

WE'LL GIVE YOU A HAND



CHEMWATCH CHEMICALS MANAGEMENT SYSTEM - AN OVERVIEW

ORIGINAL SUPPLIER'S MATERIAL SAFETY DATA SHEETS (MSDS)

THE CHEMWATCH MSDS AND OTHER REPORTS: AN INDEPENDENT REVIEW

THE MINI-MSDS AND OTHER REPORTS

MULTI-LANGUAGE CAPABILITY

BULLETIN BOARDS

TRACKING, STORAGE AND MANIFESTS; CLIENT DOCUMENTATION

RISK ASSESSMENT

LABELLING

EMERGENCY RESPONSE

HAZARD ASSESSMENT and MSDS AUTHOR

ENVIRONMENTAL HEALTH and FATE

LANs/ WANs - INTRANET/ INTERNET & CHEMWEB GOLD

APPLICATION SERVICE PROVIDER (ASP)

TRAINING



The Chemwatch Chemicals Management System provides, probably, the most comprehensive database of chemicals available anywhere in the world. The database consists of over 100 000 products and includes more than 40 000 pure substances.

The System ensures full compliance with the various requirements of International, Federal and Local agencies.

Updates are provided quarterly on CD or weekly on the Web; these ensure compliance with changing Regulation and up-to date advice on any new findings related to Chemical Products.

SYSTEM MODULES:

- Material Safety Data Sheet (MSDS) database
- Storage and Manifesting
- Risk Assessment
- Emergency Response (ChInA)
- Client Document Control
- Personnel
- Environmental Health
- Customized Label Generator
- Hazard Assessment Calculator
- Customized Form and Report Generators
- MSDS and Label Author *
- QSAR *

The System can be linked to other proprietary Systems such as SAP, QAD etc.

(* Restrictions apply)



MAINTENANCE OF SUPPLIER'S MATERIAL SAFETY DATA SHEETS (MSDS) IN THE CHEMWATCH SYSTEM:

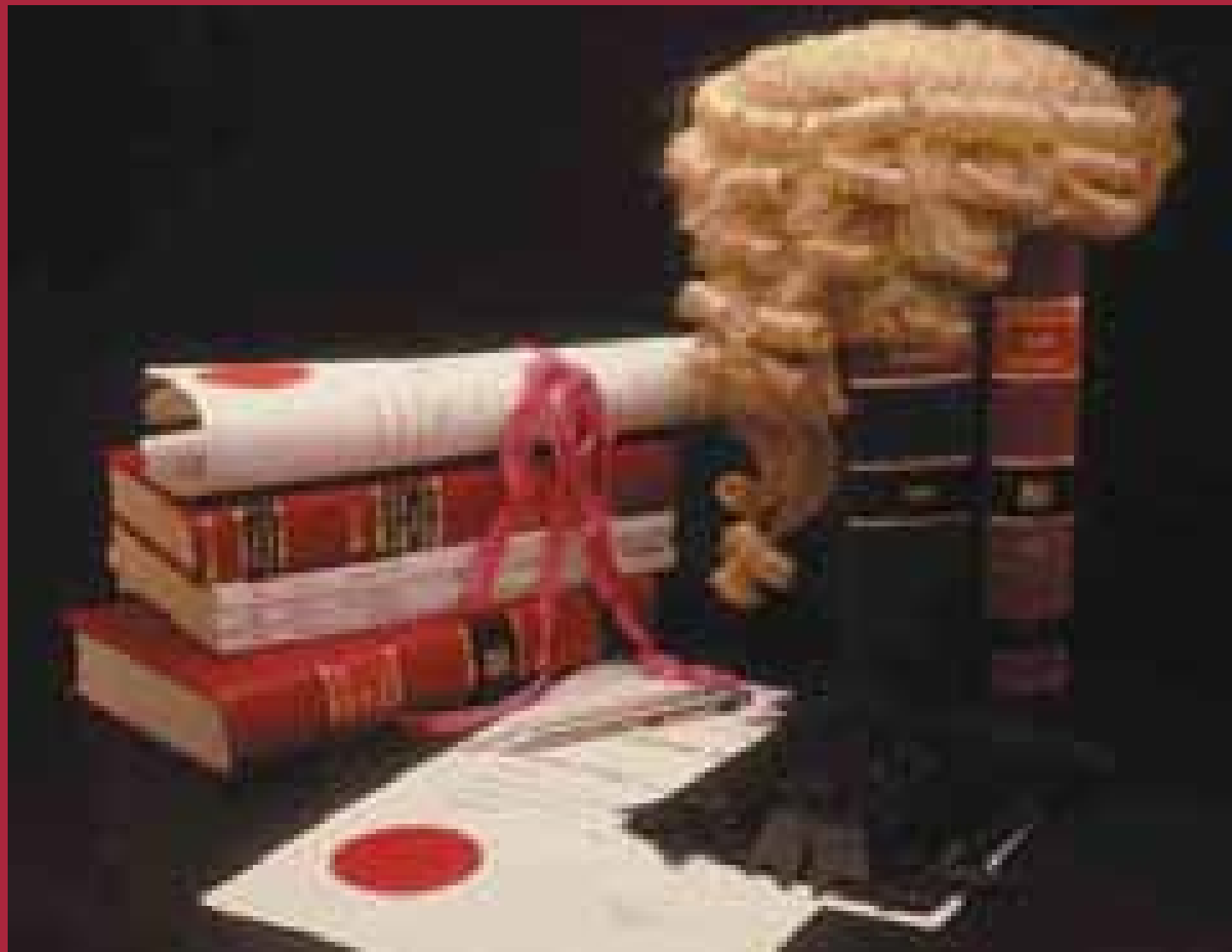
Legislation, in many jurisdictions, requires that the Workplace have access to MSDS produced by Suppliers/ Manufacturers. Updates of such MSDS are also required. Many Suppliers are remiss in this duty requiring a responsible officer, at the Workplace, to become involved in policing this requirement.

