

Meet the Winners of the 1st Grow/Harvest Call

Construction + Recycling & Circular Economy

GreenDealles Green Deal Solution for Predalles

Consortium



Politecnico
di Torino



ITALY



Current predalles

Challenge & Approach

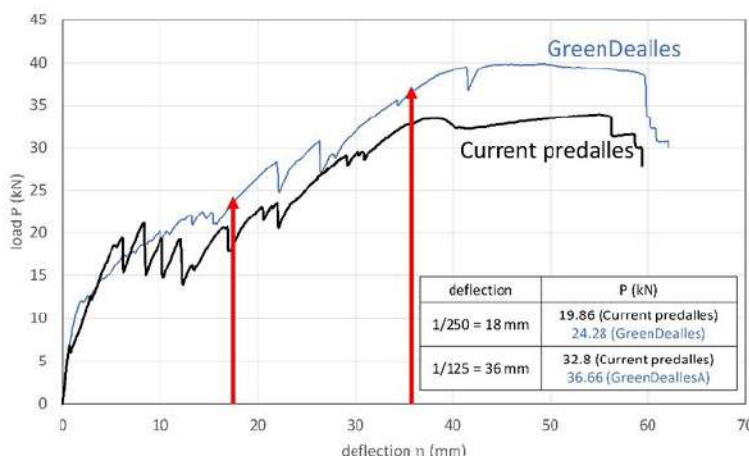
- In several countries, concrete structures of public constructions have to contain at least 5% in mass of recycled materials.
- As most of the structural mass is the slabs of floors, and due to the difficulties of providing ready mix concrete with recycled materials, **GreenDealles** is proposed.
- In the GreenDealles, produced in precast plant, the mass of recycled aggregate and recycled fibers can be even larger than 5%. In this way, GPP requirements can be satisfied even in the case the cast-in-situ concrete layer is composed by only virgin materials.
- Accordingly, flexural tests are performed on slabs made with predalles containing both recycled aggregates and recycled steel fibers.



Recycled steel fibers

Results

It is possible to build slabs with GreenDealles, which contains recycled materials, and observe better performances, in service and at ultimate limit state, than the current predalles made with only virgin materials.



Impact for the Construction Sector

- Offer a solution for satisfying the green public procurements for different final users (large companies and single bricklayer).

Impact for an SME

- Create a link between different waste stakeholders (i.e., tire recycler) and the producers of predalles.

Impact for a Sustainable Built Environment

- Lower the use of virgin natural materials (such as stone aggregates) and fossil-based materials (such as fibers) in the production of predalles. In particular, carbon footprint can be reduced of about 2.5%.
- Also, the consumption of water and of the energy for the production, can be reduced of 1% and 2%, respectively.