Chemical management: a product suitability journey

Frank Arcadi, vice president of product stewardship at Sphera Solutions, looks at the challenges of managing compliance and beyond

Since a previous article for Chemical Risk Manager in September 2017, the world of regulated materials has become even more complex. Additional scrutiny is being placed on manufacturers and the process industry by consumers, industry agencies and regulators alike.

For example, Echa and the competent authorities of Denmark, Italy and Norway have recently introduced a proposal to restrict hazardous substances in tattoo inks and permanent make-up, with the aim of regulating specific hazardous substances present in these inks so that they are safe.

The concern is not only over what chemicals are present in the products we use and the food we eat but also those used in making products and, if they are still present, whether they pose a risk. For example, ammonia is used in food processing. Although it has been declared safe in small amounts, have we identified and communicated all the potential health risks?

The challenge is to take a more proactive approach and work out the best practices that can help create a healthier and safer world. The answer is to incorporate health, risk and compliance assessments during the innovation cycle and thus avoid the nightmares of recalls or, worse still, no consumer adoption.

Compliance throughout lifecycle

Product sustainability is a hot topic for the process industries, especially for consumer goods, but most companies still only resort to testing once the product has been placed on the market. This approach during market rollout limits an organisation's options and can be costly to remedy. Product sustainability requires product compliance at each stage of the lifecycle.

Let's take a look at each step of the product lifecycle and how compliance can become part of the overall sustainability process. Even when products are designed to be sustainable, traceability through the entire supply chain has become essential, in addition to documentation on risk associated by type of use, as required by REACH safe use of mixtures (Sumi).

All this information needs to be consolidated; new information may need to be created and then shared with the entire supply chain, including end consumers. This presents complex IT and business process challenges in producing the necessary documentation, as well as automating communication throughout the supply chain.

When product compliance is considered from the beginning, it shifts a business from being reactive to proactive, as well as providing insight on marketability and impact analysis on change. It also helps in developing 'greener' products which use less toxic substances, have lower volatile organic compound (VOC) content, are made from renewable resources, and so on.

Initial stage

At the concept and design stage, companies need to identify constraints arising from global regulation and for each intended use. Materials and ingredients are assessed for their use in formulations and relevant requirements are identified, such as labelling and notifications.

Product compliance at this stage helps organisations to avoid costly last-minute reformulation or repackaging of products by understanding the regulatory business risks associated with material composition, based on the intended use. Finally, a detailed plan for disposal should be created.

One of the keys to success is to ensure that all the information collected is in a standardised, auditable format. This will ensure that it can be easily reused in other formats as requirements evolve. It is also important to implement and deploy IT systems that are flexible and on-demand to optimise investments. The challenge is to resist 'not invented here' and 'we are unique' attitudes.

Sourcing and procurement

Once the product is conceptualised and designed, companies need to source sustainable and compliant raw materials from suppliers. At this stage it is important to capture important information on each material sourced, typically via a supplier declaration. For example, this type of information is required to support regulatory compliance with the REACH legislation for articles and/or preparations.

Collaboration is essential between procurement and regulatory teams. This can be achieved by implementing automated compliance-based purchasing, as well as continually managing supplier risk. There will be the benefit of increased visibility and control of supplier and material information, resulting in a reduction in operational costs.

To ensure a supplier provides a material declaration during the procurement process, it is essential to explain why you need the information: disclosure is necessary for optimal product sustainability. In addition, the product stewardship team will need to work closely with the materials purchasing team to integrate disclosure as part of the conditions of purchase.

Confidentiality is an important factor and will require greater partnership with suppliers because certain ingredients are proprietary or trade secrets. They may choose to withhold specific identification but disclose hazards and regulatory status.

Production and market rollout

At the production phase, it is all about being ready to 'go to market'. Proper product safety information and labelling, including identifying all hazardous and controlled materials, are a must. The worst-case scenario is meeting the production deadline, only to have your shipment held on a dock.

Documentation will need to be harmonised across all geographic locations where the product is sold, and in most cases written in local languages, while preserving product branding and corporate identity standards. This has placed increasing demands on manufacturers to provide accurate, detailed information about their products and the potential consequences of use. This can only be achieved via automation and standardisation.

Organisations with worldwide distribution channels must ensure regulations are met around the world prior to shipping. Having a central system that makes it possible to view and print safety documents on demand, from any location, for customers, employees, authorities and transportation personnel via a secure web link, is the most effective mechanism.

Change management

Manufacturing and process companies today are part of an extensive global supply chain, spanning many industries and multiple regions. The reality of such an interdependent environment is that a company's compliance and sustainability is greatly impacted by other members in its supply chain. Once a product is introduced, the ability to track it through all stages is paramount.

The key to an effective system is good communication and management between the successive links in the supply. Electronic communication is a must to ensure traceability and track follow-up activities to meet business and regulatory requirements and deadlines.

In addition, having dashboard views and advanced reporting capabilities will enable firms to see the impact of for example, the addition of a substance on the substances of very high concern (SVHCs) list, or the complete replacement or substitution of a raw material.

The built-in interrelations between products, raw materials, substances, and uses dictate the sequence of communication within the supply chain. An effective automated system should be able to determine what needs to be communicated and confirmed with both customers and suppliers.

Beyond compliance

Implementing compliance in the product lifecycle is an ongoing process and there are bumps in the road. At the core of any product compliance solution is the regulatory content. Without accurate data, product sustainability cannot be fully achieved.

In this information age, structured and centralised material information - or material data management - driven by product compliance is key to safe chemicals management. Companies excelling at procuring, maintaining and diffusing data to stakeholders will be more efficient in developing the right products the first time, and will be able to tap in their data mine to fuel innovation.

In this new era of product sustainability, the entire value chain is responsible for the compliance of substances and finished products. Staying abreast of chemicals under regulatory or NGO scrutiny, and so at risk of being regulated, is every company's responsibility. Sophisticated communication and traceability tools are essential to engage with supply chain partners as part of the extended chemical management team.

Companies who make product compliance a strategic initiative, design using sustainable substances at the beginning of the product lifecycle, plan for a sustainable retirement and work with compliant supply chain partners will ensure consistent and efficient decision making and as such achieve a higher level of performance.

The final question remains: how will technology such as blockchain enable and accelerate this business process?

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