# Are green chemistry approaches and Life Cycle Assessment compatible?

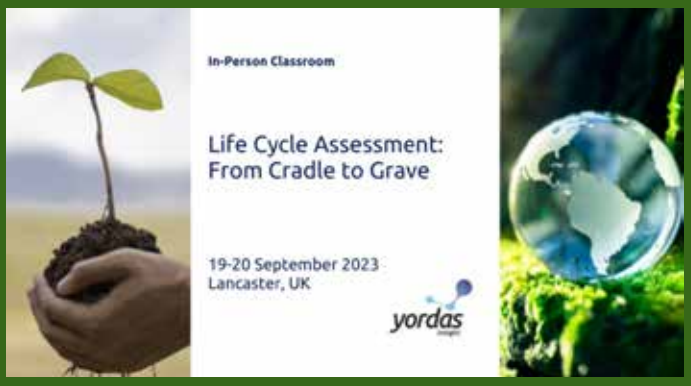
Green chemistry and Life Cycle Assessment (LCA) are potentially complementary approaches that are effective at facilitating more sustainable products and processes. Green chemistry focuses on the design of chemical products and processes that are less hazardous to human health and the environment. LCA, on the other hand, is a tool for evaluating the environmental impact of a product or service throughout its entire life cycle, from raw material extraction to disposal or recycling.

By applying green chemistry principles during the product design and development phase, the environmental impacts can be reduced at the source. This may be achieved through the use of renewable feedstocks, adopting waste minimisation actions, or assessing the hazard profile of chemicals.

Once a product or process has been designed and developed, an LCA can be used to evaluate its environmental impact utilising data from a pilot project and compare them to alternatives. This approach can help to identify unintended consequences or areas of improvement before scale-up. For example, an LCA may reveal that the largest source of the environmental impact comes from the disposal of the product at the end of its life. In this case, a green chemistry approach such as designing for recyclability or biodegradability can be implemented to reduce this impact.

It's also important to consider the entire product life cycle to ensure that the green chemistry principles not only relate to the production process but also to the product's usage and disposal. This can include designing products that are more energy-efficient, designing packaging that can be easily recycled, and providing clear instructions for safe disposal.

Integrating green chemistry and LCA approaches can enable organisations to create products that are more sustainable and cost-effective. At their core, the objectives of LCA and green chemistry align with one another, both aiming to deliver reduced environmental impacts. Green chemistry principles can be used to design products that have a lower environmental impact, which can subsequently be quantified using LCA. LCA studies can also be used to inform the development of green chemistry strategies and to identify areas for improvement. This not only benefits the environment but also helps to create a more competitive business environment.




If you want to advance your sustainability journey join Yordas Group experts on 19-20 September 2023 at our offices in Lancaster, UK for a 2 day workshop "Life Cycle Assessment: From Cradle to Grave"

Topics covered in this workshop include:

- Introduction to Life Cycle Assessment
- Life cycle goal and scope definition
- Life Cycle Inventory (LCI) development
- Handling multifunctionality
- Life Cycle Impact Assessment (LCIA) modelling
- LCA interpretations & communication
- Dissemination methods

You can find out more ***here.***

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***As a Chemicals Northwest member you can also receive an additional £100 discount - contact Jodie to receive this at j.kershaw@yordasgroup.com***