

From Egyptian pans to Europe's gas stations

By producing biodiesel from used cooking oil and other waste vegetable oils, Biodiesel Misr in Egypt is able to reduce greenhouse gas emissions from road transportation and, at the same time, create job opportunities for the local community.

Business challenge

Strict environmental regulations in the EU require diesel to be blended with biodiesel, which presents a great opportunity for biodiesel producers. Finding suppliers of the raw materials required for biodiesel production, however, can be a challenge. Biodiesel Misr needed to find a way to convert readily available waste-based feedstocks into biodiesel that meets EU standards.

Transformation

Using enzymatic technology, one Egyptian biodiesel plant is now able to produce biodiesel that meets stringent European standards while avoiding the pitfalls that come with chemical processing.

Results

- **Improved profitability** through the conversion of low-value feedstocks into high-value biodiesel.
- **Limited capital expenditure** due to the ability to retrofit an existing facility.
- **Positive community impact** through local job creation.

Business challenge story

CO₂ is one of the greenhouse gases that contribute to climate change. By blending diesel with biodiesel, less fossil fuel is needed, helping reduce carbon emissions and meet climate change targets. Biodiesel Misr started making biodiesel in 2013 from used cooking oil collected from restaurants.

"The target market for our waste-based biodiesel is Europe where environmental regulations require that diesel is blended with biodiesel," says CEO of Biodiesel Misr. Mahmoud Abo El Rokab. "In fact, the biggest challenge is not to find buyers of biodiesel, but suppliers of the raw material needed for the biodiesel production. That is also the reason why we are looking to expand our business beyond Egypt to other countries in Africa to access more waste-based feedstocks."

Transformation story

Last year, the company implemented an enzyme catalyzed biodiesel process, invented by Novozymes, to diversify the range of feedstocks that could be converted into high-value, low-carbon fuel while improving plant profitability. Cheap, low quality and non-food oils have long been considered for biodiesel feedstock. However in chemical processing, these feed materials often require difficult and costly refining in order to not harm the chemical catalyst. Biodiesel producers have traditionally had to rely on the costly and messy sulfuric acid esterification or thermal glycerolysis for the pre-treatment of high acidity vegetable oils.

Results story

"Novozymes' process and its Eversa® Transform 2.0 enzyme product is a game changer for the profitability of our plant as we are now able to convert low-value feedstocks with high acidity to biodiesel that meets the EN biofuels Standards in Europe," says Ismaeil Zaher, Technical Director of Biodiesel Misr. "The innovative enzymatic process requires limited capital expenditure and we were able to implement it by ourselves by retrofitting an existing facility."