

Ariel Content and EH&S Decision Support Solutions for SAP® EHSM

3E Company offers a unique combination of data, technology and services that seamlessly integrate with SAP EHS Management, making enterprise-wide EH&S compliance processes more consistent and easier to manage.



Overview

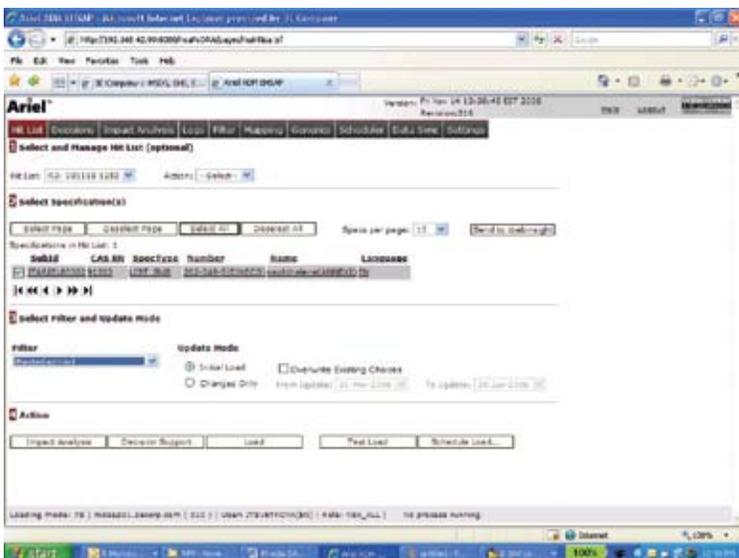
Today's business environment allows very short time for the introduction of a new product or for the penetration of a new market. Companies need to be prepared to meet new and challenging regulatory requirements on a global scale, in record time. EH&S professionals are required to track hundreds of regulations in many jurisdictions as they apply to the substances companies use and manufacture.

In addition, there is an increasingly intense focus on initiatives such as sustainability, running cleaner operations and manufacturing products that minimize the impact on human health and

the environment. As a result, corporations are examining every phase of the product lifecycle. In order to withstand the public scrutiny associated with these trends, EH&S compliance needs to be measured, tracked, reported and improved.

3E Company answers these challenges through its Ariel line of data and decision support solutions that facilitate increased operational efficiencies, informed decision-making and consistent compliance practices throughout the enterprise.

3E Company has a successful and proven track record spanning more than a decade for providing quality products and services designed specifically for integration with SAP EHS Management. Our highly experienced implementation team has worked with more than 50 companies using SAP. Ariel solutions for SAP combine the power of rich global regulatory content, scientific data, multilingual content, rules and a sophisticated data loading and management tool to enable optimum efficiency and increased value out of the SAP EHSM application.



Hit lists in ADM-EHSAP

The Requirements

Comprehensive, centralized global chemical and regulatory information is needed to ensure overall product and facility compliance. Manufacturers must be able to quickly meet legal requirements and provide accurate documentation for every product, depending on its composition, where it is produced and how it is used and distributed.

Manufacturers also have obligations for providing a safe workplace for their employees, which includes hazard communication compliance requirements, including maintaining vendor Safety Data Sheets (SDSs) for all materials used in the manufacturing process and making them available to employees.

Ariel solutions for SAP EHSM provide the relevant information required for making critical decisions related to a number of business issues that need to be considered when manufacturing and marketing products, such as:

- Ensuring products can be sold in the intended markets and are accompanied by compliant SDS
- Identifying the correct exposure limits for specific ingredients used in the manufacturing process
- Ensuring safe storage, handling, transport and disposal of substances and products
- Providing employees access to vendor SDSs

Our Own Team of Regulatory Specialists

3E Company's own team of specialists researches, procures and updates the global regulatory, product safety, transportation and chemical property and hazard content that fuels the Ariel solution set. The Ariel Global Research Team consists of professionals with legal expertise and active relationships with the government agencies around the world that provide assistance in procuring and analyzing legislation. Ariel content is based on official government sources in the respective countries. The team has extensive language skills to facilitate translations and dialogue with appropriate regulatory bodies. While there are several vendors who specialize in the data management technology while buying the bulk of their content to re-package or resell, 3E Company offers the valuable combination of both. We source our own content and develop the underlying technology to deliver it—all with our own employees, no sub-contractors.

