

A case study on bio-ethanol derivatives screening and pre-feasibility

Initial situation

A European bio-ethanol producer was concerned about future bio-ethanol blending targets post-2020 (prior to RED II agreement in June 2018) and the potential adverse impact on sales.

The company wished to understand the IHS Markit view of the long-term market dynamics of bio-ethanol, including its views on legislation post-2020. It also wanted to explore alternative value-added opportunities for its bio-ethanol via its conversion into chemicals.

IHS Markit approach



IHS Markit provided its long-term view on bio-ethanol market and pricing dynamics, with a focus on Europe and its view on the impact of the (at the time) unconfirmed post-2020 RED II legislation.



In considering downstream opportunities, IHS Markit conducted a screening study which highlighted the most attractive opportunities using a number of agreed criteria including market size, growth, returns and access to technology.



A number of complexes based on the results of the screening study were proposed, considering the available bio-ethanol. A workshop was held to discuss the results of the screening study and agree the products to go forward for a more detailed review.

Impact



Following a site visit to understand the potential challenges there may be in building downstream derivatives, IHS Markit conducted a pre-feasibility study for the products selected following the screening study. This pre-feasibility study considered, in more detail, market and pricing dynamics as well as cost competitiveness and a review of available technologies.

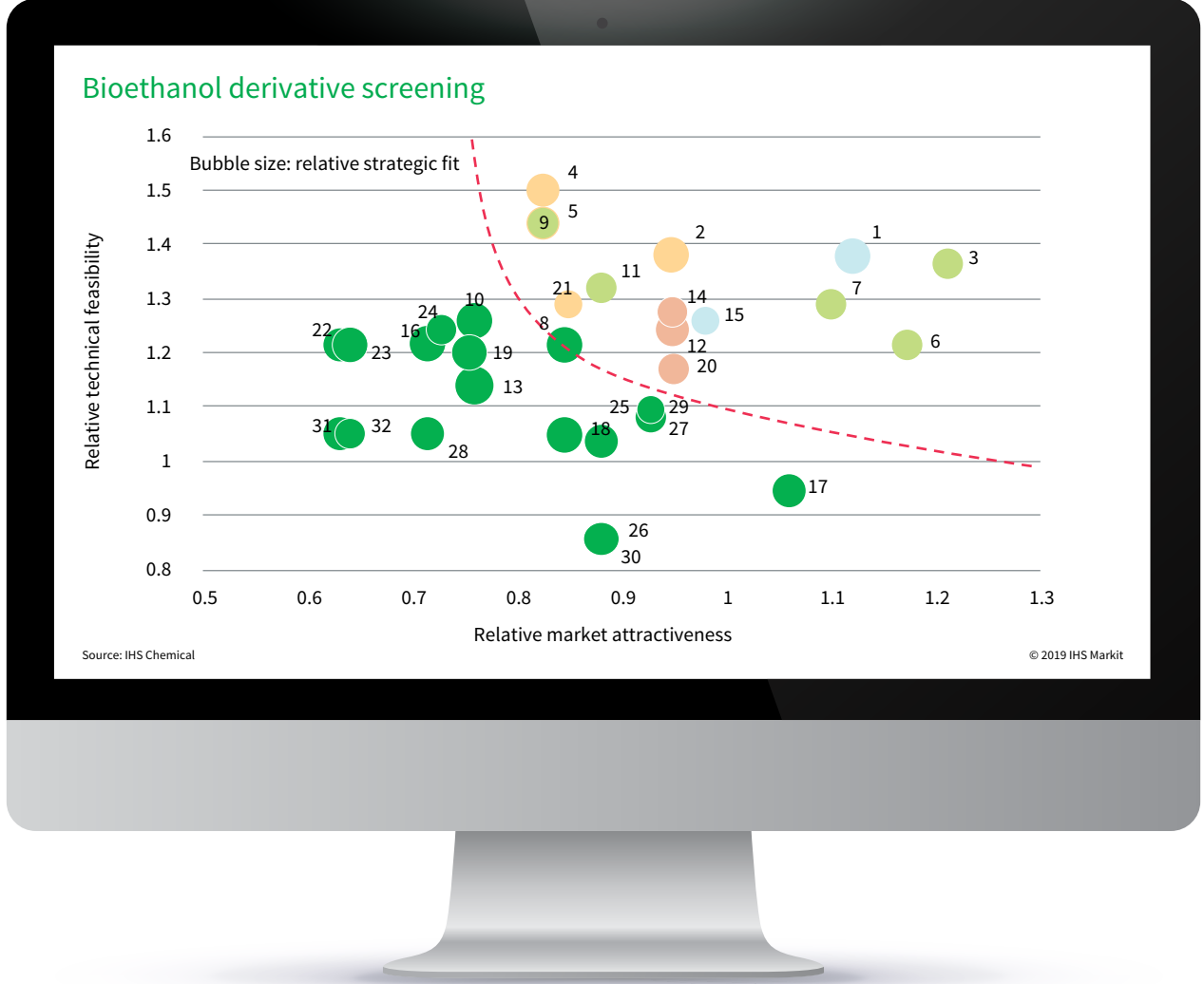
The client used these studies to inform its long-term strategy for its bio-ethanol plant and is currently considering its options, particularly in light of the RED II legislative announcements.



