

A close-up photograph of a person's hand holding a large quantity of small, green, spherical plastic pellets. The hand is positioned in the center-right of the frame, with the fingers slightly curled. The background is a dense, uniform field of the same green pellets, creating a textured, almost monochromatic effect. The lighting is soft, highlighting the smooth surface of the pellets and the skin of the hand.

Life Cycle Assessment

Executive Summary

**Plastix'
Oceanix PP
Oceanix HDPE**

PROVICE

**Life Cycle Assessment of
Oceanix PP and Oceanix HDPE
Executive Summary**

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Executive summary

Plastix is a mechanical fiber waste recycler producing plastics branded Oceanix PP and Oceanix HDPE. The waste input is primarily nets and ropes from the maritime industry. Plastix produces its Oceanix PP and Oceanix HDPE pellets in different variants and colors.

This report contains a third-party reviewed life cycle assessment (LCA) based on the attributional modelling approach, and in accordance with DS/EN ISO 14040:2006 + A1:2020 and 14044:2006 + A1:2018 + A2:2020 and DS/EN ISO 14071:2014. The assessment was conducted in Q2 2022 and represents the latest production data.

The impacts are categorized, normalized, and weighted according to the PEF global normalization factors, with the PEF weighting factors.

The LCA is a cradle to gate analysis, analyzing all relevant resource consumptions and emissions related to the production of Oceanix.

The life cycle activities included are:

- Handling at collection point and transport of waste nets and ropes
- Supply of energy and other raw materials
- Mechanical recycling and production of Oceanix at Plastix
- Packaging of Oceanix products
- Disposal of waste from production

The LCA analysis includes externalities (e.g. share of construction of wind mills, trucks, ships, non-road vehicles) according to the attributional methodology.



Comparisons of Oceanix PP and Oceanix HDPE with virgin PP and virgin HDPE are conducted. The reference data for virgin PP and HDPE are from the Ecolvent 3.7 database and represent average impacts from EU produced virgin PP¹ and HDPE².

The table below stipulate the environmental impacts for the impact categories with the highest weighted scores. Oceanix is index 100.

	Oceanix	Virgin HDPE	Virgin PP
Acidification	100	547	522
Climate change	100	1,784	1,766
Ecotoxicity, freshwater	100	230	188
Eutrophication, terrestrial	100	322	299
Human toxicity, cancer	100	133	103
Land use	100	188	156
Ozone depletion	100	237	142
Particulate matter	100	758	761
Photochemical ozone formation	100	582	529
Resource use, fossils	100	4,326	4,391
Resource use, minerals and metals	100	198	189
Water use	100	1,160	992

Table 2: Index based comparison of Oceanix with virgin PP and virgin HDPE

For all environmental impact categories, Oceanix PP and Oceanix HDPE from recycled maritime waste perform substantially better than similar virgin plastics.

Especially for the three important go-to-market categories *resource use – fossil*, *climate change* and *water use*, Oceanix PP and Oceanix HDPE present a significantly better environmental performance than virgin PP and virgin HDPE.

The categorized LCA result for Oceanix' climate change impact is 112 kg CO₂e/ton Oceanix. The reference carbon footprint used for virgin PP is 1,980 kg CO₂e/ton, and for virgin HDPE is 1,992 kg CO₂e/ton. This means that:

Oceanix PP and Oceanix HDPE have a 94,3% lower carbon footprint than virgin PP and virgin HDPE.

¹ Polypropylene production, granulate {Europe} | polypropylene, granulate | Cutoff, S

² Polyethylene production, high density, granulate {Europe} | polyethylene, high density, granulate | Cutoff, S

Critical review statement

As independent external critical reviewer I can confirm that this LCA is consistent with ISO LCA standards and that methods used are scientifically and technically valid; the data are appropriate and reasonable in relation to the goal of the study; and the study report is transparent and consistent. The review was performed concurrently with the study in a tentative and friendly atmosphere. All recommendations from the 4 meetings and the final email on the draft report has been followed or debated to a satisfactory solution. For the life cycle impact assessment, the study is aligned to the EU Product Environmental Footprint impact assessment i.e. the presently state-of-the-art method from a regulatory and business-to-business communication point of view. The practitioners are aware of the limitations of the weighting method applied in PEF. Occupational health is also considered, but not included in the quantified LCA. Better proofreading and use of references were recommended as well as more elaboration of the interpretation of some tables. This has been done. Also, the work on data quality and uncertainties can be applauded.