It's the Content that Counts

Most enterprise software is only as valuable as the people using it and the information that is fed into it. Although SAP provides many benefits, upon implementation, the SAP EHSM module is more or less an empty shell. It does not come pre-loaded with EH&S content, forcing users to depend on valuable internal resources or third party vendors for feeding content into the application.

At the core of Ariel solutions for SAP is the massive collection of global chemical regulatory content aggregated, refined and maintained by 3E's own team using documented best practice methodology and a rigorous quality assurance process. More than 300 multi-national organizations, including 70% of the world's largest chemical manufacturers, rely on Ariel content on a daily basis. The breadth of countries covered and depth of regulatory and legislative information provided offer unprecedented support for identifying, monitoring and complying with ever changing EH&S requirements.

Ariel content provides extensive coverage of regulated chemicals throughout the world at multiple levels of jurisdiction. The collection is constantly growing. It contains hundreds of chemical lists covering thousands of data elements spanning dozens of countries around the world.

Clients can realize the full value of centralizing data into SAP EHSM by also feeding raw material vendor SDS data into SAP EHSM. This assists companies with Employee Right-to-Know and workplace safety compliance, providing readily-available, centralized access to SDSs for all employees.

3E Company has spent more than two decades building what has become the world's largest database of SDSs. Our Manufacturer Alliance Department consists of a dedicated, full-time staff of specialists who obtain SDSs directly from, and maintain relationships with with tens of thousands of manufacturers. Using 3E to integrate vendor SDS management into SAP EHSM will ensure your employees always have the most up-to-date version of the they need.

Efficient Data Management

A combination of efficient data loading capabilities, expert rules logic and a comprehensive phrase library results in the industry's ultimate best-of-class tool for optimized loading and management of EH&S regulatory and chemical data, and vendor SDS management.

Loading Data – ADM-EHSAP

SAP EHSM offers the ideal solution for promoting consistency across the enterprise; however, populating SAP EHSM with comprehensive, relevant data is problematic without an efficient integrated tool or OCC interface. Our sophisticated data loading tool, Ariel Data Manager (ADM)TM-EHSAP provides easy and efficient maintenance of regulatory information at the specification level.

Expert Rules Logic

The Ariel Expert Rules add-on package complements the functionality provided by ADM-EHSAP by applying automated

