Occupational Chemical Exposure Management System

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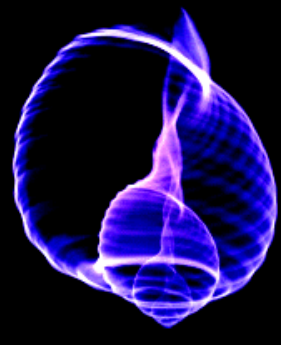
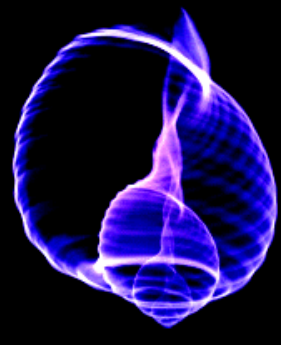
Background



- In Taiwan, every industrial factory was required to monitoring chemical exposure concentration at work place in half year by Occupational Safety and health Act.
- Exposure concentration data came from worker (personal monitoring) and work place (area monitoring)
- Almost 70 thousand data were received, and the total expense is 4.5 million US $ per year
- Government wish those data can help companies to prevent occupational disease happened , and reduce the higher exposure concentration after a regular periodical monitoring

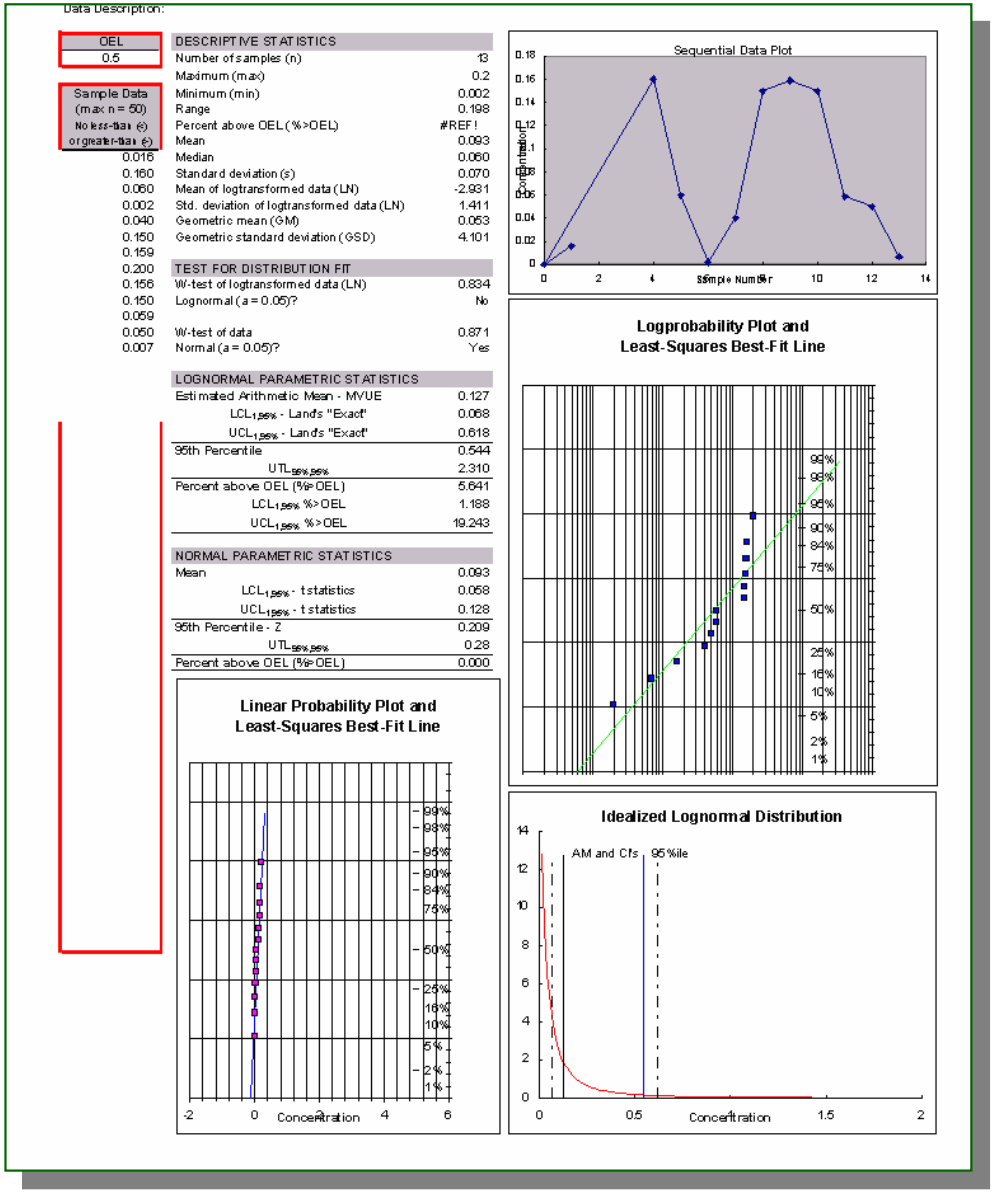
But, Unfortunately …



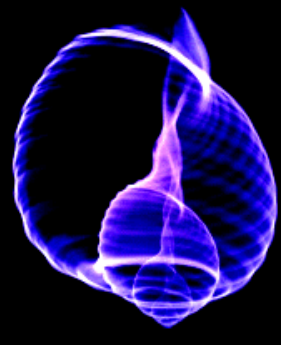
- It is difficult to administrate exposure date systematically in the general companies (workers number <300)
- Each certificated laboratory has their own report format. (paper document and digital file)
- Except fully satisfied with regular monitoring requirement, almost factories do not know how to work and applied those exposure data. Because of hygienists lack of statistic method, tools and skills

How to Use Exposure Data

- "A Strategy for Assessing and Managing Occupational Exposures" , AIHA, 1998
- Chapter 7: "Quantitative Exposure Data：Interpretation, Decision Making, and Statistical Tools"
- Easy tool, developed by MS-Excel VBA language