Chemwatch Document Control Officers relieve the Workplace officer of this task.

- New clients are asked only to provide a list of all chemical substances found on site. **CHEMWATCH DOES THE REST.**
- Chemwatch ensures that all MSDS, found in the central database of more than 100,000 products, are constantly updated; **clients are rarely asked to assist in this task.**
- More than 2000 completely new MSDS are added to the System monthly as a result of client requests. Some 5000 existing MSDS are updated on a monthly basis.
- The **Chemwatch Document Control Team** AUTOMATICALLY request MSDS, on the client's behalf, every thirty months from the issue date; where necessary a second request is made at thirty-two months (more than 10,000 requests are made on a monthly basis)
- All clients receive a QUARTERLY analysis of requests and responses made, ON THEIR BEHALF, from the individual Suppliers. **"Delinquent" Suppliers are named in a separate report.**
- Individual Suppliers are also canvassed to ensure that all new MSDS are made available immediately they become available; receipt of these MSDS are recorded in the **quarterly status report.**

PROVISION OF SUPPLIER'S MSDS AS SCANNED IMAGES:

- **Both** Chemwatch and its clients are able to scan the Supplier's MSDS using proprietary software distributed with the System. The images are stored in highly compressed, indexed files.
- Chemwatch maintains a central database of all Supplier's MSDS (past and present) as scanned images.
- These images are made available to the client on CD or from a Chemwatch Web site.
- Clients are provided with a **Customized CD** representing only products of interest; this is provided three times a year and may be distributed in LAN, WAN or Intranet environments or viewed on a standalone machine.
- Clients may also chose to view the scanned image on Chemwatch servers located in several countries. This reduces the burden placed on an often busy IT department.
- Where clients, receiving MSDS directly from their own suppliers, wish to maintain a separate database, software distributed, as part of the System, facilitates this requirement. The MSDS is stored in a compressed, indexed file. Other relevant documents may also be imaged in this fashion.



The Supplier's/ Manufacturer's MSDS provides the basis of the "Chemwatch MSDS/ Full Report", an INDEPENDENT review of the content and accuracy

Many jurisdictions require a Workplace officer review the Supplier's MSDS prior to the product's use in the Workplace; **the Chemwatch MSDS assists in this responsibility.**

Commercial products generally consist of several pure substances. The Chemwatch Pure Substances Library is independently researched and updated. Some 6000 titles, in the scientific press, are reviewed weekly by the Chemwatch Scientific Team and, where appropriate, used to update the library.

This library is the basis for:

- assessment of the commercial mixture MSDS provided by the Supplier and
- production of an independent Chemwatch review of the MSDS (The "Chemwatch MSDS" or the expanded "Full Report")

The quality of the pure substance advice determines the quality of the MSDS review.

- Updates of the Chemwatch Pure Substance library may also affect the review of the MSDS. Such evaluations are performed weekly and are available, in real time, on the Chemwatch Web site.
- Quarterly CD releases also reflect these changes; A separate **status report**, distributed with the CD, cites the changes.

COLOUR-CODING:

All Chemwatch Reports are colour-coded and contain a significant graphics content.

This ensures easy comprehension with emphasis on key elements of the report.

Key words are also highlighted, in colour, to provide an enhanced report which attracts the attention of the reader.





Information overload often compromises the efficient interpretation of information contained in any MSDS. In addition, the content of an MSDS presupposes some prior knowledge or familiarity with Occupational Health, Hygiene and Safety.

The MSDS is too often a tool for the practitioner and not the worker.

- The Chemwatch mini-MSDS offers a one-page summary incorporating all the requirements of the longer MSDS.

Its succinct format makes it an invaluable Workplace document.

Its easy-to-follow layout allows easy and quick access to vital information

- Because the mini-MSDS is available in over twenty languages, its value is enhanced amongst workers whose first language is not English (new languages added regularly).
- The mini-MSDS also provides an excellent training resource.

Other Chemwatch summary formats include:

The Graphical Summary:

- This document relies upon graphical representations and icons to replace words. This summary is useful where reading skills are not adequate or where English (or other language) comprehension is underdeveloped.