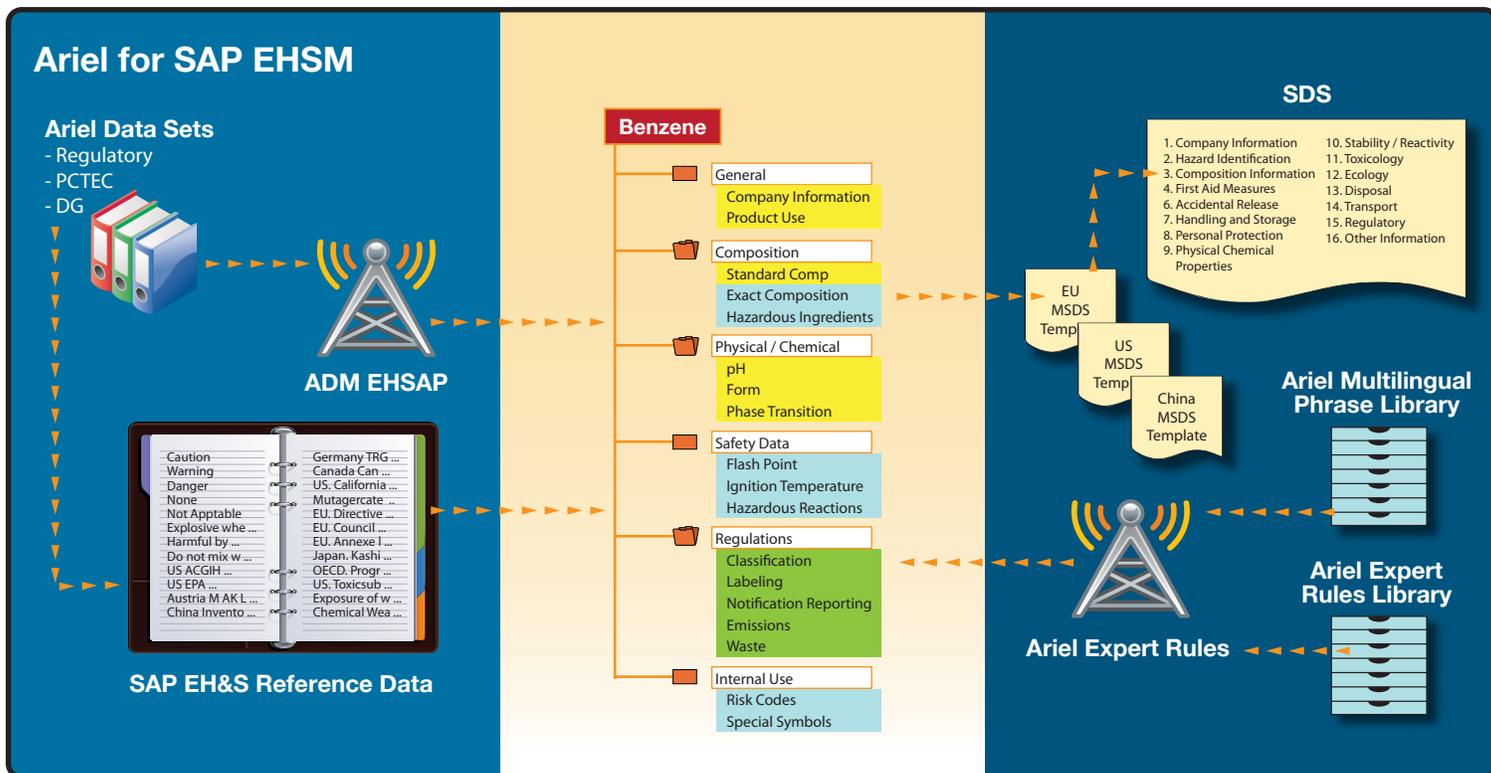
logic to the substance database in SAP EHSM with the objective of creating SDSs and labels that satisfy country-specific regulations. Using Ariel Rules eliminates variations in SDS authoring, as well as human error, and ensures the consistent application of country-specific requirements.

Easy-to-use, Flexible Rules Builder

The Ariel Rules Builder features a user-friendly interface eliminating the need for IT expertise while still providing SAP EHSM users with flexibility and control over the way Rules are applied. This application is packaged with the Ariel Phrase Assignment Rules.

Multi-Lingual Phrases

The Ariel Multilingual Phrase Library for SAP EHSM is available in nearly 40 languages, providing an efficient method for global or multinational companies to simplify the creation and authoring of SDS, labels, and other documents.





How it All Works Together

During the initial integration of data with ADM-EHSAP, users make decisions about what regulations are relevant based on their unique business needs. These decisions are stored so that when future updates are loaded, the user can easily identify what regulations have changed since the last update.

ADM-EHSAP enables the review of all information before it is loaded into the EHS system, resulting in informed decision-making related to the organization's specific product safety and stewardship requirements.

Using Ariel Expert Rules and Phrases in conjunction with ADM-EHSAP reduces the burden and accelerates the work involved with the compliance process by automating certain standard decisions and populating the SDS with standardized language, which can then be automatically translated into

multiple languages. As they are designed to help ensure regulatory compliance for final products, the Rules can be run against mixtures and components. The Rules programs make determinations using basic data such as physical-chemical properties, toxicological test results safety data in the same way an SDS author would. The end result can automatically populate sections of various SDSs and other documents that are mandated by a regulation. For example, the information provided for Section 2 of the SDS (Composition Information) and Section 15 (Regulatory Information) significantly reduces the need for a Product Steward to spend time researching which components of a mixture are reportable under California's Proposition 65 or whether a mixture is classified as "flammable" in China.



Who Uses it and How?

Ariel solutions for SAP have been proven to increase efficiencies, streamline processes and save EH&S professionals valuable time. Regulatory Compliance Specialists, Toxicologists, Industrial Hygienists, SDS Authors, Material and Emission Specialists, Transportation and Logistical Specialists and plant-level Safety Managers rely on Ariel content tools everyday. A variety of professionals with a wide range of EH&S responsibilities can enjoy the benefits of Ariel solutions.