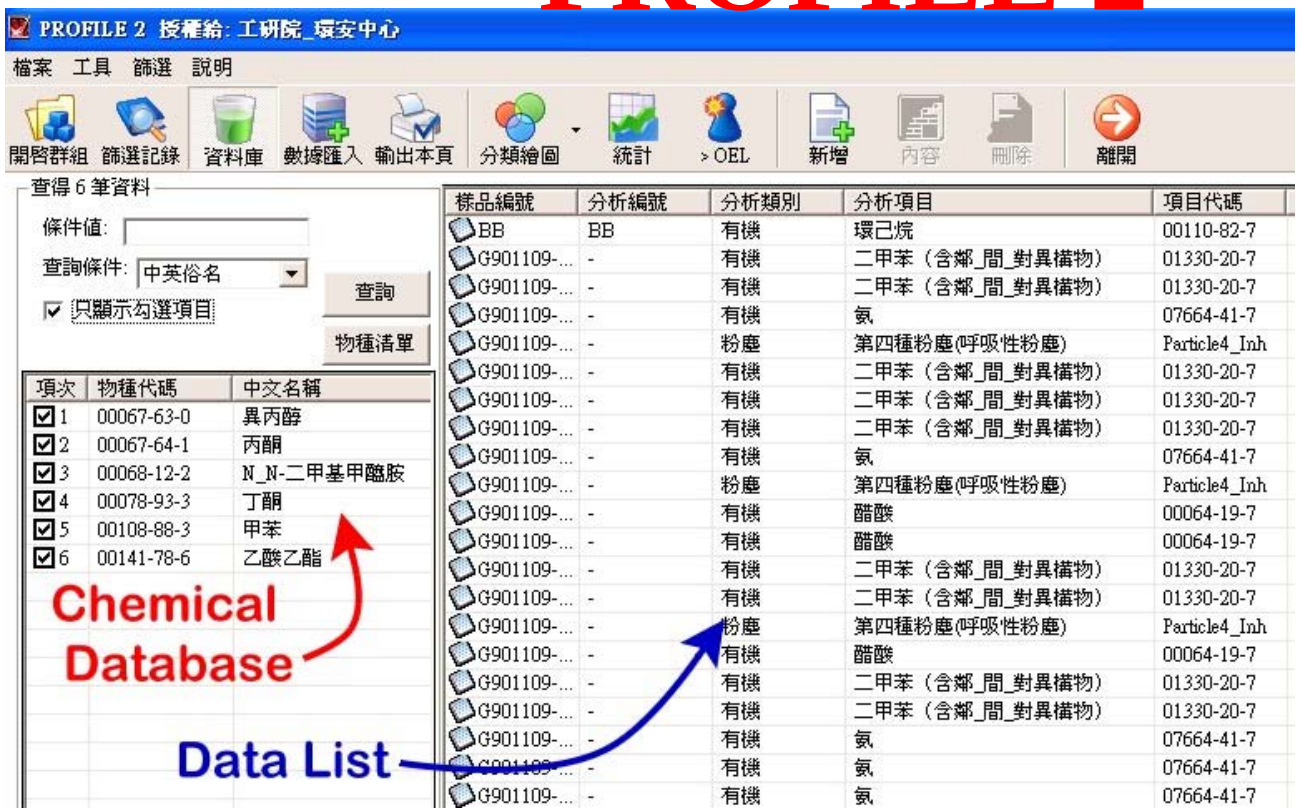
The Aims



- Developed a statistic and management tool for easy to use
- Provide more valuable information to hygienists by systematically statistic work and automatically plotting make