User-Defined Reports:

- Proprietary software (the Report Generator) allows the User to assemble any components of the database into alternative Reports.

Personnel Exposure History and Potential Pathologies:

- Proprietary software (the Personnel Record) allows the User to maintain individual records related to Worker exposure history. In addition, the software continuously queries the database to identify potential medical conditions and pathologies, which might result from exposure to specific chemicals in the Workplace. Personnel records are directly linked to the Risk Assessment module and assist the physician in diagnosing the onset of chemically related injury and insult.





Many organizations must provide Health and Safety information to a diverse community of speakers who may be present in a single workplace or at many sites around the world.

The Chemwatch System provides multi-language support for BOTH documents and User-Interfaces

Multi-language capabilities apply to:

- all reports, including MSDS, mini-MSDS and Labels.
- presentation of all screens including Help Screens and Error diagnostics

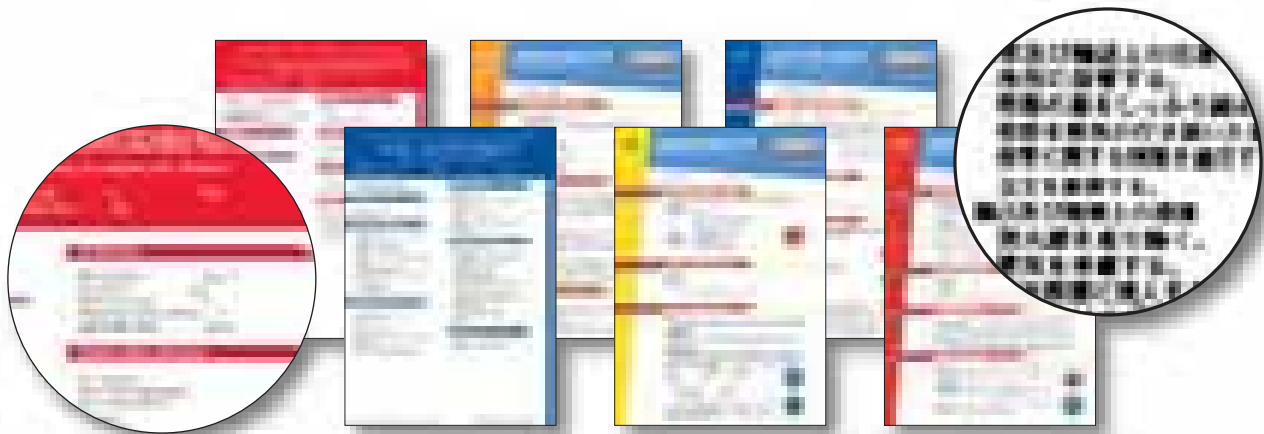
The "Preferred Language" default allows the User to identify the country in which the System is to be used.

This ensures the local language or dialect appears on-screen and in printed reports.

Choice of language may be altered dynamically.

Languages currently available include

English	Korean	Arabic (Lebanese)
Malaysian	Chinese (Modern)	Filipino (Tagalog)
Chinese (Traditional)	PNG Pidgin	German
Spanish	Greek	Taiwanese
Indonesian	Thai	Italian
Vietnamese	Japanese	French
Dutch	Hindi	





The Chemwatch Scientific team comprises Hygienists, Chemists, Toxicologists, Environmental Professionals, Safety Specialists and Physicians. Their duties include maintenance of the database ensuring both accuracy and currency.

Many hundreds of scientific journals are published weekly and their content must be reviewed for relevance as it applies to the Chemwatch System. Some 6000 titles appear in Life-Science journals weekly; **the Chemwatch team reviews every title.**

New information is used to update the databases and is also broadcast to Chemwatch subscribers, weekly, by e-mail in the form of "Bulletin Boards".

The weekly e-mail-out consists of:

- **Gossip:** Comprising topics of general interest to the OHS specialist but without substantial technical content. Non-scientific sources are also cited.
- **Legislation:** Both changes and intended changes in International and Local Regulation are cited and provide the basis of forward planning.
- **Technical Issues:** Detailed information for the professional Health and Safety practitioner is provided in the following areas of interest:
 - Occupational Health
 - Occupational Medicine
 - Environmental Health
 - Safety Science
- Up to 100 articles are added to Bulletin Boards each week; they are provided free-of charge to all subscribers.
- They also appear on quarterly updates of the CD as part of a larger database comprising all Bulletin Boards from past CDs. Keyword searches may be conducted. Author and Journal searches may also be undertaken.