For example, the classification according to EU Directive 67/548/EEC for zinc powder may be reviewed within ADM-EHSAP. Depending on whether the chemical has been stabilized or is in a pyrophoric state, the appropriate classification can be selected in ADM-EHSAP and shared with others throughout the enterprise, enabling SDS Authors, Transporta-

tion Specialists and others to consistently reference the appropriate classification. As needed, substance variants may be maintained to support chemical and hazard differences such as the hazards that are applicable when a substance is in a free flowing state and those that are applicable when the same substance is in an encapsulated state. ADM-EHSAP was designed to meet the demanding needs of the most sophisticated users of SAP EH&S.

The Ariel Expert Rules and Phrases eliminate variations in SDS authoring, as well as human error, and ensure consistency. For example, two SDS authors, or even the same author at different points in time, may review the same data, but come to different conclusions, in terms of the overall hazard assessment or simply minor semantic differences.

Flexible, Modular Content

Ariel Content modules provide extensive coverage of regulated chemicals throughout the world at multiple levels of jurisdiction. Users can subscribe to any or all of the content modules, depending on the needs of their business.

Regional Product Safety Coverage

- North America
- Western Europe
- Central & Eastern Europe
- Latin America
- Asia-Pacific
- Middle East/Africa
- Global Inventories

Regulatory Transportation Data: Dangerous Goods

The transportation module provides regulatory data for the transportation of hazardous materials globally.

The Dangerous Goods database includes all information necessary for complying with regulatory requirements for:

- ADR – European Agreement concerning the International Carriage of Dangerous Goods by Road
- RID – Regulations concerning the International Carriage of Dangerous Goods by Rail
- IMDG/IMO – International Maritime Dangerous Goods Code
- IATA – International Air Transport Association Dangerous Goods Regulations (passenger and cargo)
- ADNR – Agreement on the Transport of Dangerous Goods on the Rhine
- US 49CFR – United States Transportation of Hazardous Materials Regulations (U.S. DOT)
- Canadian TDG – Canadian Transportation of Dangerous Goods Regulations
- Australian Code for the Transport of Dangerous Goods by Road and Rail
- Mexico – List of Dangerous Goods
- China – List of Dangerous Goods

Physical, Chemical, Toxicological and Eco-toxicological (PCTEC) Content

Chemical property and hazard data provides in-depth physical, chemical, toxicological and eco-toxicological data for nearly 8,000 of the most common substances. Understanding the physical and chemical properties as well as the toxicity and eco-toxicity of substances used in product formulations helps EH&S professionals make informed decisions related to the impact of the chemicals, their processes and their products on their workers, the workplace and the environment.

Ariel Multi-Lingual Phrases

The Multi-Lingual Phrase library contains more than 6,000 distinct phrases used for the creation of SDSs, including header and sub-header phrases, risk and safety phrases, and GHS hazard

and precautionary statements. The library is provided in more than 40 languages and is used by 3E Company's own team of authors who fulfill outsourced SDS Authoring Services for a number of clients.

Rules Content Coverage

Ariel Rules cover the following regions:

- North America: Module covers US, Canada and Mexico
- Europe: Module covers EU as well as national level regulations
- Asia Pacific: Module covers Japan, Korea, China, Malaysia, Australia, Taiwan

GHS Rules

Ariel GHS Rules allow for mixture classification and labeling according to the UN Purple Book. Classification is based on the physical, health and environmental hazards of the mixture. The Ariel GHS Rules take into account country specific variations. The first release of the package includes the variations introduced in the US, Japanese, Korean and Taiwanese implementations.

Transport Classification Rules

Ariel Expert Rules for Transport Classification analyze the available physical-chemical, toxicity, eco-toxicity and regulatory data in the SAP EHS system on mixture as well as component level to determine a transport classification.

The Ariel Expert Rules perform transport classification according to ADR, RID, IATA, IMDG/IMO and 49CFR. In addition to the transport classification, the rules also determine hazard inducing and marine pollutant substances.

Vendor SDS Data

A list of vendor products is all that is required to manage vendor and raw material SDS data in SAP EHS. 3E cross-references it against its massive SDS library, and in turn, feeds the data directly into SAP EHS. In the event an SDS on the list provided doesn't already exist in our database, 3E will proactively obtain it directly from your supplier at no additional cost. And, 3E assumes the burden of maintaining SDS revisions on an on-going basis, so that you don't have to worry about whether or not your employees have access to most recent version available.

