

CLOUD TECHNOLOGY CAN HELP CHEMICAL COMPANIES ACHIEVE THEIR **SUSTAINABILITY AND COMPLIANCE GOALS**



The chemicals industry's primary goal is to innovate and produce valuable commodities with a rapid time to market. But that's just one aspect of developing a new product.

Today, regulators, government mandates, and consumers, expect more. Is it safe? How will it affect the environment? How can we minimize waste? Sustainability, safety and reusability are key considerations alongside bringing a new product to market. As chemicals company LyondellBasell put it, "We make health, safety and environmental protection an integral part of the development, manufacture, distribution, use, recycle and disposal of our products." Data can help companies meet their objective.



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Companies will likely already be using their data to make critical decisions fast and innovate on their products. Within the global chemicals industry alone, \$51 billion was invested in R&D in 2017. With so much riding on this stage of the process, data generated from R&D workflows should be treated holistically. But, often, it's not. In fact, most of the data goes unanalyzed, simply because there isn't time to analyze it all, and so companies lose the opportunity to gain valuable insights from their data. Let's look at how effectively managing data in the cloud can help companies meet their sustainability, safety and compliance goals.

CHEMICAL REGULATION FOR A NEW AGE

Industry regulators are ramping up their safety expectations. The American Chemistry Council has set high standards for chemicals to be used and managed safely, reduce environmental impact, enable cleaner and more efficient energy usage, and to provide innovative materials that are sustainably resourced and, ideally, easy to recycle.

In 2016, Congress passed the Lautenberg Chemical Safety for the 21st Century Act, which the US president signed into law. The new act protects people's health and the environment, as well as supporting economic growth and manufacturing in the US. Similarly, REACH legislation strives to do the same in the EU.

Companies such as Henkel and Solvay have taken the lead in innovative re-usability by focusing on chemistry to power sustainability. Henkel's Persil Ultra Concentrate increases the concentration of the ingredients to make the packaging smaller – minimizing plastic use and carbon emissions during transport. Solvay's innovation has enabled them to provide a highly stable battery that ensures its safety of use in electric vehicles as well as laptops and smartphones.

Since the chemicals industry makes products that are part of everyday life, they have a unique opportunity to reduce the amount of waste during a product's lifecycle and so lower the environmental impact. Not only does this mean that the product is safer for the planet, but also for all creatures living on it.

With that in mind, companies have invested significant resources in studying a product's safety footprint, whether or not it's biodegradable, and how easy it is to recycle. For example, BASF collaborated with farmers to create a lightweight plastic bottle to transport pesticides. Analysis showed the new design had a higher eco-performance than the original bottle, and using it reduced the risk of farmers being exposed to pesticides. The bottle also contains less plastic, resulting in fewer gas emissions during production and recycling. In total, the switch has reduced 2,000 metric tons of CO₂.

BOOST PRODUCT SAFETY AND MEET COMPLIANCE NEEDS

Safety is one of the top concerns in the industrials sector, and for good reason. Many of the products developed are possibly unstable, dangerous or hazardous at some stage of the production process or even during transportation. Many manufacturers require inventory reporting to comply with the Globally Harmonised System (GHS) health and safety legislation. Cloud technology enables companies to track, record and reuse data and inventory, complying to safety regulations and minimizing waste.



BECOME MORE SUSTAINABLE WITH CLOUD TECHNOLOGY

Finding a gap in the market and deciding to fill it with an exciting new product are just the first steps. Companies must formulate the product and put it through hundreds of physical and analytical tests to ensure it's safe, effective, and fits both the market's and the various regulators' requirements, including sustainability.

There are multiple benefits to developing products with sustainability in mind – it will be more environmentally friendly and driving towards a sustainable product can save on costs. Using cloud technology to collate, link and store data gives companies the opportunity to access all their previous data, in one place. Seeing and reusing prior data or research shows what works and what doesn't, and removes the need to repeat tests, which experts estimate account for 40% of total project costs.

Rather than needing numerous tests to create a new formulation, if companies can access and reuse old data, they can be more efficient and faster. Cloud technology captures the context of the tests along with the qualitative and quantitative analytical results. So it's easy to see where an existing formulation needs to be adjusted. Also, companies can see and manage their entire inventory including materials, equipment and reagents – how many bottles they have and how much is in each. No more over-ordering or disposing of expired reagents, thereby saving on reagents and time. Instead, those resources can be put to better use, such as finding better options – easily recyclable and biodegradable options – always something the industrials sector is looking for.

By adopting cloud technology, such as The E-WorkBook Cloud to manage data, companies can find and reuse their data, saving scientists' time and ultimately accelerating their time to market. The end-to-end informatics platform enables scientists to build in and reuse workflows commonly used in the lab as well as product development data. Manufacturers can compare attributes of chemicals from past projects with ease to optimize the production processes to require less solvent, reduce harmful emissions, and yield more product.

If you would like to create more time for science and enable greater innovation, get in touch:

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Lautenberg Chemical Safety Act <https://www.lcsact.com/>

<https://www.solvay.com/en/innovation/science-solutions/fast-charging-safe-batteries>

<https://www.rdworldonline.com/developing-a-data-driven-chemical-industry/>

<https://www.rdworldonline.com/making-a-material-difference-why-digital-transformation-is-key-to-chemical-rd/>

<https://www.lyondellbasell.com/en/products-technology/product-safety-stewardship/>

<https://www.linkedin.com/pulse/we-evaluated-digital-maturity-60-large-chemical-companies-ranade/>

<https://www.tceq.texas.gov/assets/public/permitting/tier2/EHSList.pdf>

https://www.icca-chem.org/wp-content/uploads/2019/03/ICCA_EconomicAnalysis_Report_030819.pdf

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