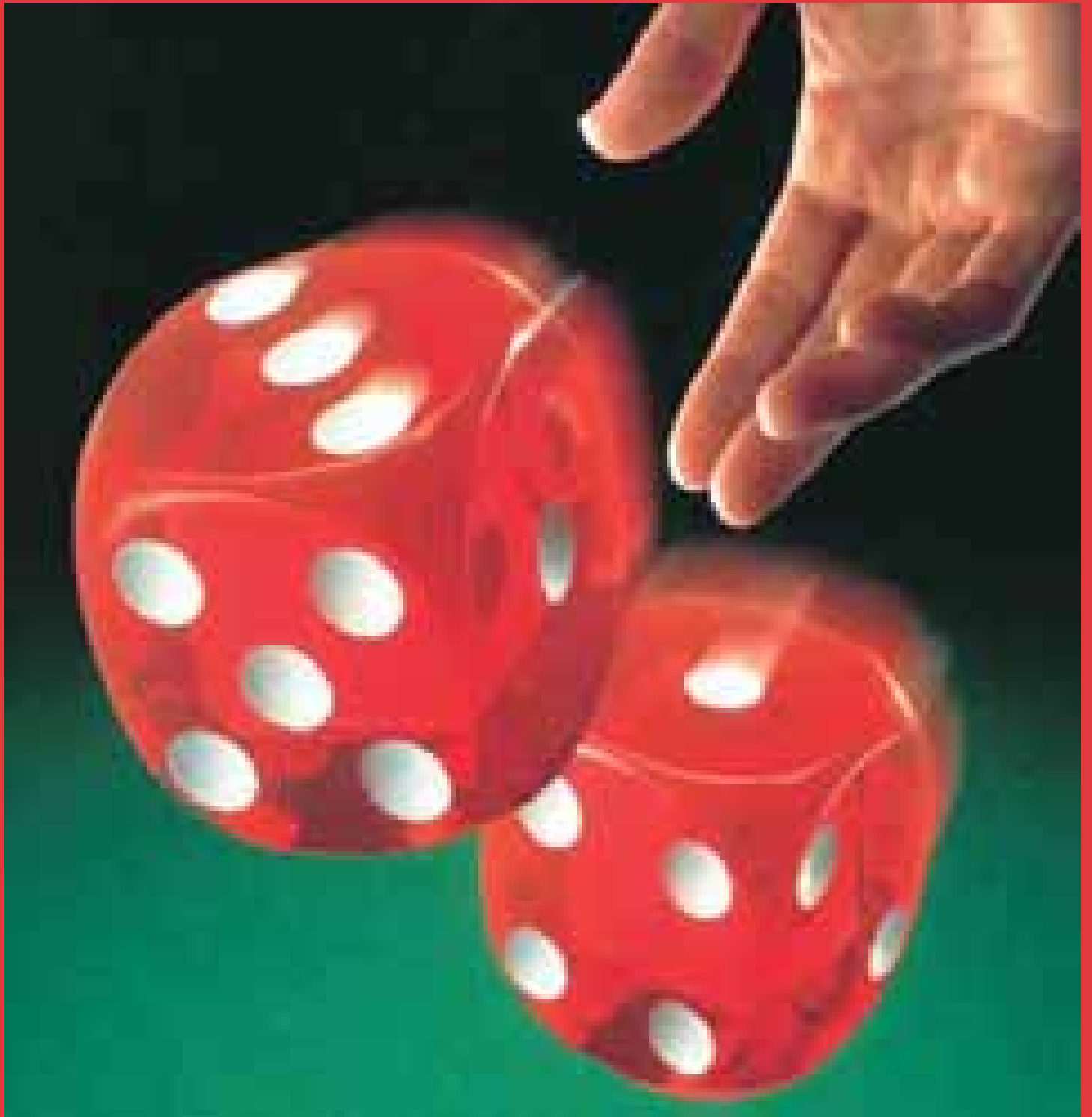


- Managing the storage of chemicals in the workplace is controlled by legislation and is a crucial area of overall compliance.
- The rules of over 50 countries are stored, as a database, in the Chemwatch Chemicals Management System.
- Proprietary software allows the User to create a fully customised electronic “map” of the site. This “map” allows to User to identify the location of chemicals stored on-site.
- Once the chemical is placed in a location, the Chemwatch System automatically determines:
 - Appropriate placards which attach to rooms, buildings and the site(s) (Country-specific legislation applies)
 - Any storage conflicts which might occur when different classes of chemicals are stored together.
 - Separation and segregation conflicts.
 - Quantities of each chemical and class of chemical in rooms, buildings and the site(s)
 - Reporting requirements to different agencies (including those for **Major Hazard Facilities**).
- Removal or addition of new chemicals to a store AUTOMATICALLY produces review of new placarding requirements, storage conflicts and reportable quantities.
- Workplace chemicals, used in various locations, are directly referred to the Risk Assessment module; this ensures an efficient review of the Workplace.
- Use of this module ensures full compliance with storage and reporting requirements in a cost-effective manner.
- Updates of the System ensure that such requirements reflect new Regulation.

Client Tracking Module (for use by Manufacturers/ Suppliers):

- Maintains a record of all documents (including MSDS and Labels) sent to your customers.
- Ensures that as documents are updated, a report is produced to assist in the distribution of new documents.
- Can be linked to corporate Invoicing Systems to flag requirement for MSDS delivery.