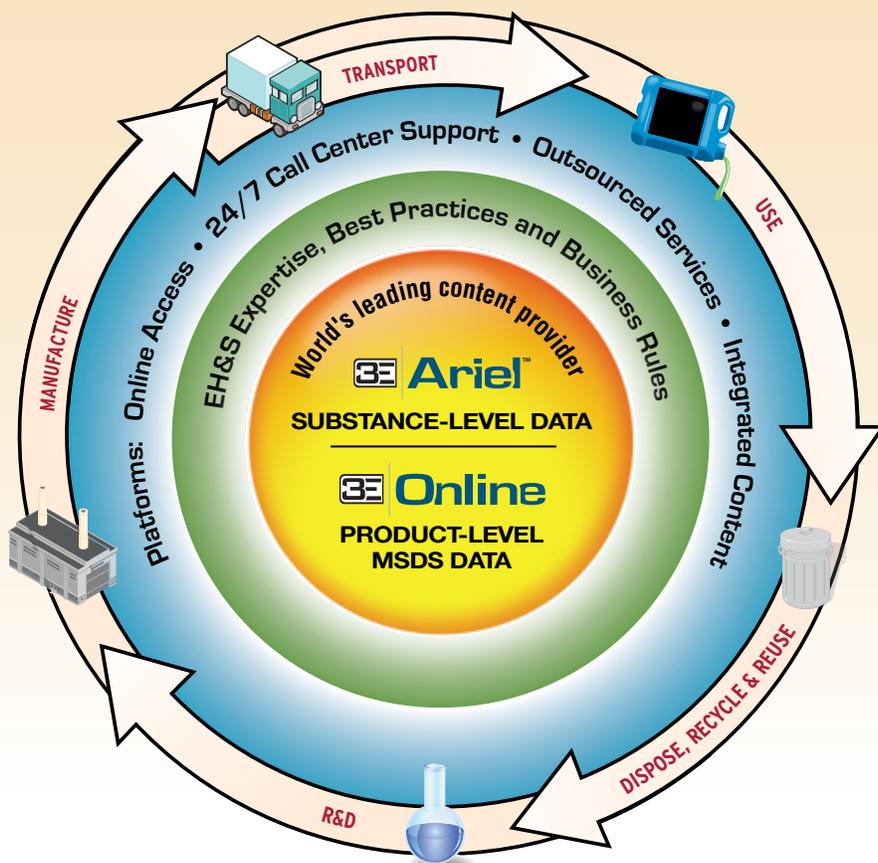
SAP Certified Content

Ariel content is fully compliant with the SAP-Open Content Connector (OCC) interface, an open XML-based interface to load external content into the SAP EHS specification database. Customers committed to the OCC standard for SAP EHS can seamlessly integrate Ariel regulatory content.

SAP[®] Certified
Integration with SAP Applications

Full Chemical Lifecycle Management

3E Company's comprehensive suite of data products and information services enables improved compliance with global Environmental Health & Safety (EH&S) requirements related to the safe manufacturing, distribution, transportation, usage and disposal of chemicals and hazardous products. Whether you are a manufacturer, distributor, transporter, retailer or corporate user of chemicals or hazardous products, 3E can deliver a program specific to the EH&S compliance information and management needs of your organization that provides benefits to the entire enterprise and throughout the supply chain. 3E Company's full product lifecycle and supply chain approach provides a single, integrated solution for managing EH&S capabilities, resulting in reduced cost, risk and liability while improving business and compliance processes.



EH&S Challenges

With the spotlight shining brightly on EH&S compliance, companies are challenged with finding effective ways to address the complexities and intricacies of EH&S compliance management. Not only do these challenges stem from a constantly-changing regulatory landscape, but also from a scarcity of newcomers to the EH&S field, and pressure on EH&S departments to manage increased responsibility with fewer resources. Addressing these issues requires broad and deep domain expertise—expertise that doesn't always exist within the company. And if it does, this expertise is probably best utilized by driving the company's overall compliance strategy, not bogged down with paperwork or the administrative burdens associated with maintaining compliance.

EH&S Solutions

At 3E Company, we understand the business and the burden of EH&S information and compliance management. 3E Company is a comprehensive, one-stop solution for content, tools and services for companies that want to take effective leadership and control of their product stewardship and EH&S compliance activities. 3E's products and services help companies make the transition from simply managing for compliance, to cutting-edge product stewardship practices that deliver tangible and sustainable business results.

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