

CAS CUSTOM SERVICESSM

ICL DISCOVERS NEW USES FOR WASTE COMPOUNDS

Solution success story



The challenge: Creating sustainable solutions from manufacturing waste

The disposal of waste products generated from chemical production processes can be resource-intensive and time-consuming. This is especially true when byproducts pose a risk to human health or the environment, as costs for storage and disposal can be substantial. As a result, organizations are exploring ways to repurpose waste products.

As a leader in the manufacture of specialty chemicals, including industrial agriculture products, fire retardants, biocides, food supplements, and more, ICL saw an opportunity to repurpose their waste into useful commodities. Integrating byproducts and waste into the value chain enables cost-efficient conversion of raw materials into revenue-generating products.

To find new application leads, critical insights must be uncovered. These insights are often hidden in articles contained in journals, patents, and other commercial and academic sources. Pinpointing relevant data and connecting insight quickly can be incredibly challenging because the knowledge is spread across an expanse of disparate sources.

The solution: Better data connections lead to better outcomes

The ICL team partnered with CAS to accelerate their research process. The well-indexed content from CAS enabled data mining technologies to efficiently discover relevant insights across multiple disciplines. Using a combination of relational substance searches and AI-powered literature analysis, ICL quickly revealed applications for its target compounds, which spanned multiple research areas and scientific disciplines.

This custom analysis was incredibly valuable, as subject matter experts could focus their efforts on the highly tuned results, developing innovative and promising applications for the candidates rather than spending the bulk of their time sifting through literature. Connections across seemingly unrelated scientific disciplines enabled the exploration of unknown applications of similar compounds. By considering synthetic pathways from CAS, together with their analysis of potential markets, ICL identified lucrative uses and viable commercial opportunities for existing waste products.

The project has been very successful, identifying application leads for 75% of targeted waste products within a few months. "One of these leads could even enable ICL to expand to a new market, bringing significant commercial opportunity. Two others are already in feasibility testing for direct repurposing," explains Avida Karniel, Operations Manager, Central R&D, ICL. "This fast progress has only been possible by empowering our data mining technologies with the scientist-curated content from CAS. It has provided our researchers with the information they need to identify creative applications for the compounds."

Commercial opportunities are not the only benefit for ICL. Future storage demands are projected to decrease, along with disposal and treatment costs. Repurposing compounds will eliminate hundreds of thousands of tons of waste each year, saving millions of dollars over the next 5 years.

75%

**of target waste compounds
are now in R&D***

*ICL

"We wanted to find commercially sustainable uses for our byproducts, helping to reduce waste and make our production processes more efficient. CAS helped us do that."

Aviad Karniel,
Operations Manager,
Central R&D, ICL

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