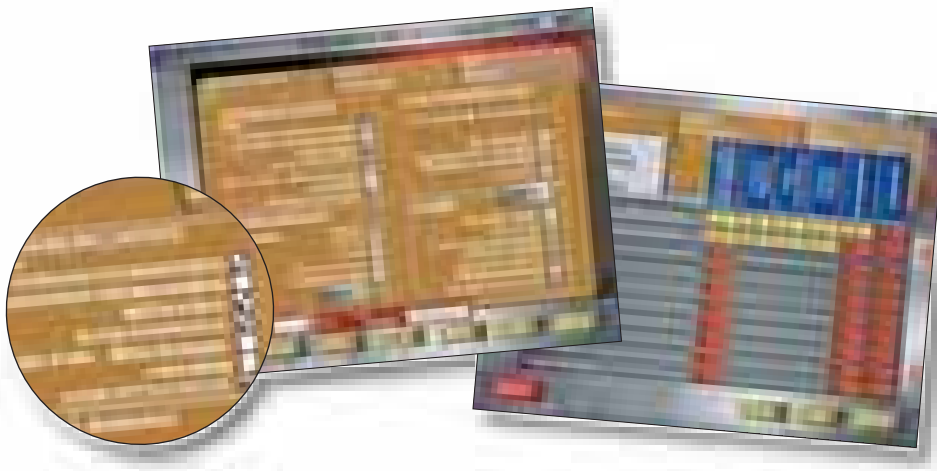




- Many jurisdictions require that a Risk Assessment be undertaken where potentially hazardous substances are used in the Workplace.
- Chemicals Management no longer simply consists of providing access to MSDS but now takes the expanded view that Risk Assessment is a major end-point in the process.
- Proof of a competent Risk Assessment may be required, by legislation, to verify compliance with accredited safety programs, and in courts of law.
- The Chemwatch System automatically produces the Assessment with minimum User intervention.
- Proprietary software “reads” the MSDS and other suitable documentation and takes most decisions out of the hands of the User. This ensures a consistency of approach.
- The software provides advice related to appropriate gloves, glasses, respirators and engineering controls where required.
- Colour-coded screen presentations automatically flag a requirement to **update** the Risk Assessment when either time-frames are exceeded or when MSDS are updated with information, which might impact on the Assessment.

Features:

- Auto-Assess or Self-Assess the Significance of Risk of Exposure (based on existing Engineering Controls and User Profiles)
- Automated extraction of data from MSDS and Labels
- Automated Risk-based recommendations for improved Engineering Controls.
- Automatic Risk-based Selection of Gloves, Clothing and Respirators.
- Expert System draws on the Pure Substances database.
- Expert System determines the Significance of the Risk (Controlled, Uncontrolled or Insignificant)
- Generates Colour-Coded Reports
- Provides Links to Personnel Records





- Labels produced by the Chemwatch System are fully compliant with International and Local Regulation.
- Labels may be printed on **Chemwatch-supplied templates** or, importantly, onto off-the-shelf self-adhesive stationary using **client-generated templates**.
- **Client-generated templates** may include Corporate logos and address details as well as other User-defined inputs (such as "Instructions for Use").
- Proprietary Label-generating software ensures almost total automation of the process.
- Mandatory information, such as Risk and Safety Phrases, is supplied to the label by the software. Importantly such information is computer-fitted to the available space defined by the User.
- All data, destined for User-defined fields, is initially sorted in terms of importance, font-adjusted, and filtered to ensure maximum retention of information.
- Many data-fields may be imported from the database; these include "First-Aid", "Fire-Fighting", "Spills Responses"
- Country-specific requirements (such as the Japanese requirement to report on Nitrogen and Phosphorus) are imported to the label, automatically. More than 100 International and national Rule sets are incorporated into the database.
- The User simply creates the template; Chemwatch software fills the template.
- Labels may be poster-size or address-label size. (and everything in-between); some Users have even created micro-labels for vials containing microgram quantities.
- The System includes more than 100 designs for Drum or Laboratory Labels; these may be used to create a Company - specific template or may be used without further modification.
- Multi-language capability allow the User to produce labels in any of over 20 languages or to produce labels containing up to four different languages.
- A Graphics database is supplied as part of the package. This allows the import of most icons associated with Dangerous Goods/Hazardous Substance Regulation, in various languages and country-specific variations. In addition, Personal Protection Graphics, Target Organ Graphics, Fire-Fighting Graphics, and Chemwatch Hazard Ratings, are available.





