intellegens

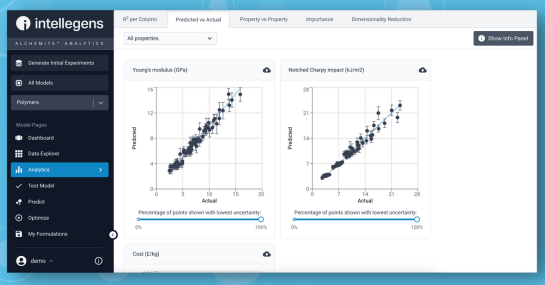
Applied machine learning

Accelerate innovation for chemicals and processes

Optimise chemicals, formulations, and chemical processes, exploiting all available data

Design more effective and efficient experimental programs, saving months of work

Find novel solutions to market, regulatory, and environmental challenges



Analysing property data in the Alchemite™ Analytics user interface

Are you developing new chemical compounds, designing formulations, or aiming to improve or manage chemical processes? What if you could reduce the amount of costly experiment, find new solutions, and speed up process improvement decisions – all by making more effective use of your data?

Leaders in chemical and process innovation want to apply novel machine learning technologies to extract more value from their experimental, simulation, or production data. But most machine learning approaches fail when applied to real-world data from these sources, because such data is often messy and incomplete. The answer is the **Alchemite™** software from Intellegens, built on a method originally developed at the University of Cambridge.

Alchemite™ applies advanced deep learning that can build models from this sparse, noisy data. It is easy to apply to practical problems in the chemical process industries. Identify vital relationships in your data. Design new chemistries, formulations, and materials. Propose optimal process parameters. And guide planning of experimental projects to dramatically reduce cost and time.

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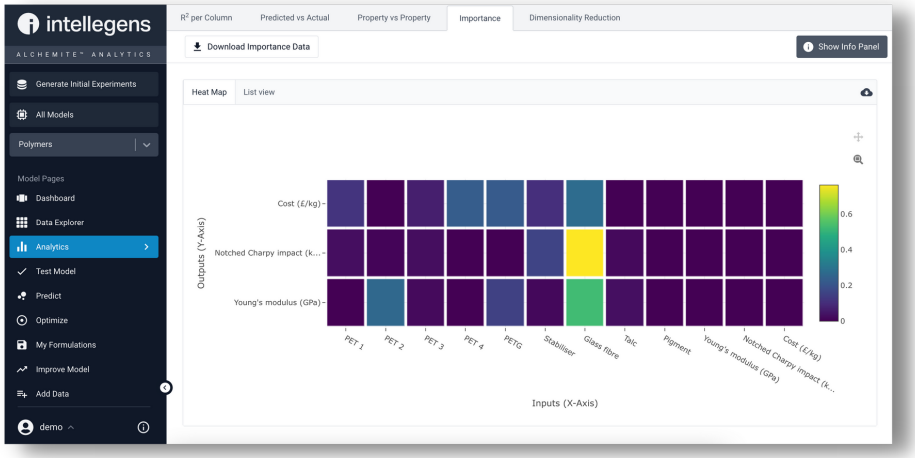

The Alchemite™ Analytics platform provides scientists with quick, easy access to advanced deep learning methods and powerful graphical analytics via a web browser user interface. The Importance Chart provides insight into which inputs drive which outputs.

Case studies

Formulation development – Domino Printing Sciences used Alchemite™ to accelerate a key project on ink formulations, decreasing time-to-market by cutting months out of experimental timescales. Similar applications have included development of plastics, coatings, paints, foodstuffs, and pharmaceuticals.

Design of catalysts – Johnson Matthey accurately modelled 16 key performance targets for automotive catalysts, proposing new solutions that have now been experimentally validated.

Flavours and fragrances – IFF successfully predicted the sensory properties of chemical compounds based on sparse physicochemical and sensory data, saving costly experimental time and resource.

Process optimisation – Alchemite™ is regularly applied to optimise parameters when designing or improving a chemical process, helping to ensure process quality and lower energy usage.

Alchemite™ for chemicals and process development

With the **Alchemite™ Analytics** software, scientists and chemical engineers can apply powerful deep learning methods through an easy-to-use web browser interface. **Alchemite™ Engine** gives data scientists flexible API access to the full power of the Alchemite™ algorithm, enabling them to integrate it with in-house systems and workflows. Key features are:

- Gap-fill and validate sparse, noisy data from suppliers, experiment, simulation, and production
- Auto-generate models that identify key relationships within your data
- Quantify uncertainty to support a rational business case for key decisions
- Suggest what experiment(s) to do next, increasing the efficiency of experimental programs
- Identify the optimal chemistry or formulation for your product
- Propose optimised process parameters to improve quality and performance.

Next steps

Contact us to book a demo tailored for your application. Visit our website to download white papers and subscribe to our newsletter. Or follow us on social media.

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