

# Presentation

CO2 re-use  
Mineralisation  
Green Minerals



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Green Minerals  
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@GreenOlivine

# CO2 re-use

- **CO2 to chemicals**
- **CO2 to fuels**
- **CO2 to minerals**

# CO2 re-use

- **CO2 to chemicals**      **Covestro**

Beyond Carbon

- **Carbon Dioxide is**
- **revolutionizing plastics**
- **production**

What sounded like a fairy tale for decades is now reality: Carbon dioxide can be turned

# CO2 re-use

- CO2 to chemicals

- **CO2 to fuels**

**Audi**

- C



Fuel is nearly carbon neutral, automaker says

# CO2

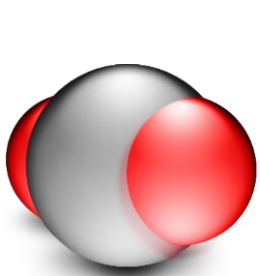
- CO2 to chemicals
- CO2 to fuels



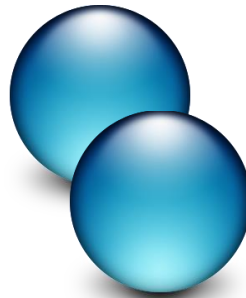
- **CO2 to minerals**

**Carbon8**  
**Green Minerals**  
**Mineral Carbonation Int**

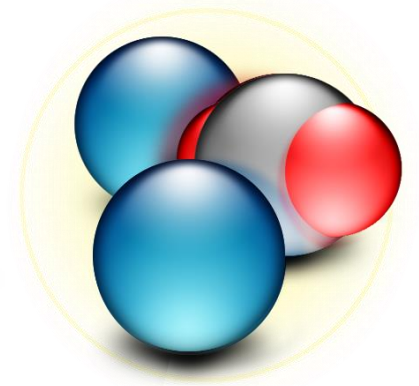
# Process



**CO2**



**Olivine**



**Green Minerals**

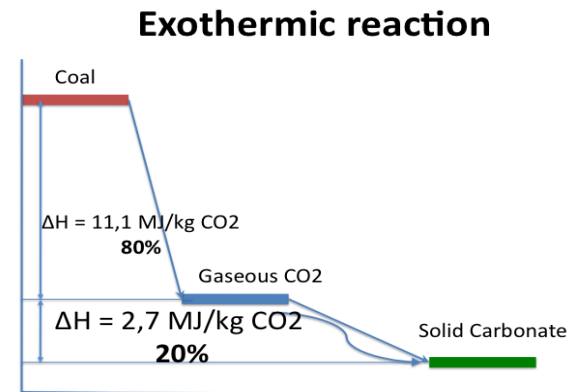


# Product

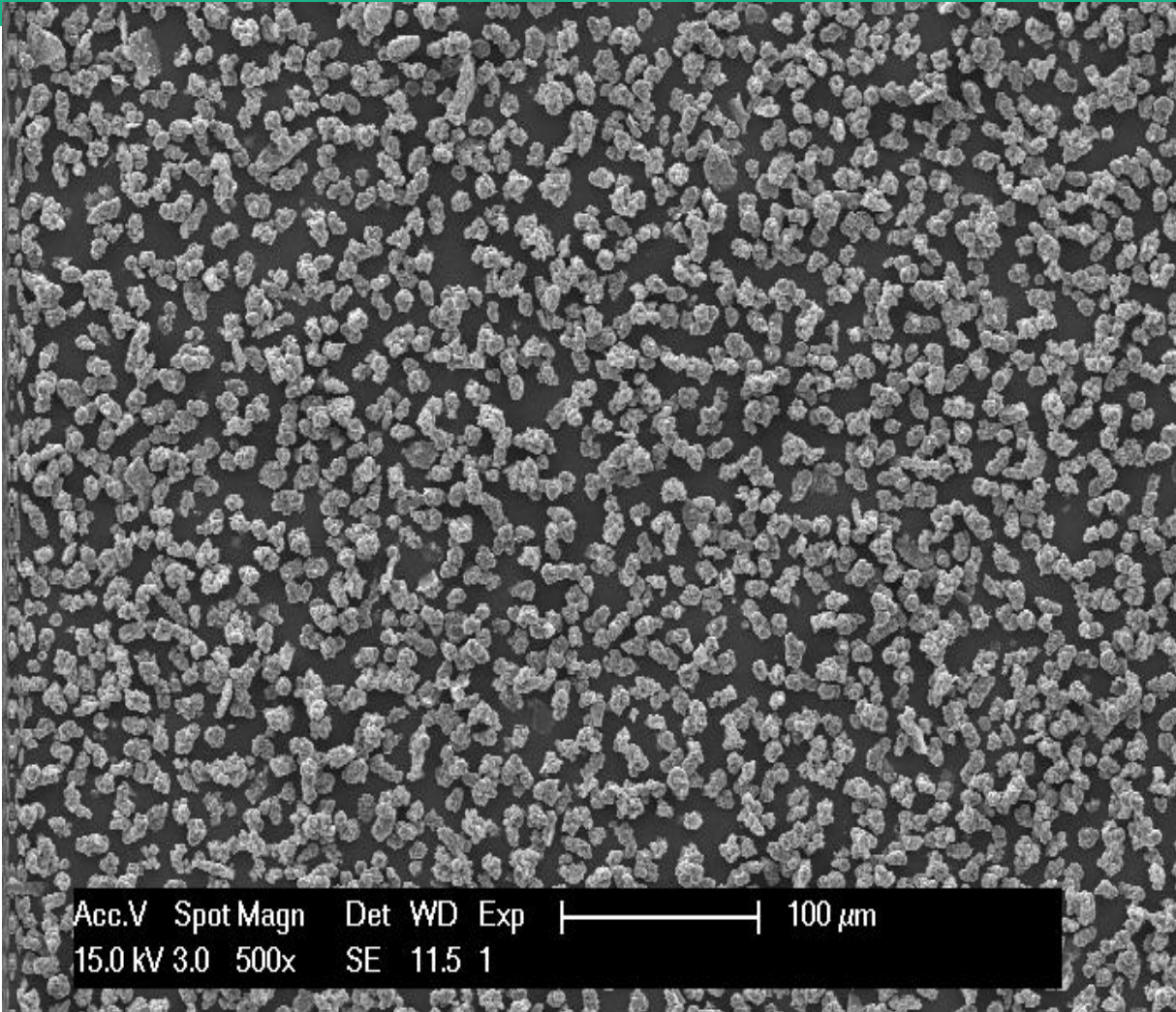
- $\frac{1}{3}$  CO<sub>2</sub>
- Exothermic reaction

Very small particles:

- $\frac{1}{3}$  Amorphous Silica
- $\frac{2}{3}$  Magnesite



# Particles





# Applications

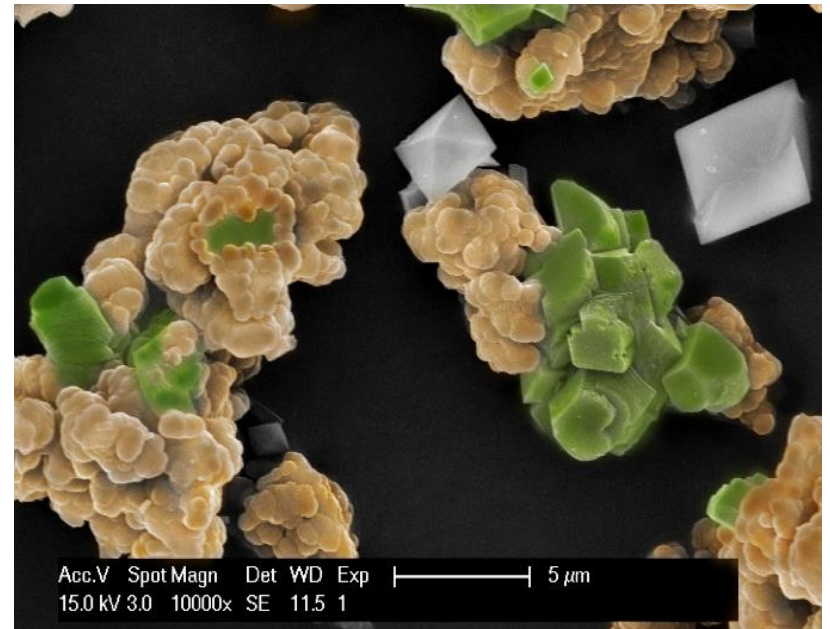
- **Concrete**
- **Paper**
- **Polymer**