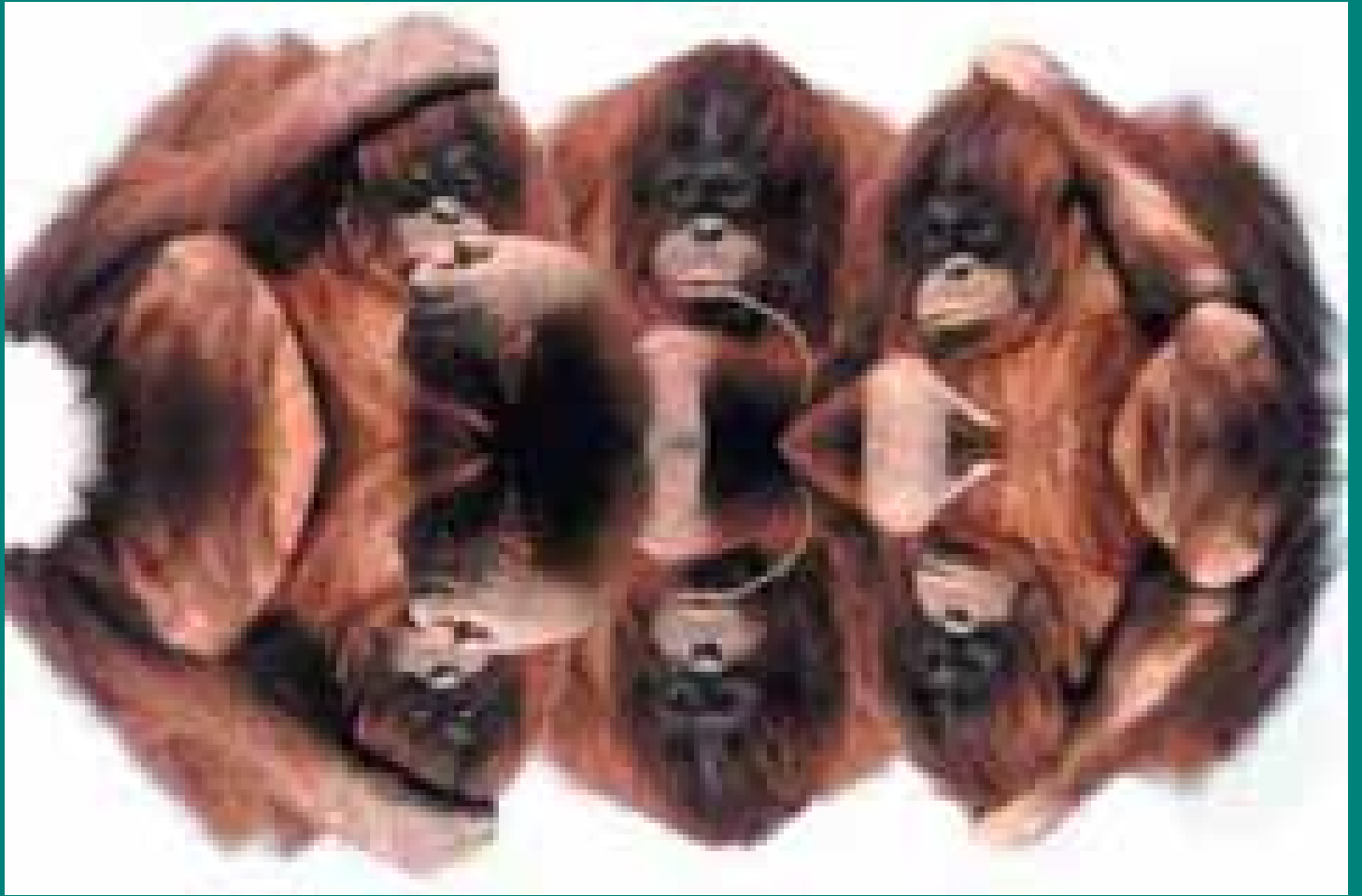
ChInA (Chemical Incidents Advisory):

- The Chemwatch Chemicals Management System produces comprehensive information related to a suitable Chemicals Emergency Response.
- The proprietary ChInA (Chemical Incident Advisory) report provides a checklist of responses.
- ChInA obviates the need to review several documents (such as the MSDS and Label), where relevant information may be difficult to find or interpret under pressured circumstances.
- Fire Fighting and Respondent Authorities use ChInA, worldwide.
- Phone-support also available 24 hours daily.

The Chemwatch Emergency Line:

- The Chemwatch Emergency Line is available 24 hours daily, 7 days a week.
- The Chemwatch Emergency Line may be accessed using a SINGLE International number and is manned by a team including chemists, clinical toxicologists and fire and spill specialists.
- Multi-language Support available for most European and Asian languages.
- The Chemwatch Emergency Line is used by Hospitals, Clinics, Universities and Manufacturers and Users of Chemical Products, worldwide.
- The Chemwatch 800 Emergency Number is published on Industrial, Commercial and Domestic Product Labels and MSDS, worldwide.





