

Cradle to grave

COMPLIANCE Recent regulatory activity in North America, Europe and Asia has given a clear signal that chemical producers will be held responsible for their products through the entire life cycle. To help manage those responsibilities, 3E Company's growing suite of software systems and services now offers compliance assistance from R&D right through to disposal

3E Company started business in the 1980s, helping chemical users respond to the growing demand for 'right to know' requests. The chemical industry environment has changed a lot since then, and 3E has changed with it, to the point where it can now offer industry a range of systems and packages to help them achieve compliance with a variety of safety, security and environment-related regulations.

Jeffrey Starr, vice-president of marketing for 3E, remarks that the company "does not aim to be the compliance fairy," but says that it can help make compliance more efficient for users. 3E's systems are designed to be straightforward in use, allowing clients to concentrate on strategic issues, rather than spend time managing material safety data sheets (MSDSs) and other tactical and administrative tasks associated with compliance.

During the 1990s, 3E added a range of new systems and services. There were a number of other providers in the market at the time but, like the 'dotcom' boom, few survived and, Starr says, 3E is now the only provider with a true end-to-end full lifecycle capability. This was ensured with the merger in 2004 with Ariel Research Corp, which offered products and services targeted at the research and development and manufacturing phases.

In particular, Ariel developed systems and content to help in the decision making process during the R&D phase in new product development, assist with the generation of MSDSs for new products and help with the transport and handling of dangerous goods. In determining the formulation of new products, it is essential to know that ingredients will not be banned from use in target markets and Ariel's database provides an easy route to checking such restrictions.

3E's own service offerings concentrate more on the transport, use and disposal phases of the product lifecycle, helping users keep up to date with regulatory developments, MSDS management, emergency response and reporting requirements, as well as disposal restrictions.

Root of the matter

At the heart of the 3E and Ariel systems is a massive database, constantly updated, containing the

The screenshot shows a web browser window displaying the 3E Company Portal. The page title is "3E Company Demo Account". The navigation menu includes Home, (M)SDS, Inventory, Chemical Analysis, RegImpact, and Help. The main content area is titled "Regulatory Analysis Matrix" and shows a table of regulatory information by location. The table has the following columns: Location Name, CAA_90, CAA_602, CWA_307, and CWA_PRI. The rows list various locations such as Atlanta, Boston, Miami, Tampa, and Buffalo, with circular icons indicating regulatory status in each column. Below the table, there is a note: "Please note that this information is based on the CAS information provided on the MSDS. If the CAS RN is not listed on the MSDS the chemical will not appear in the results." and three radio buttons for filtering: "All CAS RN listed on the MSDS are on the list.", "Some of the CAS RN listed on the MSDS are on the list.", and "No CAS RN listed on the MSDS are on the list." The footer includes the 3E InstaCall logo, contact information, and copyright notice.

3E's database allows users to query a huge amount of information

texts of regulations in the supply, use, transport and waste management sector, combined with millions of MSDSs. The Ariel legacy database, for instance, covers around 60 countries and some 700 sets of regulations. But the user does not need to see all of that; the interface is designed to guide the user through a comparatively simple path to interrogate the database according to his or her needs, usually drawing on normalised data rather than the original documents, although these can be accessed for reference if needed.

For instance, the Ariel WebInsight reference system allows users to search for information, using the chemical name, formula, UN number, CAS number or other identifier, if necessary restricting the search to one particular country or region. From this search, the user can find information on applicable regulations and requirements covering such aspects as MSDSs, import/export restrictions, transport provisions, waste disposal, health and safety in the workplace, major accident hazards and environmental protection.

Another element of the system, Ariel DataManager, provides a way to integrate data management with a user's own enterprise resource planning (ERP), product lifecycle management (PLM) or MSDS authoring system. Once the system's decisions are saved, all updates to the data are automatically synchronised.

To serve the manufacturing phase, the Ariel MSDS authoring service draws on the product ingredient data, relevant regulations and language requirements to generate the relevant MSDS, either in-house or via the customer's own MSDS authoring software. Starr points out that, whereas some chemical manufacturers may have a fairly consistent slate of products, in other sectors – paint, flavours and fragrances, for example – new formulations are a consistent feature of the business and each new product needs a new MSDS.

It is one thing to generate an MSDS, but each new one needs to be disseminated to those who need it. In addition to the authoring service, therefore, Ariel also offers an MSDS hosting and distribution service, based on a customer's prod-

uct list and its sales records, which automatically distributes new or updated MSDSs to those who need it in the transport, distribution or retail sectors and among end-users. These can be disseminated by mail, email or fax. Alternatively, MSDSs can be hosted on a separate website so that users can go and find what they need.

Down the chain

During the transport phase, the manufacturer must ensure that its products are packaged, marked and labelled correctly. This will depend on the mode of shipment and the country or countries through which each shipment passes. 3E's transport services and data currently cover the US Hazardous Materials Regulations (HMR), the Canadian Transport of Dangerous Goods Regulations, the International Air Transport Association (IATA) Dangerous Goods Regulations, the International Maritime Dangerous Goods (IMDG) Code, the China Dangerous Goods List, and the European Agreements concerning the Carriage of Dangerous Goods by Road and Rail (ADR and RID).

By specifying the product or products to be shipped, the mode or modes of transport involved and details of the packaging, the 3E service will inform the user how to classify the shipment, how to complete the transport doc-

umentation and how to label the packages. Users also have access to an emergency response hotline, so that in the event of an incident 3E can organise the deployment of response personnel, manage the response activity and provide access to data on the products involved.

Once the product is received by the user, a different set of requirements apply. The MSDS must be provided and there will be health and safety protocols, regulatory reporting and training requirements, again depending on the nature of the hazard involved and the location of the site. The 3E system allows the client to extract information from the MSDS and to track and manage inventory. This last feature is important from the point of view of calculating quantities to check on reporting requirements and allows users to plan receipt of product to minimise these requirements. Starr notes that this will be important in Europe once the directive on the Registration, Evaluation and Authorisation of Chemicals (REACH) comes into effect.

One of 3E's latest product offerings is the 3E-Ariel RegImpact feature within 3E Online MSDS-Expert Edition, which provides a bridge between the Ariel and 3E databases, integrating the product layer with the constituent layer. This allows the user to thoroughly interrogate the database of regulations and requirements, for instance

to extract relevant regulatory changes over a defined time period and the associated impact on a specific products in a company's inventory.

When it comes to waste disposal, outdated, off-spec or spilt product must be disposed of according to a separate set of regulations. Using information about the product involved, the location and environmental restrictions, the 3E Waste Management Services package will provide the necessary classification, reports and disposal management information.

As Starr explains it, the MSDS is the critical component in the supply chain, providing a means for data to flow along with the product. Getting that right in the first place is key to ensuring compliance right through to the disposal phase – although he says that MSDSs in the marketplace may contain errors. The 3E and Ariel systems are designed to help eliminate those errors during authoring and help support full compliance from the cradle to the grave.

Meanwhile, the company is continuing to expand the reach of its databases, adding more information on transport requirements in Europe and elsewhere. Constant additions to its service offerings are helping the company grow and helping keep its customers out of trouble with the authorities.

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