# Concrete

## - CO2MIN

RWTH / HeidelbergCement/IASS Potsdamm

- 3 year Research  
Budget € 2.8M  
TRL3 -> TRL5



# Paper

- Replacement “PCC”
- CO2 negative paper
- In addition to “**bio-based**” also “**CO2 based**”

# Polymer

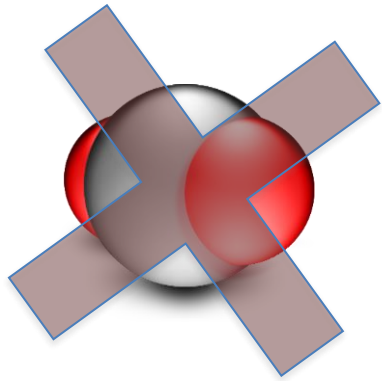
- **Replacement grounded lime “functional fillers”**
- **1<sup>st</sup> Prototype 3D printing**
- **Biobased polymers + CO<sub>2</sub> based fillers**



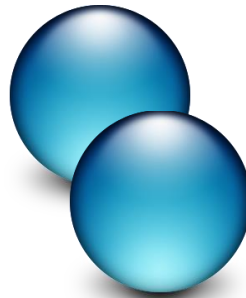
# CO2 for 3D printing

- **Partners:**
  - **CHILL**
  - **Hogeschool Zuyd**
  - **Topologx**
  - **Brightlands Innovation Factory**

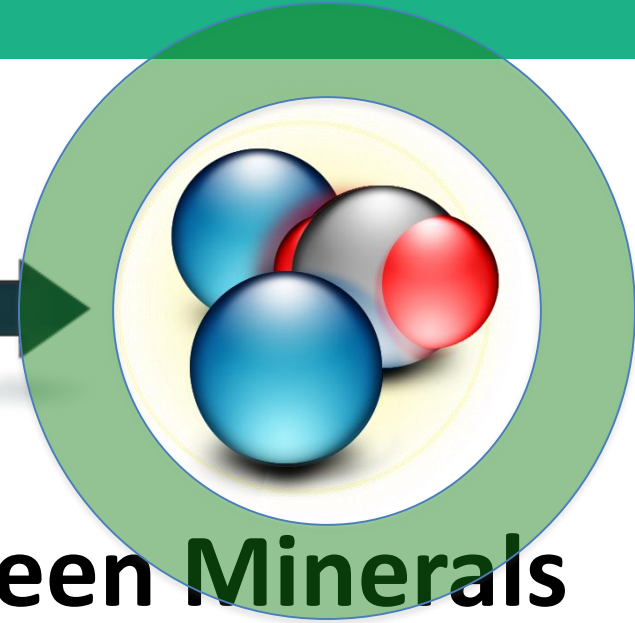
# Business Case



**CO2**



**Olivine**



**Green Minerals**



# Next steps

- 1. Batch autoclave  
CO2MIN (RWTH/HeidelbergCement)  
CO2 for 3D printing  
? Paper application
- 2. Design continuous autoclave
- 3. Scale up research, process