- Classification of substances and mixtures follows an Internationally accepted set of Rules (the EC Directives). Such Rules may become complex where many substances comprise a mixture. In addition, these Rules are modified and updated on a regular basis meaning that earlier assessments must be revisited.
- Many jurisdictions require prior review of chemicals entering the Workplace. Responsible officers are able to assess the hazardous nature of mixtures using proprietary Chemwatch algorithms.
- On occasion, there is a need to assess mixtures produced on-site; typically this might involve analytical reagents produced in the laboratory. Again, the use of such algorithms assists in the process.
- Manufacturers of commercial chemical products may wish to vary to composition of these products to ensure that no single ingredient is responsible for causing the material to be classified as "Hazardous".
- The Ingredient-driven classification, calculated by the software, is useful in comparing the effect of single ingredients.
- The List of Dangerous/ Hazardous Substances, produced by the EC, is at the heart of the classification. Chemwatch constantly reviews this List as it evolves and provides updates on a monthly basis.
- The List, however, provides only some of the information required to complete the Assessment. A separate document of the EEC describes "Criteria" which must be used when considering Substances which are not on the List
- The Chemwatch Pure Substances Library of MSDS, arguably the world's largest, adopts these Criteria and produces a second List of Dangerous/ Hazardous Substances. This so-called "Criteria" List plays an integral part in the classification.
- Some 12,000 substances appear on the Chemwatch Criteria List; these do not appear on the EC List but probably would, given sufficient time to review their classification.
- Several Manufacturers self-classify their Pure Substances; Chemwatch adopts these classifications (where they produce a more stringent outcome) and adds them to the Criteria List.
- The Chemwatch Research team, in its weekly review of the Literature, also updates the Criteria List as a result of recent findings.
- Naturally, the independent review of Supplier's MSDS, performed by Chemwatch (Section 3) also relies on these Lists; the quality of the review relies, in large part, on the quality of such information.

THE MSDS AUTHOR:

- This module is not part of the public distribution of the Chemwatch Management System; separate arrangements must be made for its receipt.
- The MSDS Author relies in part, on a prior classification of Hazard or Danger found on the EC List, and the Chemwatch Criteria List.
- The Physical Properties of the mixture are also important in determining initiatives such as, for example, Fire-Fighting Response and Spills Remediation.
- User-entered inputs such as Toxicological Response allow the software to advise on First Aid and Safe Handling Practice.
- The MSDS Author contains almost **20,000 (!!) Rules** and is designed to be sensitive to small changes in Ingredient concentration and to thresholds imposed by Physical Properties.
- The MSDS Author draws upon the Chemwatch Pure Substances Library to make many of its decisions.
- MSDS (and Labels) are generated **AUTOMATICALLY** in minutes ;
- The MSDS is not simply a large label as is the case with MSDS produced by other packages.
- Chemwatch recommends that MSDS, generated by this process, are further reviewed by experienced individuals. No "expert system" can entirely replace a qualified practitioner.
- MSDS generated in this fashion can be produced in a number of European and Asian languages.
- The MSDS may, in addition, be produced in longer or shorter formats depending on the amount of information the practitioner wishes to retain.
- The MSDS may also incorporate built-in Risk Assessments based on the individual Workplace.



- Beyond Occupational Health, the Environmental Health of the community has become the subject of much Regulation.
- Many models are available to predict the fate of chemicals released to the environment either by accident or by fugitive emission from production facilities.
- Proprietary software, developed by Chemwatch , makes available several models which predict the distribution of chemicals to the environment and their longer-term fate.
- The Chemwatch Chemicals Management System includes a large database of values, which is of interest to the Environmental Health Practitioner. In addition many values, which may be input to the Environmental Modeller are computed, from first principals, by the software using physical properties such as vapour pressure and boiling point.
- Items recorded or computed in this database include, log Kow, Half-life, BOD, BCF and EC50; many others are cited.
- Level I, II, and III Fugacity Calculations predict distribution of materials in Air, Water, Sediment , Soils and Biota (the Compartments); movement of Materials from Compartments by mass transfers or by degradation, are also computed.
- These models represent the equilibrium state.(Further models, in development, will represent transitional states and will eventually produce plume predictions for air, water and soils.)
- Existing models allow the User to infinitely vary the value of important parameters by using a "slide-bar" . This produces a real time response and provides the User with information on the significance of the parameter in predicting environmental states.
- The Chemwatch Chemicals Management System also includes an extensive section on Environmental Health Criteria and an Executive summary.





- The Chemwatch Chemicals Management System may be installed on single User machines, on multi-user LANS and WANS, and on the Corporate Intranet. Internet access is available from a range of secure International Servers.
- The Chemwatch stand-alone and LAN package runs on the full range of MS Windows operating systems (9x, 2000, ME, XP). It is compatible with all types of File-Servers and networks used by Windows PCs. It supports single-time installations and subsequent updates on the Server; this means that administrators never have to visit client machines.
- Chemwatch for the Web allows Users with suitable browsers, on virtually any platform, to access the Chemwatch Management System from a PC Web-Server. It is widely used by clients using PCs, Macintoshes and many types of UNIX platform.
- Chemwatch for the Web can run on any Web-Server that can run Win32-CGI programs. Commonly used browsers include Apache and Microsoft IIS running on Windows 95/98, NT and Windows 2000 (and above).
- Chemwatch for the Web allows the User to distribute regular updates of the package, worldwide, from a single installation on the User's Server.
- LAN versions of Chemwatch are now available for LINUX.