- Increase more efficient to data collection

Material and Method

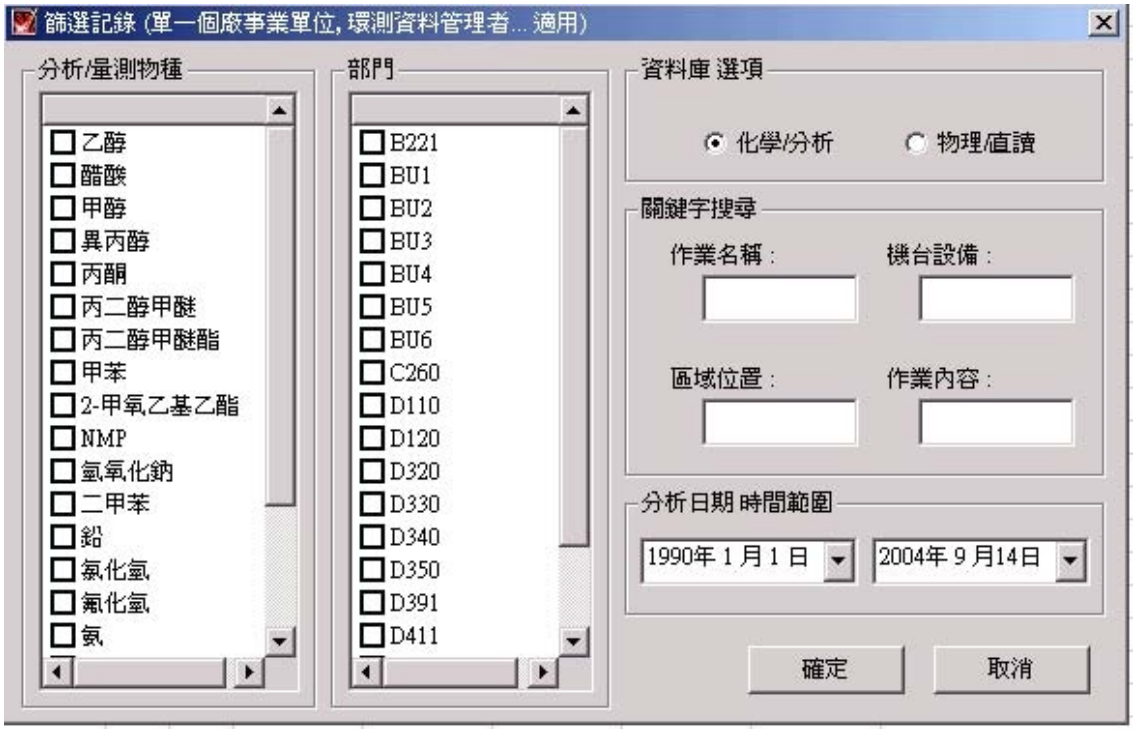
- Developed by Visual Basic (VB6)
- Database type: MS-Access
- Functions Design:
  - Data management
  - Data Statistic
  - Plotting
  - Analysis Report

