes occurred for model runs longer than 7 days. These errors have been corrected.

For some of the emission models (Emissions screen), small values were truncated to zero when writing the user inputs to a transfer file for use by the calculation routine. In some cases, the emission-rate inputs were not correctly converted to mg/day when writing the inputs to the transfer file. Both of these errors have been corrected.

For the "Data Entry" model for emissions, time units were not saved correctly and the input screen would not refresh properly if a file was opened while information was already displayed on the input screen. Both of these errors have been corrected.

For the Activities screen, certain user inputs would not save correctly if they were left blank. The model now issues a warning if a zone or breathing-rate field is left blank, and automatically inserts a value of zero for any time-related field (day, hr, or min) that is left blank.

One typo was corrected on the Execution help screen.

The Help -> About screen was updated to show Version 1.2 and February 2001.

The MCCEM software installation package is now provided as a single (zip) file.