Chemwatch Gold:

- Chemwatch for the Web is available in two "flavours". ChemWeb and ChemWeb Gold.
- ChemWeb Gold continues Chemwatch's successful single-installation for up-to worldwide Corporate network distribution (* conditions apply).
- ChemWeb Gold features enhanced screen-presentations and hard-copy reports as well as several Chemicals Management modules not found in its predecessor, ChemWeb.
- ChemWeb Gold includes a proprietary security system to control access by either password or recognized IP address, or both. This means the User is not tied to any one Web-Server for security features.
- Chemical Storage and Tracking and Risk Assessment can be performed on a central Server, available to all nominated personnel with network access. In-built security ensures that nominated personnel, only, are able to access and control data.
- ChemWeb Gold has a full range of context-sensitive Help-Screens.

Chemwatch is a product for the International community. Both LAN/ WAN and Chemwatch Gold support multi-language reports in formats specific to many countries.

The entire User interface (including Help-screens, on-line manuals and training resources) is also available in many European and Asian languages. New languages are added regularly.





- The Chemwatch IT team (located in several countries) ensures that new software is in constant development and existing software undergoes improvement. New IT Services are also being developed.
- Chemwatch, as an Application Service Provider (ASP), is able to assist Subscribers experiencing IT resource difficulties, or those who may wish to enhance productivity.
- The entire Chemwatch Chemicals Management package, including databases and User data-entry modules, is available from Chemwatch Servers located throughout the world.
- Clients and subscribers are provided with their own secure address. Hard-disk space, on a Chemwatch Server, is allocated on an exclusive basis. This enables the Subscriber to operate a secure customized site, over the Web;
- Chemwatch becomes the host and maintains customized databases on behalf of the subscriber.
- Databases and software are updated weekly by Chemwatch personnel.
- Subscriber data such as details of Chemical Storage and Tracking, and Risk Assessment remains the responsibility of the Subscriber and is secured by password or IP address using Chemwatch proprietary software.
- The "Back-Up" service consists of duplication of Subscriber data to several Servers
- Scanned image Supplier MSDS are maintained as customized databases specific to the Subscriber.
- Chemwatch Servers use ISDN or DSL connections, where available, thus ensuring maximum bandwidth and speed of service. As newer technologies become available, the Servers are upgraded and placed on new communication networks.
- Chemwatch IT reduces the burden placed on Subscriber IT departments.
- Chemwatch, as an ASP, is generally able to reduce the distribution costs of the application and its updates
- As the cost of new technologies is shared amongst Subscribers, the cost of these technologies to individual Subscribers is also generally reduced.
- Contact our IT division for further details. (chemwatch@chemwatch.net)





- Although the Chemwatch Management System has been designed to provide a User-friendly interface, training may still be required by many organizations.
- Training may be conducted by a member of the accredited Chemwatch training team, or may be conducted using Manuals and WorkBooks found on the CD and on our Web site.
- Chemwatch is an Accredited Training Organization with most Courses, Training Resources and Trainers receiving government accreditation.
- Training provides the User with the necessary skills to perform all Chemicals Management functions provided by the software.
- Many jurisdictions mandate Chemicals Management training and Chemwatch is able to meet these needs.
- Chemwatch offers training to both Management and Staff, thus ensuring all legal obligations are fulfilled.
- Courses may be customized to meet the needs of individual clients.
- Courses may be conducted "on-site" or in one of many computer-training facilities located in key cities, worldwide.
- Courses may be conducted for individual clients; "public" courses are also available where individuals join others, from various organizations, at a central training facility. (Time-tables available on request).
- Training resources, including Manuals and Workbooks, are available in a number of languages.

Courses currently available include:

Chemical Database and Management System - Level 1

- Basic introductory course which allows the trainee to navigate around the database. The trainee is able to explore information in the numerous modules provided by the Chemwatch System. The course is conducted over half-a day.

Chemical Database and Management System - Level 2

- The Chemwatch level 2-advanced course explores the concept of "hazardous substances", introducing the trainee to the requirements of Chemical Storage and Tracking and the principles of Risk Assessment. The trainee is also instructed in the use of the Label module. The course is conducted over a full day and incorporates Level 1 training.

Risk Assessment

- Participants explore the processes involved in performing Workplace Risk Assessments and are instructed in the identification of health risks associated with occupational exposure to dangerous/ hazardous substances. The course is conducted over half a day.

Label generation:

- Participants review the prerequisites for labelling hazardous substances and International and Local Regulation. Good label design is discussed; this includes the need to maximize health and safety content whilst at the same time producing eye-catching formats. The course is conducted over one half day.
- Each course is designed to produce predefined outcomes; these are "examined" during the conduct of the course.
- At the successful conclusion of the course, participants are awarded "Certificates of Achievement". The organization, represented by the participant, receives a Certificate each year identifying the individuals who were successful in completing various courses. Such certificates are useful where the organization conducts an Accreditation Program which includes the need to provide staff training.