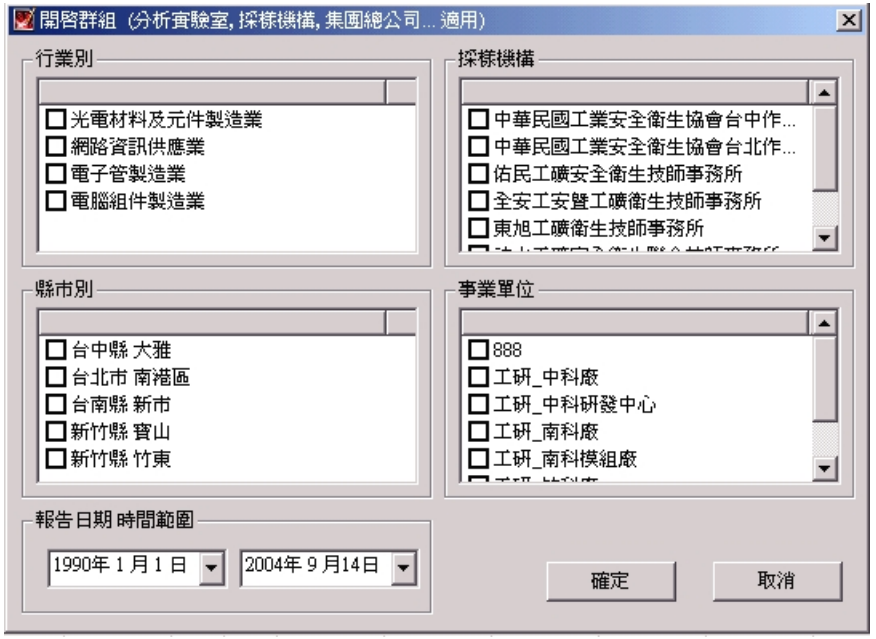


The Advantage in e-Management

Power Search and Group Setting

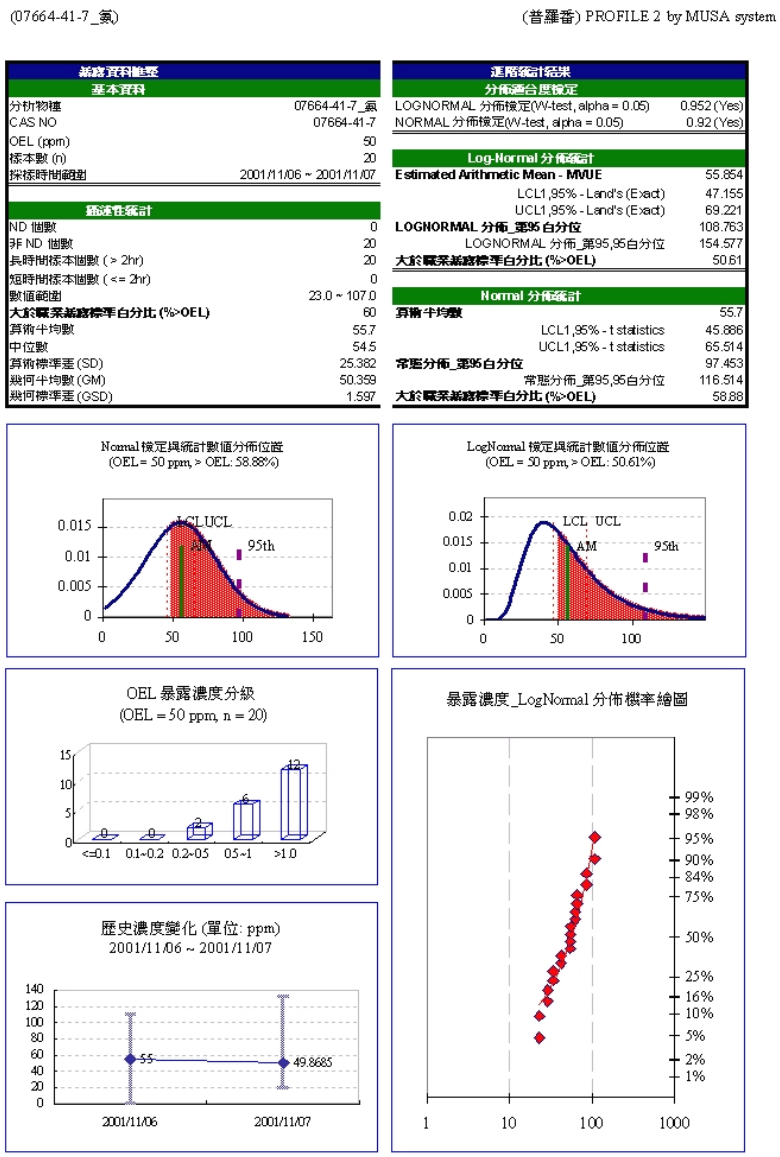
- **Search method is based on: Chemical type, Department, Task and Area…**
- **Group Setting: Industrial type, sampling company and city …**





