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Bio-based Strapping Systems — Replacing Plastic Fibers in Load-Securing Systems

Problem / Motivation

- The cargo inside the container must be secured to prevent it from shifting
- According to current best practices, textile straps made of plastic fibers are used
- In most cases, the plastic straps are discarded into the environment at their destination
- The goal is to replace plastic with a biodegradable material

Solution

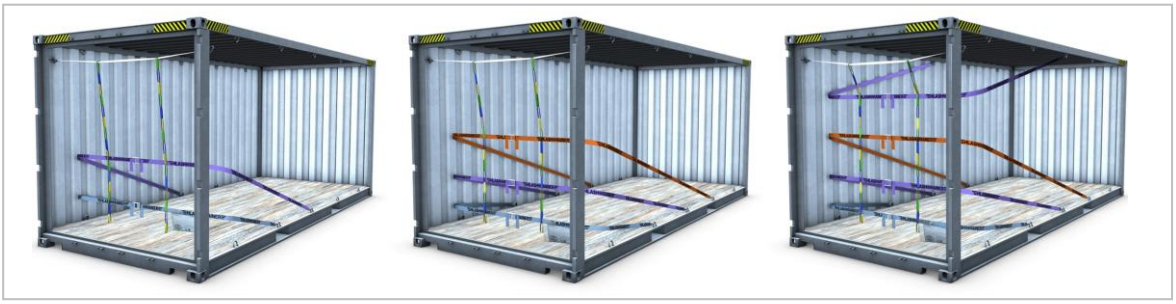
- Analysis of existing restraint belts and auxiliary straps (chain links) made from plastic fibres
- Specification of biodegradable fibre materials and yarns as a replacement for plastic fibres in restraint belts
- Iterative development of textile manufacturing technologies for restraint straps made from biodegradable fibre materials and yarns, production of test samples
- Development and implementation of a test rig for strength testing of tension and restraint straps at low temperatures
- Textile physics investigations and tests on test specimens for restraint belts made from
- biodegradable fibre materials and yarns

Project Launch

10/2025

Project Partner

HLash & Rainer GmbH



Container Retention System -CRS-Vario (Photo: Firma HLash & Rainer GmbH)

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