

DEL137 - GELINPORTS

Port authorities aim to minimize port maintenance dredging to minimize costs, GHG emissions, and increase port safety and accessibility of berths. Within TKI project DEL 137 GELINPORTS, research is carried out to investigate the possibilities to apply gel as a barrier for sedimentation. Ideally this gel would reduce sedimentation and not form an obstruction for vessels in the port. Such gel should meet the following requirements:

1. be efficient in reducing siltation in navigational channels
2. be environmentally friendly and conform to circular economy principles
3. guarantee safe navigation

The main objective of the proposed research is to develop a natural sediment barrier by utilizing a biological flocculating agent in specific areas of the port to promote the accumulation of sediment forming a gel in designated areas. Several types of flocculants will be tested. The most promising candidates are Alginates and Alginate Like Exopolymers (ALE) which comply to these requirements. One of the potential candidates is Kaumera Nereda® Gum, which is a new bio-based raw material that is extracted from the sludge granules that form during the Nereda® purification process.

The proposed research consists of the lab tests for optimizing gel properties and a numerical flow model study for studying the impact of hydrodynamic conditions on a gel barrier.

Our products will be:

- Technical reports and scientific publications
- Description of this project for general audience on the website