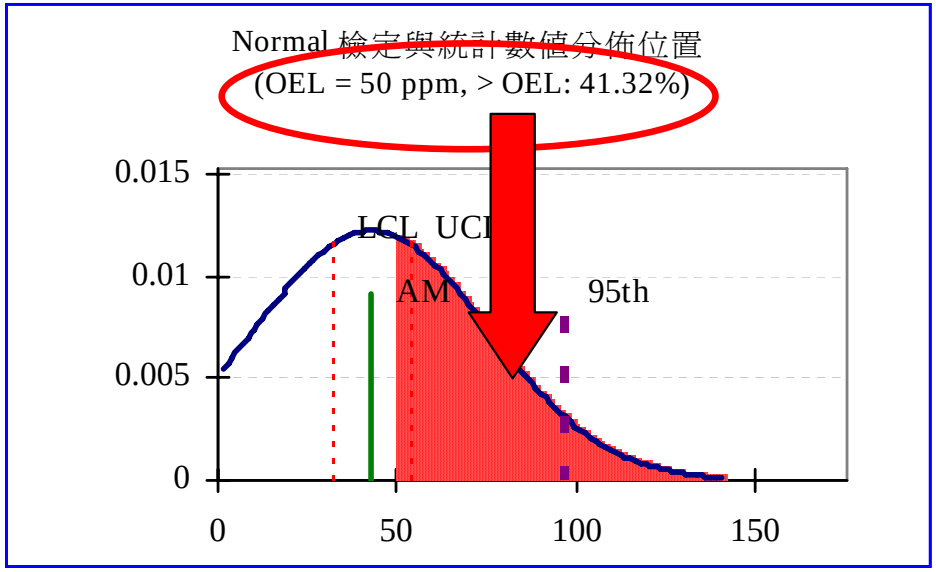
Advanced Statistic work

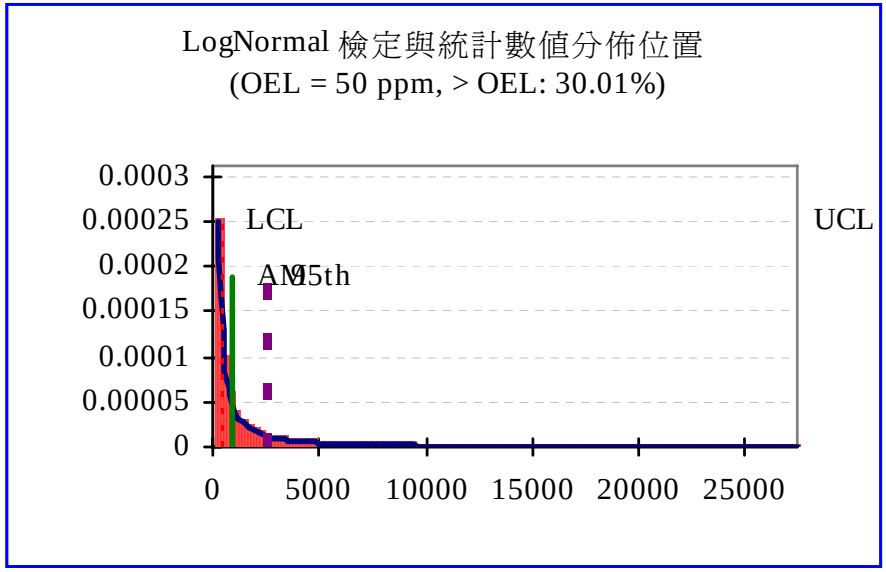
- Refer to AIHA statistic tool
- Increase more valuable functions
- The complete history trend plotting
- Normal and Log-Normal distribution drawing
- Red area is the probability of above OEL(Occupational Exposure Limited)
