

SSA 2

Introduction

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Goal

- Write the introduction
- look at the carburateur.

Conclusion

- The list of symbols, introduction and research questions are in the report.
- Didn't had enough time to look at the carburettor but I think this will not be necessary.

Problems

- Maybe we should include a small RPC-list in the appendix and we can write underneath the research question: *In order to be able to get the 'most green' fuel, the group has set out some RPC's (Requirements, preferences and constraints) to evaluate the fuel blends. The points that have the main focus are:*

- *There should be as little C_2 emissions as possible*
- *Create as much useful energy as possible*

A complete overview of requirements, preferences and constraints can be found in Appendix.....

Follow up Steps

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Work Division

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Time Division

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Overleaf Link

List of symbols

Symbol	Quantity	Unit	Unit
A	Area	Meter squared	m ²

1 Introduction

The world we're living on is running out of available fossil fuel. Therefore, it's really important that green solutions are investigated and developed, in order to provide enough sustainable energy. Nowadays several new technologies like solar panels, heat pumps and electric cars are getting normal. All these technologies help in some way to reduce CO₂ emissions, while providing the same services as in the past. However, it is really hard to implement total CO₂ neutral technologies so radically. Therefore, using already existing technologies and develop them into a more greener one, is a great contribution to the world's energy transition and a solution for running out of fossil fuel.

The company GreenGarden was looking for a consult how to apply this to their already existing gen-sets. These devices exist of a 4-stroke internal combustion engine that will activate the electricity generator. The generated electricity can be used to power machines in a garden or at a construction site. In theory when this 4-stroke engine uses a green fuel CO₂ emissions can be reduced.

To make greener fuel, gasoline and bio-ethanol are blended together in different ratios. This blending can be done with different E-numbers (ratio's of bio-ethanol). This blending should be done in such a way that the engine still runs properly and will not suffer any damage due to the blending. In order to calculate which E-number has the best ratio between producing the lowest CO₂-emission and giving the most useful energy output, the ideal and non-ideal cycle will be analyzed. A model will be made of the non-ideal cycle of the engine. This model will be compared to the measurements of the experiments done on the 4-stroke combustion engine. In this report, the effects of the use of green fuels are investigated. The advantages and disadvantages will be stated of using a blend instead of the regular gasoline. Eventually there will be given a reasonable advice by taking the technological, environmental and financial aspects into consideration.

1.1 Research question

With the information from the introduction above, the following research question is made:

"Looking at the ratio between producing the lowest CO₂-emission and giving the most useful energy output, which E-number will be the best fuelblend when it's use in a DC-motor?"

reference[1].

References

- [1]
- [2]
- [3]