OGE/Petroil Transitional Fuel

Fusion of Immiscible Substances Technology - FISTech

Summary

OGE/Petroil Transitional Fuels is a new generation of fuels produced using a unique process to create a fusion of immiscible substances (water, glycerine or glycerol) with hydrocarbons. Our fuel products achieve a high standard which current fossil-based fuels cannot meet in terms of greenhouse gases emission and particulate matter reduction. Our VLSFO bunker fuel is based on Fusion of Immiscible Substances Technology - FISTech, a proprietary method of fusion.

The cost of the final product depends on the type of feedstock combination used in the production process. By use of this product, three economic benefits will be apparent: a) efficiency, i.e., fuel consumption, b) reduction of emissions, most notably CO2, NOx, CO, SOx, Polyaromatics and particulate matter MP10 and MP2.5 and and c) cost of total feedstock. The final economic benefit for its end user will be dependent on terms and conditions agreed between us.

The use of non-miscible substances in hydrocarbons contributes to substantial reduction of SOX, NOX, CO, CO2, and other greenhouse gases such as hydrofluorocarbons, perfluorocarbons, sulfur hexafluoride, and nitrogen trifluoride. Furthermore, it substantially contributes to reduction of particulate matter, SOOT, up to 60%. Part of the feedstock, i.e., water, glycerol or glycerine, used to create the fusion does not have any sulfur content, metals, or other hazardous components. Due to the high oxygen content in the feedstock these products improve fuel performance during its combustion.

Our technology, based on fusion, FISTech, ensures product separation stability of more than three (3) years, which is our practical observation to date. FISTech product separation stability tests can be performed in a laboratory by a variety of methods. The fusion process utilizes supercritical conditions in order to create fusions at molecular level. For this reason, we can ensure that no emulsifiers are used in our process.

When the final product is made using water or glycerol and subjected to ASTM 395 - 13 (2018) water by distillation test, 40% to 50% of the product's water will be released by the fusion during its distillation. This does not occur when technical grade glycerine is used as feedstock. Water will not be separated under normal use as fuel in engines. Our VLSFO will meet all ISO 82:17 2017 standards specially 0.5% sulphur max.

Samples will be provided upon request giving the opportunity to visually inspect the product and process the material through the appropriate analysis and tests in your own laboratory.

Our production technology is relatively small in size and requires non-complex hardware. As an example, a 10k bbls/day facility requires approx. a surface of 300 m2 and its total electricity demand is as maximum of 300kw/h. The production unit may be placed close to the customer’s loading facility, thereby improving the economics whilst contributing to environmental issues due to its flexibility to integrate into a decentralised infrastructure.

Keywords:

Glycerine: It is glycerol in a high concentration. Our production process uses technical grade with high concentrations of up to 98% free of MONG, methanol, and low water.
Crude Glycerol: It is the by-product of biodiesel distillation, and it is made mainly of Glycerol, methanol, water, and MONG.

Deionized **Water:** as Deionized (DI) water is water that has been treated to remove all ions – typically, that means all of the dissolved mineral salts.
Hydrocarbons: for the production of VLSFO are components of petroleum such as hydrocarbons residue from atmospheric distillation or catalytic process mainly FO6 and heavy crude oil without any kind of process or treatment.

Value-added

The value-added based on:

a) Water, glycerol or glycerine are powerful hydrocarbon enhancers. The oxygen content in these products improves fuel performance during its combustion.

b) The feedstock used to create the fusion does not have any sulfur content, metals, or other hazardous components. Sulfur is lowered by dilution up to the proportion of the feedstock used during the fusion process. The more volume of glycerol, water, or glycerine is present in the fusion; the less sulfur content will be present in the finished product.

c) Once the product is burned in the engine, the emissions are environmentally cleaner than when traditional fossil fuel is burned.

d) Since our production input of raw materials is not critical concerning a pre-defined quality, the input cost can be lowered, which yields a finished product priced at a competitive rate compared to traditional fossil fuels. This contributes to the economics for the customer together with a significant contribution to environmentally focused objectives and regulations.

e) Efficiency is a crucial factor. Our production technology is relatively small in size and requires non-complex hardware. The production unit may be placed close to the customer's loading facility, thereby improving the economics whilst contributing to environmental issues due to its flexibility to integrate into a decentralised infrastructure. A storage facility containing feedstocks and finished products in separate tanks. The complete production unit may be located at a port or an industrial production plant.

f) Based on the fact that emission reduction of non-environmentally friendly gases is present, the final customer can apply for The Clean Development Mechanism (CDM) and certify carbon reduction emissions.

g) In countries with strong environmental policies regarding emissions, the final customer will be in a position to apply for tax exemptions.

Market

The target market for OGE/Petroil Transition Fuels is diverse and relevant to:

1. bunker fuel industry;
2. heavy mining equipment;
3. light and heavy vehicles and trucks;
4. industry and factories;
5. power generation by stationary engines;
6. agriculture;
7. steam production; and
8. heating systems

In some countries, transition fuels could prove to be a more economical alternative than natural gas.

Design

The appearance of the final depends on the raw material used in the fusion process. Regarding VLSFO/OPTF its colour remains without a significant change in black and dark irrespective of the feedstock used in the fusion process, i.e., water, glycerine, or glycerol.

With respect to diesel fuel, its colour will change if the fusion is made using water or raw glycerol. The customer may provide to the end customer product coloured white, green, blue or other. When glycerine is used in the fusion process, the colour depends on the diesel and water content quality in the glycerine.

Samples will be provided upon request giving the opportunity to visually inspect the product and process the material through the appropriate analysis.

Processing Technology

Our processing technology creates a stable product through our fusion process without using emulsifiers (Surfactants and Tensoactives). As a result, these fusions are significantly more stable over time and yields a superior efficient fuel at the point of its combustion due to higher oxygen concentration.

Additional description of the particular processing methodology is our core technology, which is subjected to a strict level of confidentiality.

[a set of detailed photos of production facility]

[4-5 photos here]

1,000 bbls/day facility in 24/7 current operation. The output of this facility is fuel for power engines. Feedstock is light crude oil (located at an exploration field) and water.

The product will yield the same performance as a traditional fossil fuel. When material characterised by a high concentration of water and glycerol is used in trucks and vehicles in high altitude, a degraded performance may occur. This depends on the production ratio used concerning water, glycerol and diesel fuel used during the fusion process.

Performance Capabilities

OGE/Petroil products are carefully produced, ensuring the same or higher performance level as compared to traditional fuels. Final fuel oil performance level depends on feedstock volume blended related to hydrocarbons in the fusion process. Concerning diesel fuel, we have achieved satisfactory performance results with up to 90% technical grade glycerine.

Production unit in warehouse.

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