- OEL classification bar chart
- Analysis report



Normal and Log-Normal distribution drawing

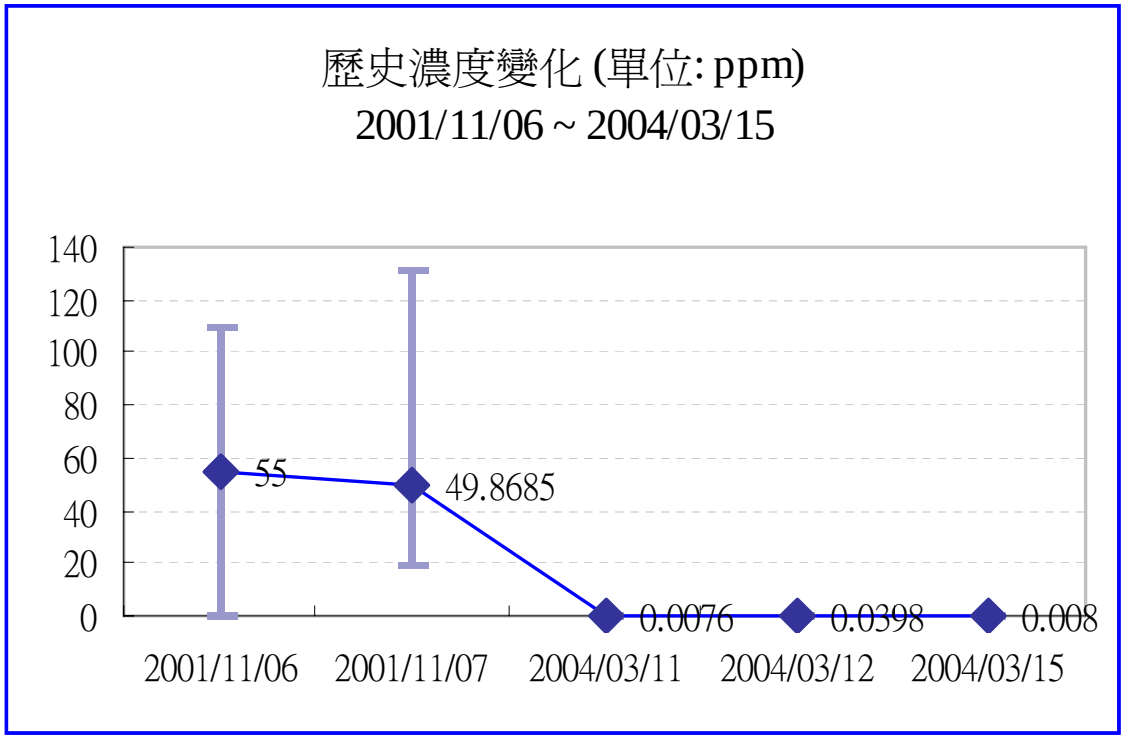
- Drawing work Based on data variation and sample size
- X-axis: Concentration
- Y-axis: Probability value
- Red Area: the probability of above OEL





