

Circular opportunity for End-of-Use Dyneema® lines

Seaweed farming as a possible application to extend the lifetime of Dyneema® lines from the commercial marine market.



DSM Dyneema® fiber is a high-performance synthetic fiber. This high-performance synthetic fiber made from Ultra High Molecular Weight Polyethylene. The Dyneema® fiber is used in the commercial marine market as an alternative to polyester and nylon ropes and netting. The Dyneema® fiber offers additional value in strength and low weight.

Circular opportunities for the End-of-Use Dyneema® are explored to find possible ways for lifetime extension for the obsolete material from the commercial marine market. Circular opportunities for lifetime extension were explored using market and company analysis and a study on the End-of-Use material.

Seaweed farming at large scale is an upcoming market that could provide society with healthy food and sustainable energy and play a role in the conservation of the environment. Seaweed is grown on lines that lie underwater in the sea. Possibilities of using End-of-Use Dyneema® were analyzed in a design case. It was discovered that there are possible opportunities for reusing End-of-Use Dyneema® for the building of seaweed farms. Further development will be required to make optimal use of the End-of-Use material.

A seaweed farm is made from construction lines, the orange lines in the image above, and grow lines, green lines in the image above. The construction lines are under heavy loads from the drag of the current and therefore need to be of high strength.

