

Project Information



Subject: Natural Gas Reformer and Hydrotreatment for Modular Used Oil Recovery Units

Applicant: Hese Umwelt GmbH
Magdeburger Straße 16 b
45881 Gelsenkirchen

Project duration: End 2000 – Mid 2003

Project partners: minitec engineering GmbH
Ruhr-Universität Bochum
Universität Duisburg
Härröd Research Göteborg

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Project description:

The project aims are development, erection and test of an integrated hydrotreatment step within a small scale used oil recovery process based on extraction. One topic is the development and erection of a natural gas reformer for hydrogen production, offering a capacity of 12.5 kW, equivalent to an yearly production capacity of up to 10 t hydrogen. Reformer development is in the responsibility of GMU, hydrotreatment of used oil extracts in supercritical atmosphere is researched by HRG and developed/ designed by MEG. The research/development phase will be followed by upscaling.

Due to the hydrotreatment in supercritical atmosphere, the planned used oil recovery unit provides significantly better product qualities and higher yields than common used oil recovery processes. It is possible to entirely install the process in 2-3 40'- ISO- containers at capacities of 5,000 t/a used oil feed. Such modules are especially useful for flexible deployments and/or separate recovery of e.g. selectively collected synthetic used oils from automotive industry.

Due to their size and concept, the units are predominantly suited for exports in developing countries, which currently build up an local/national used oil recovery system and wish to start with small size units, which can later be extended to higher capacities thanks to the modular design.

The reformer development/extension is based on the previous design and make of a 1.5 kW- reformer, which was already successfully developed in the course of a previous project. The 12.5 kW unit is considered to be an intermediate size on the route towards a 50 kW reformer. The latter shall supply hydrogen to the full size modular used oil recovery unit as well as to fuel cells of corresponding capacities.