The History Trend Plotting

- Integrated exposure data automatically
- Mean value by geometric mean (GM)
- Standard deviation by geometric standard deviation (GSD)
- X-axis: Date
- Y-axis: Exposure Concentration



Exposure data key in from MS-Excel

Data Input Module

Exposure Data

Operation Interface

Statistics Module

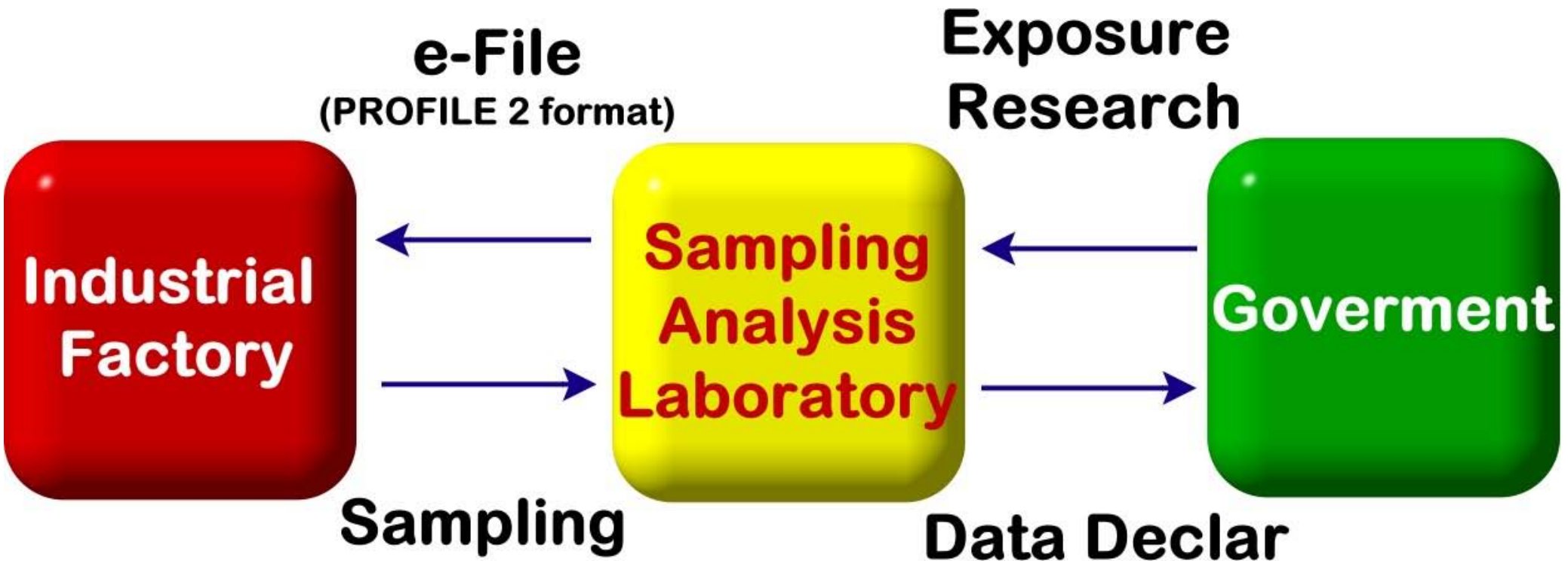
Charting Module

Data Filter Module

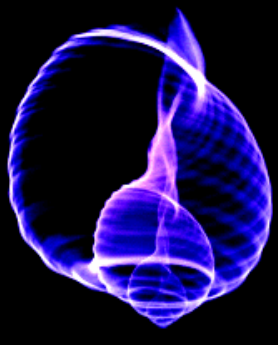
Chemical Database

Analysis Report

Next Step and Feature Work



The Comprehensive Solutions



Thank you for your attention

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