SUSTAINABLE HANDLING OF RENEWABLE DIESEL AND SAF PRODUCTION RESIDUES





RENEWABLE FUELS, THE WAY FORWARD

Shifting regulatory incentives are driving changes in renewable fuel demand, transforming the transportation sector. As a result, biofuel manufacturers are expanding their operations, traditional refineries are adapting their strategies, and new players are rapidly entering the market.

THE RENEWABLE FUELS INDUSTRY **IS EXPERIENCING RAPID TECHNOLOGICAL ADVANCEMENTS.**

Among diverse renewable fuel production methods, HVO (Hydrotreated Vegetable Oil) emerges as the current frontrunner. Utilizing vegetable oils and greases, HVO leads in commercial viability for producing Sustainable Aviation Fuel (SAF) and Renewable Diesel, positioning itself as the key technology to meet impending biofuel blending mandates.

HVO-produced fuels offer a significant advantage: they can be seamlessly blended with conventional fuels or used alone. Unlike second-generation biofuels, HVO has an identical chemical structure to standard fuel, allowing for 100% usage in engines without complications. This gradual adoption helps reduce greenhouse gas emissions, air pollution, and fossil resource dependence. For businesses, this presents a prime opportunity to meet growing sustainability demands while minimizing operational changes.



PRE-TREATMENT RESIDUES: AN ONGOING CHALLENGE

Pre-treatment of the feedstock is critical in the HVO production cycle.

Trace elements such as metals, chlorides, and phosphorus, which can reduce downstream hydrotreating catalyst lifetime and corrode equipment, must be removed prior to the transformation process.

The pre-treatment systems generate residues that pose significant challenges in handling, transportation, and treatment:

- wastewater with an organic content too high to be processed in the refinery's existing treatment plant and which requires a dedicated treatment;
- spent bleaching earth with high vegetable oil content;
- highly concentrated acid gums which are difficult to manage.



Current practice tends to consider only onsite treatment of wastewater.

The other residues are exported off site generating significant transportation costs and dependency on disposal facilities as well as a high environmental footprint.



VEOLIA SUPPORTS THE TREATMENT OF ALL TYPES OF PRE-TREATMENT UNIT RESIDUES

Veolia's waste management expertise offers a sustainable solution for the biofuels industry, specifically addressing HVO on-site treatment, **Veolia transforms** a disposal problem into the production of a valuable resource, eliminating off-site

residues to generate biogas, a sustainable energy source. The biogenic methane in various industrial applications, including hydrogen production, steam generation, heating and syngas production.

When exploiting this sustainable energy their fossil fuel costs and dependence. and move towards more environmentally acceptable operations.

DRIVING SUSTAINABILITY IN INDUSTRIAL OPERATIONS

By converting waste into energy and promoting resource efficiency, economy principles and enhances overall



Overview of the HVO / HEFA process incorporating Veolia's solution



TAILORED SOLUTION WITH LONG-TERM **ADVANTAGES**

Our innovative **approach** tackles

your current or future treatment requirements while offering significant long-term advantages.

Veolia provides comprehensive support, from initial design to operation, delivering tailored solutions that effectively reduce pollutant levels in residues. This ensures compliance with discharge regulations.

This solution improves the circularity and carbon footprint of the entire HVO process, enhancing your operation's sustainability and competitiveness within the biofuel sector, particularly in the realm of sustainable aviation fuels.



VEOLIA'S ONSITE TREATMENT SOLUTION ALLOWS YOU TO:

- EFFICIENTLY TREAT CHALLENGING RESIDUES
- TURN WASTE INTO ENERGY IN THE FORM OF BIOGENIC BIOGAS
- REPLACE FOSSIL FUEL BY BIOGAS
- REDUCE DISPOSAL EXPENSES
- ENHANCE CIRCULARITY
- LOWER CARBON FOOTPRINT
- ENSURE COMPLIANCE WITH DISCHARGE REGULATIONS





Veolia provides end-to-end support, from initial planning to long-term management of your HVO residue.

Veolia supports you throughout your HVO project in developing the various possible solutions for residue management: from the preliminary design allowing you to choose a solution based on its CAPEX and OPEX, to the development of the over the lifetime of your HVO plant.

PRELIMINARY IDENTIFICATION OF NEEDS

TAILORED SOLUTION WITH ESTIMATED CAPEX-OPEX

PILOTING OF THE SOLUTION

DESIGN STUDIES

SOLUTION IMPLEMENTATION

OPERATION & TECHNICAL SUPPORT

TREATMENT CHEMICAL SUPPLY

Our experts deliver reliable and cost-effective treatment services, allowing you to focus on your production process and achieve sustainable growth within the renewable energy sector.

We are Global:

We are a global company that strives to deliver the highest quality of service wherever your facility is located.

We are Responsible:

We are committed to decarbonize, regenerate resources and combat pollution to accelerate the ecological transformation for the benefit of all our stakeholders, including our employees.



plan, Veolia is firmly committed to accelerating ecological transformation. Our company supports you in your transition towards a more sustainable **future** by offering innovative

Resourcing the world



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