

PP-potassium carbonate composite for CC



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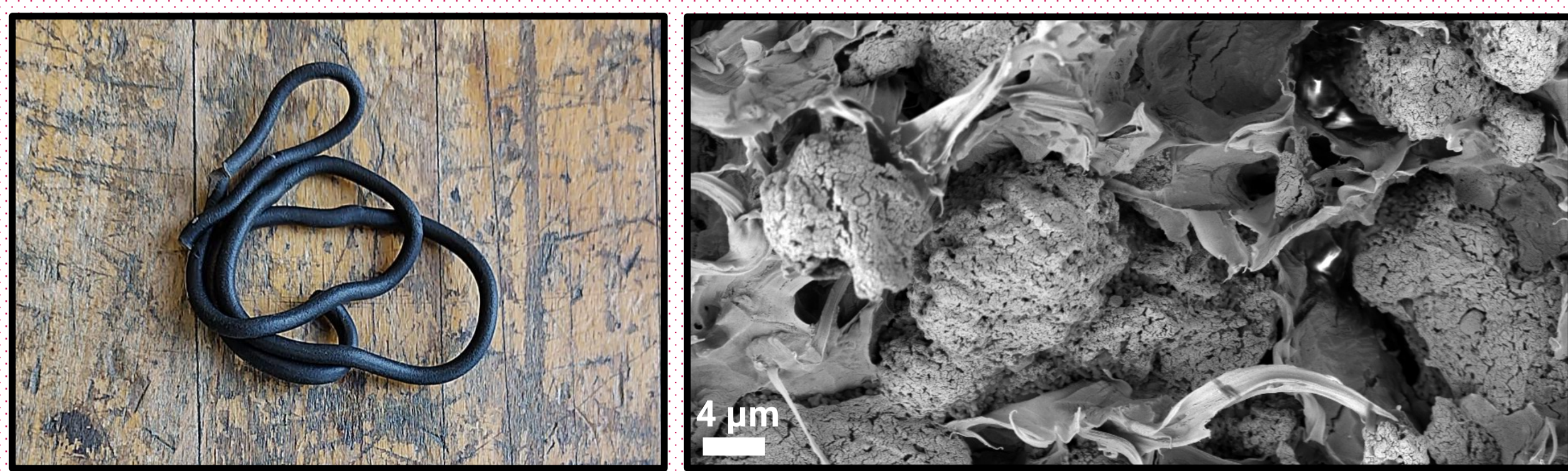


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Challenge



Incorporating potassium carbonate into a matrix that can withstand repeated carbonation–decarbonation cycling without loss of mechanical integrity.



Polypropylene-Potassium carbonate extruded 1.5 mm filament (left), and SEM cross section 5000x (right)

Project Description



- Development of structured solid sorbent for CO₂ capture that uses potassium carbonates.
- The production method should be scalable and low-cost.
- Successful selection of polypropylene (PP) as the host matrix and fabrication of PP–potassium carbonate composites using single-screw extrusion, followed by SEM analysis to assess dispersion and morphology.
- The CDR Booster enables access to specialists, which provide guidance on materials processing, characterization strategy, and alignment with carbon dioxide removal objectives.

Mitico Timeline



1

[Aug 2022]
Mitico founded
Spun out from Caltech lab



2

[May 2024]
CARBIONIK 1.0
First gen. sorbent



3

[Aug 2025]
Centennial 1.1
First pilot at host site with Bangchak



4

[Feb 2026]
CARBIONIK 2.2
Second gen. sorbent



5

[Mar 2026]
Centennial 2.0
0.3 TPD pilot with NRCan



6

[May 2026]
CDR Booster
Collaboration with HES-SO

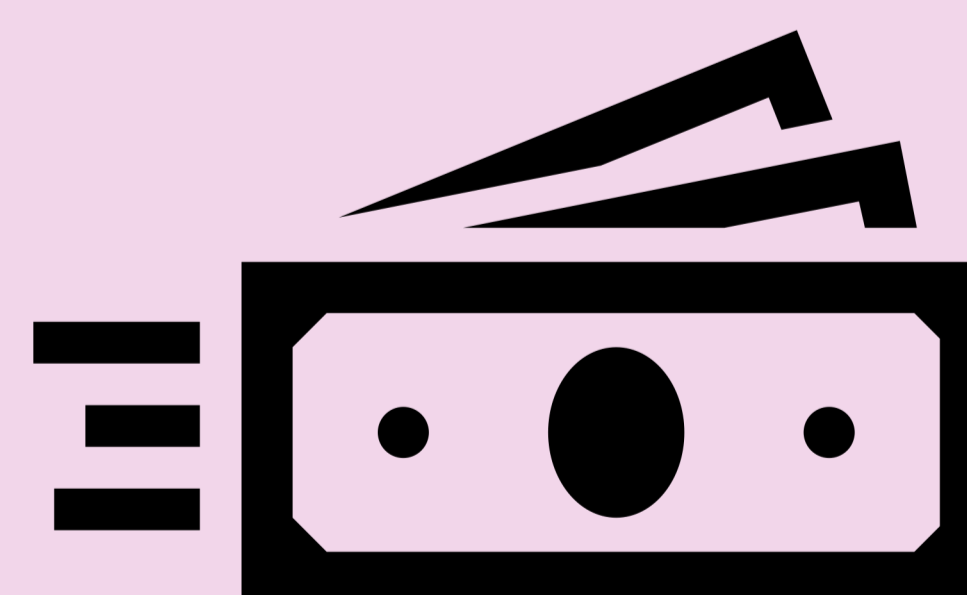


Next Steps

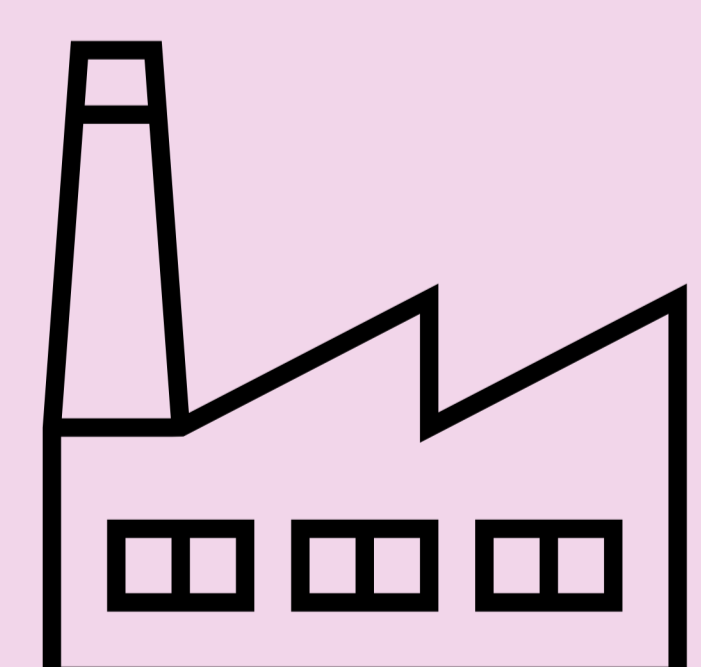


- CO₂ cycling tests**
Simulate absorbent aging with absorption-desorption cycling
- Alternative materials**
Building on polypropylene proof-of-concept, use polymers with higher thermal tolerance
- Techno-economic analysis**
Assess absorbent for economic feasibility, including synthesis and pilot operation.

We are looking for...



Funding



Industrial partners