Further Development of the Chemical Mixture Methodology (CMM) Wizard

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Introduction

The Chemical Mixture Methodology (CMM) is a Department of Energy (DOE) Subcommittee on Consequence Assessment and Protective Actions (SCAPA) program developed to ensure individuals' safety in the event of a chemical release into the atmosphere. The CMM uses Health Code Numbers (HCN) to predict biological health risks from these airborne chemical mixtures. The CMM currently uses an Excel workbook and a web application, the Wizard. The CMM Wizard has undergone minor revisions this summer and a user manual for the application is being developed.

Background Information

The CMM Method

The CMM requires a user to input chemical information using unique CASRN, receptor location, and concentration levels. A PAC concentration limit is used along with the user entered information to calculate Hazard Index (HI), which is given by:

$$HI = \frac{Concentration\ at\ Receptor}{Concentration\ PAC\ Limit}$$

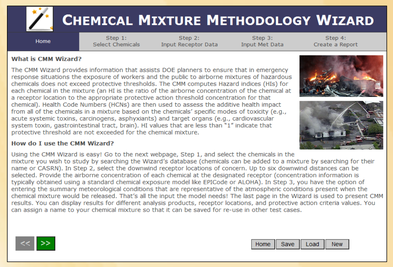
HIs are used to determine the potential severity of harm from the mixture. HIs are summed and if this value exceeds 1.0, further evaluation is necessary.

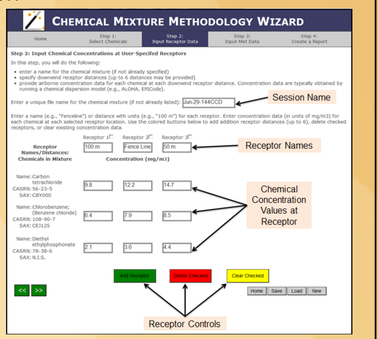
The CMM Wizard

- Online application
- Utilizes user entered information to calculate HIs
- Offers multiple receptor locations
- Provides various report display options

The Wizard User Manual

Created to provide users with an easy to understand, workable instruction guide along with troubleshooting tips and the CMM Development Team contact information

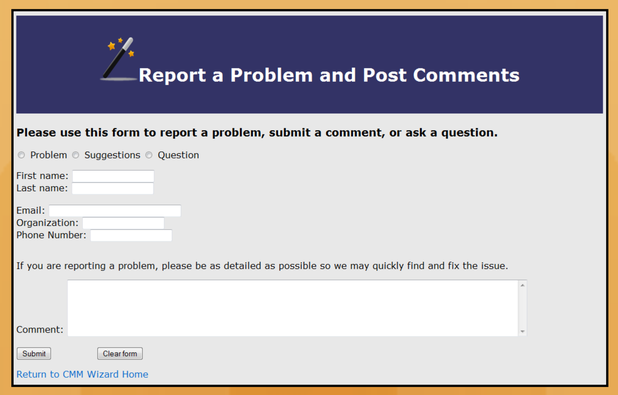


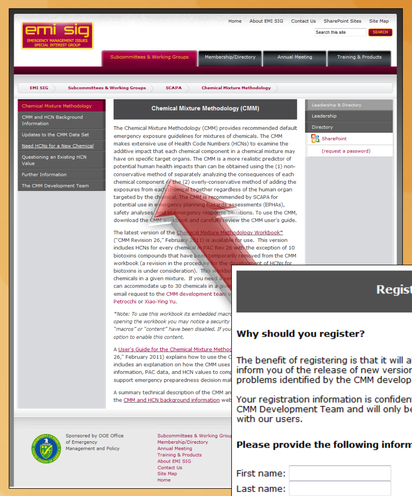


New Features

The Wizard Contact Page

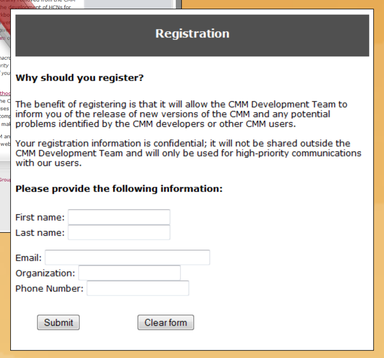
- Will be added as a page to the CMM Wizard Website
- Allows Wizard user to submit a problem report, comment or question
- Users may navigate back to the Wizard Homepage
- Written using HTML





The CMM Registration Page

- Will be added as a page to the SCAPA CMM Website
- Available for all CMM applications
  - Allows CMM user to sign up to receive CMM updates and notifications
  - User information will be kept confidential
  - Written using HTML



User Manual Features

Introduction to CMM
- Includes a brief introduction to the CMM project

Instructions for the CMM Wizard with images
- Detailed, step-by-step instructions with corresponding screen shots of the Wizard application

Registration information
- Information about why a user should register with the CMM Development Team

Comparison of the CMM Workbook and the CMM Wizard
- Table outlining the similarities and differences between the CMM Workbook and the CMM Wizard

How it works
- Technical explanation of what is done at each step through the Wizard application.

Future Development

The CMM Registration page
- SCAPA application clearance necessary before can be incorporated into SCAPA CMM page

The CMM Wizard
- Implement edits
- Error messages to alert users to invalid actions
- Allow users to save from current page
- Add Contact page

The CMM Wizard User Manual
- Troubleshooting techniques: requires error messages
- FAQ page
- Save instructions: requires save ability edits
- Image updates: requires summer edits to be implemented

References:

SCAPA CMM webpages are available at http://orise.orau.gov/emi/scapa/chem-mixture-methodology/default.htm

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Award #0952013

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