

Knovel®

CHEMICAL R&amp;D

## Solution Story: Global Specialty Chemical Company Reducing Analytical Lab Budgets Using Knovel



ELSEVIER

### Summary

A chemist was asked to create new materials for the company's polymer platform, but his challenge was to find and evaluate high performance, cost effective and biodegradable polymers within budget. Using Knovel, the chemist eliminated 60 percent of materials ideas before the stage gate process, ultimately saving the company \$250,000.

**“Knovel helped me find critical pieces of information from a reliable source, which saved me from spending unnecessary time in the lab.”**

—James Elmont\*, Chemist



## Reducing Analytical Lab Budgets Using Knovel

### Challenge

#### Identifying and Evaluating the Right Materials

An advanced chemist at a global chemical company wanted to create new materials for the company's polymer platform. His goal was to accelerate the development of biodegradable applications in order to find high-performance, cost-effective products to add to the company's portfolio.

James Elmont\*, the chemist, knew he needed to identify potential materials for new biodegradable polymer products. To accomplish this task, Elmont would have to compare key properties of a wide range of polylactides (PLA) and polyhydroxyalkanoates (PHA). This would involve assessing, side by side, the glass transition temperature, processability, ease of processability and biodegradability of these polymers before proceeding into the idea-review/technical-feasibility phase.

“We wanted to look at the competing materials in the biodegradable space,” Elmont said. “I needed to collect reliable information and present my input to Management and Business so they could make quick product development decisions,” he said.

Elmont also hoped to find opportunities during the assessment process to eliminate design of experiments (DOEs) for technologically infeasible materials and thereby reduce the costs of testing materials.

\*Names have been changed to protect rights to innovation

## Solution

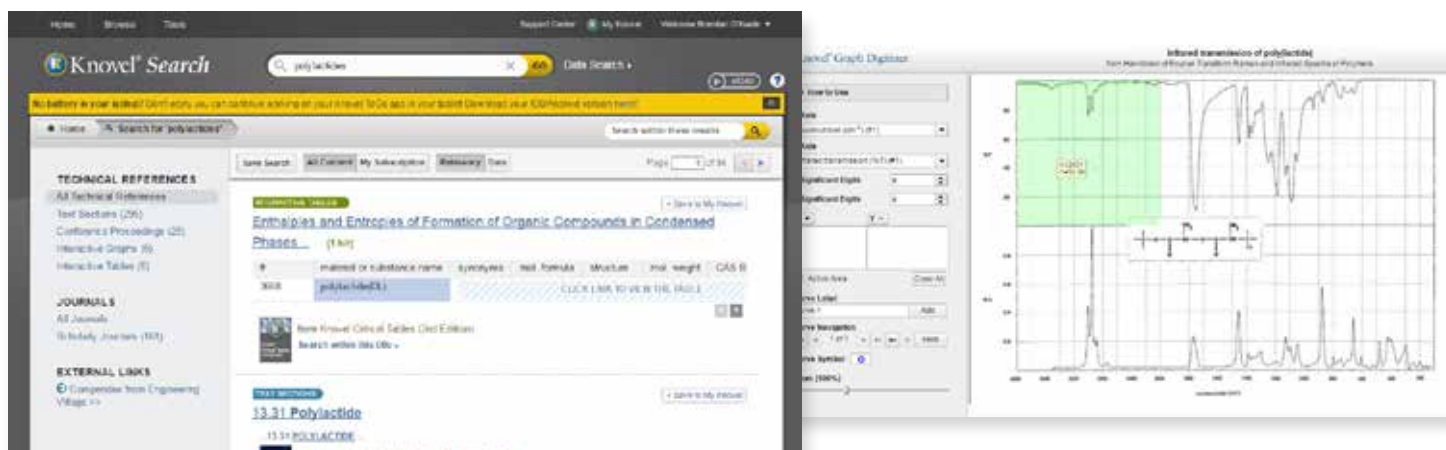
### Eliminating Unnecessary DOEs

The chemist used Knovel to create side-by-side comparisons of the properties of various PLAs and PHAs. Knovel gave Elmont instant access to the properties for more than 35,000 organic substances and more than 5,000 inorganic substances and elements — all in one place. It saved him from using Google and other websites to painstakingly piece together the properties of the materials he was considering.

“If you don’t have Knovel, you have to look through all these different sources of information, and sometimes it isn’t reliable,” Elmont observed. “If it isn’t reliable, you end up having to do experiments in the lab.”

Using Knovel enabled Elmont to better guide technicians and analysts about which DOEs should be conducted, based on the side-by-side comparisons Knovel provided.

“I used Knovel’s interactive table to compare the key properties and applications of various PLAs and PHAs. This allowed me to zero in on materials I wanted to run DOEs on and eliminate materials I was not going to move forward with, significantly reducing the number of experiments,” Elmont explained.



## Business Impact

### Saving Money and Time

Knovel helped Elmont make key decisions early in the idea discovery process, before advancing into stage gate. By providing quick side-by-side properties comparisons, Knovel enabled him to confirm technical feasibility and to eliminate unsuitable materials.

“We were able to make quick decisions where to play and where not to play,” Elmont said. “The whole product development process is governed by technological insight, and we use Knovel to generate that insight. Knovel is a big part of our everyday toolset. We are actually able to get all the data from Knovel and then table our internal data or interactive data. We value that a lot.”

By using Knovel to assess the materials’ technical feasibilities, Elmont’s team was able to eliminate 60 percent of their materials ideas before the stage gate process. They put 20 percent in the parking lot, saving those materials for additional review once the team had answered technological questions or explored possible improvements. They moved only 20 percent into stage gate.

Knovel also helped Elmont streamline the number of DOEs to perform, reducing his time in the lab by 20 percent. “Knovel helped me find critical pieces of information from a reliable source,” he explained, “which saved me from spending unnecessary time in the lab.”

By not having to perform GPC, thermal DSC, NMR and GC-MS within the analytical department for the eliminated DOEs, Elmont slashed his analytical lab budget spend by \$250,000.

## Knovel

Knovel helps oil & gas businesses minimize risk while maximizing output and efficiency by providing engineers access to technical reference materials and interactive tools for developing and managing projects with greater efficiency and certainty.

For more information about Knovel,  
visit [elsevier.com/rd-solutions/oil-and-gas](https://elsevier.com/rd-solutions/oil-and-gas)

### Elsevier offices

ASIA AND AUSTRALIA

Tel: + 65 6349 0222

JAPAN

Tel: + 81 3 5561 5034

KOREA AND TAIWAN

Tel: +82 2 6714 3000

EUROPE, MIDDLE EAST AND AFRICA

Tel: +31 20 485 3767

NORTH AMERICA, CENTRAL AMERICA AND CANADA

Tel: +1 888 615 4500

SOUTH AMERICA

Tel: +55 21 3970 9300