

- IDEALFUEL -

Lignin as a feedstock for renewable marine fuels

GRANT AGREEMENT No. 883753

HORIZON 2020 PROGRAMME - TOPIC LC-SC3-RES-23-2019

“Development of next generation biofuel and alternative renewable fuel technologies for aviation and shipping”



Deliverable Report

D7.4 – Exploitation Plan



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Publishable summary

The EU H2020 project IDEALFUEL aims to develop an efficient and low-cost chemical pathway to convert lignocellulosic biomass into a Biogenic Heavy Fuel Oil (Bio-HFO) - with ultra-low sulfur levels - that can be used as drop-in fuel in the existing maritime fleet. While technical lignins are cheap and available in large quantities, their characteristics are not suitable for the development of high-performance marine fuels. Among others, these lignins suffer from low solubilities, large molecular weight, high sulfur content and are generally non-uniform in their chemical nature. One strategy consists in solvent fractionation of technical lignins and/or woody biomass to extract a high-quality fraction, which can be more suitable for fuels applications. A second strategy consists in the production of high-quality lignin from biomass with alternative bio-refining process. Within IDEALFUEL, the partners selected lignin/biomass solvolysis and Aldehyde-Assisted Fractionation (AAF) as the most relevant technologies for the production of high-performance lignin for fuel applications. Woody biomass or lignin solvolysis to an intermediate crude lignin oil (CLO) prior to the bio-HFO production, is one of the process solutions within IDEALFUEL project coordinated by WP2 as a way to mobilize 2nd generation biomass and has been used in order to produce the CLO feedstocks for its catalytic hydrotreatment towards Bio-HFO. In the latter process, commercially available Ru/C catalyst has been used to hydro deoxygenate the CLO and produced a Bio-HFO composition that needs to be complied with ISO8217 for marine fuels. In this deliverable report, we present our exploitation efforts to valorize all key exploitation results that were generated within the IDEALFUEL project for maximizing the impact of our proposed solutions towards decarbonization of the shipping sector.

The author(s) would like to thank the partners in the project for their valuable comments on previous drafts and for performing the review.

Project partners:

#	Partner short name	Partner Full Name
1	TUE	Technische Universiteit Eindhoven
2	VERT	Vertoro BV
3	T4F	Tec4Fuels
4	BLOOM	Bloom Biorenewables Ltd
5	UNR	Uniresearch B.V.
6	WinGD	Winterthur Gas & Diesel AG
7		(Formerly SeaNRG, is now GOODFUELS #12)
8	TKMS	Thyssenkrupp Marine Systems GMBH
9	OWI	OWI – Science for Fuels gGmbH
10	CSIC	Agencia Estatal Consejo Superior De Investigaciones Cientificas
11	VARO	Varo Energy Netherlands BV
12	GOOD	GoodFuels B.V.



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