

FUNDAMENTAL MARINE DEVELOPMENTS

Innovative solution: Permanent Washable Air Filters

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Introduction

The study is part of a larger project by Water Revolution Foundation focused on assessing suppliers' solutions for improved sustainability in the yachting industry. It aims to inform stakeholders, consumers, and public institutions about the industry's commitment to Sustainable Development Goals (SDGs). This study specifically investigates the environmental credentials of air filters used in yachts, comparing FMD's submitted product with traditional disposable filters.

This document offers a brief summary of the LCA study.

Approach & Data

The LCA was conducted in accordance with the ISO 14040 and ISO 14044 by ALEA SRL (Università di Modena e Reggio Emilia Spin-Off) with third party peer-review TETIS Institute SRL (University of Genova Spin-Off). Collected data include input and output flows relating to materials, transport, energy, products, and emissions. Data quality evaluation based on parameters such as age, reference technology, process, calculation methods, and measurement irregularities. Data categorized into specific data (from surveys or literature), selected generic data (from databases), and proxy data (estimates and averages). Specific data used for most processes, while generic data from Ecoinvent v.3.9 used for raw materials, fuels, and electricity production. Transport modelled based on means of transport and distances. SimaPro 9.5 used for the study.

Functional Unit

The functional unit is defined as 1 hour of use for each filter, with the system function being its use in the yachting field.

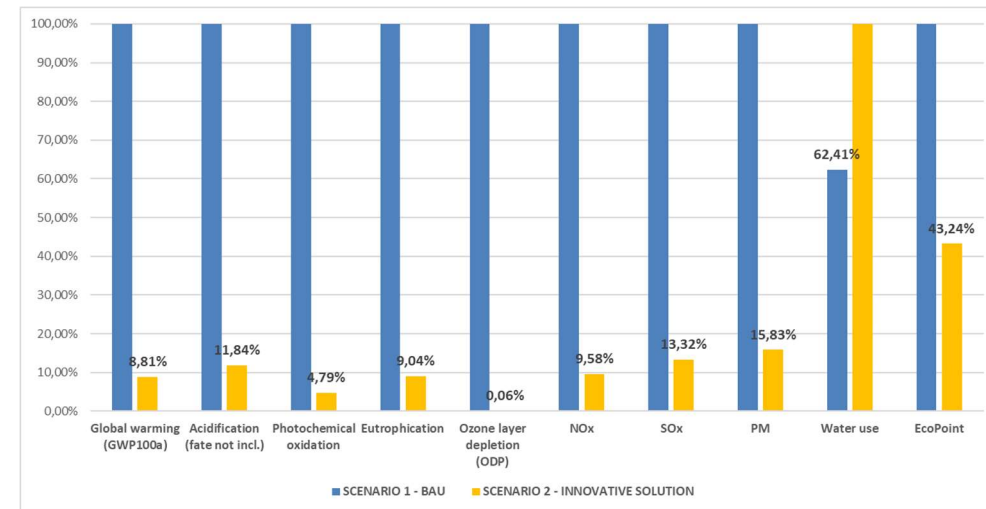
System Boundary

Divided into three phases: Upstream processes (from cradle to gate), Core processes (manufacturing from gate to gate), and Downstream processes (from gate to grave). No allocation procedure performed, as FMD provided all data regarding system production.

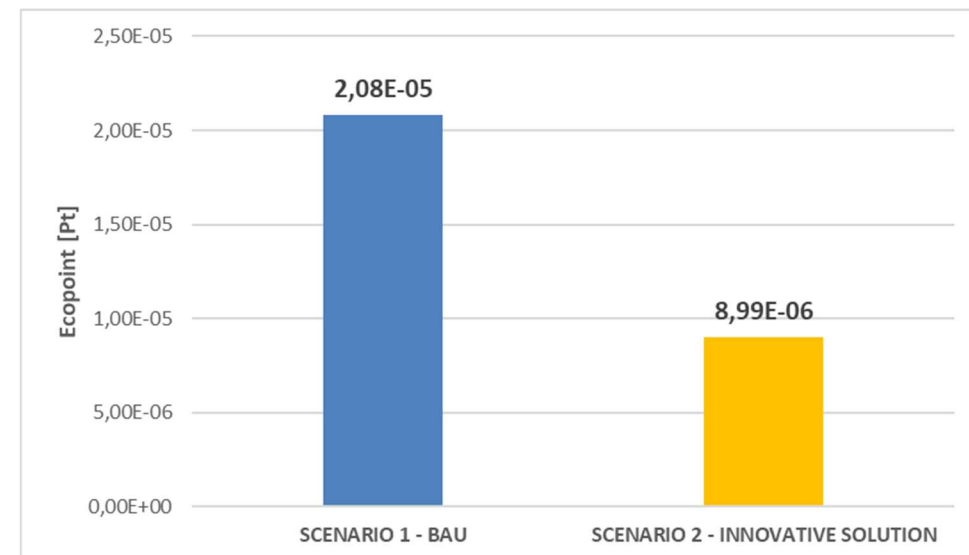
Conclusions

FMD innovation (Scenario 2) performs better with regards to its environmental impacts compared to the BAU. Sensitivity analysis also shows the overall environmental performance of the innovative solution remains evident, even with extended BAU lifetimes.

LCA Impact Category Results (Business-As-Usual vs FMD Innovation)



Comparison between the results of Scenario 1- Yacht with traditional disposable air filters (BAU) and Yacht with Permanent Washable Air Filters (Innovative Solution). The results are expressed in percentage.



Summary of the single score (Ecopoint) assessed scenarios. Scenario 1 is business as usual (yacht with traditional disposable air filters), and scenario 2 is the innovative solution (yacht with FMD permanent washable air filters). The higher the Ecopoint value, the higher the potential environmental impact.