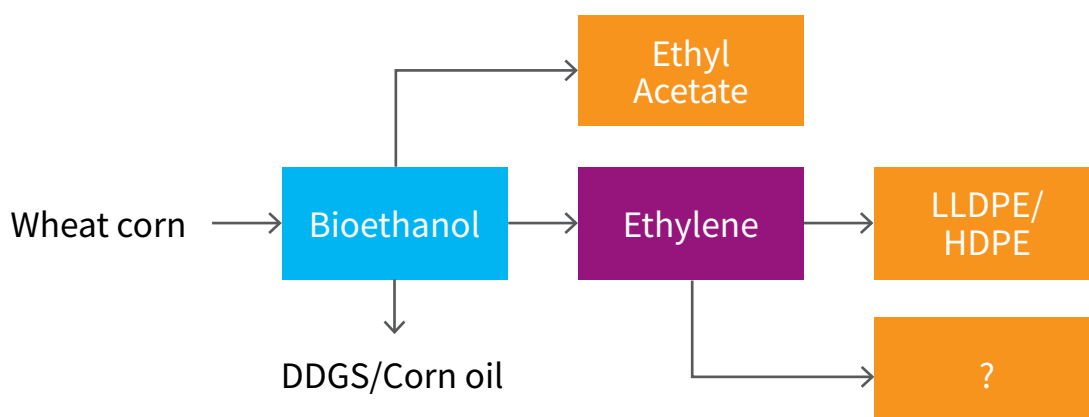
Market conditions

The ethanol market today is around 100 million metric tons in size. The Americas dominate the market overall, with the United States being the largest single market. In recent years, demand in China has increased substantially and will continue to grow with the phase-out of MTBE as a gasoline blending component and the implementation of an E10 mandate.

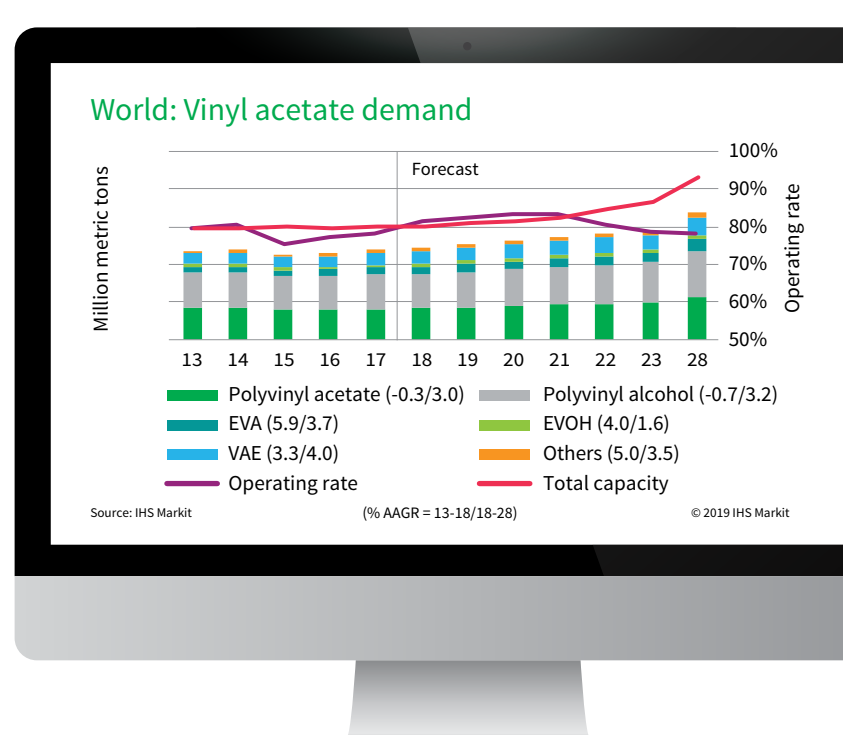
The majority of bioethanol made today serves the gasoline blending market, either through rack or spike blending into a reformulated gasoline, or in the form of gasoline ethers, ETBE and TAAE. Chemical applications for bioethanol are increasing. Last year, Croda Chemicals in Newcastle, DE, in the United States, brought an ethanol to ethylene oxide complex onstream to serve ethoxylation operations focused on personal care products.



It is clear that different interest groups in the biofuels value chain are lobbying for changes or reductions in proposed renewables' legislation. Producers of 1G (first generation) ethanol are, for example, concerned about legislation reducing corn/wheat use in 1G ethanol as this may compel such companies to invest in 2G (second generation) ethanol, where the technology is yet to be satisfactorily commercially-proven.



IHS Markit's consulting group is ideally placed to support clients in understanding the impact of new legislation on the biofuels market and to offer solutions in addressing the potential challenges, for example by developing a chemical value chain as an alternative outlet for the bioethanol. Our analysis is underpinned by our data, insight and expert analysis across the refining, agricultural and chemical value chains.



With over 400 experts focused on the Oil, Mid-Downstream and Chemical markets, our expert analysis can be as broad as it can be laser focused.

Get in touch to have a solution tailored to your needs.

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