



RE-CONzero

**COLD DRYING PROCESS
RCZ-CD**

Use of Re-Con Zero EVO for sludge solidification

Day in **day out**, construction sites all around the **world** can count on **Mapei**

Presented / Created by Giorgio Ferrari & Alberto Brocchi , September 1st, 2021

Sludge from truck washings represent a serious problem at the RMC plants.



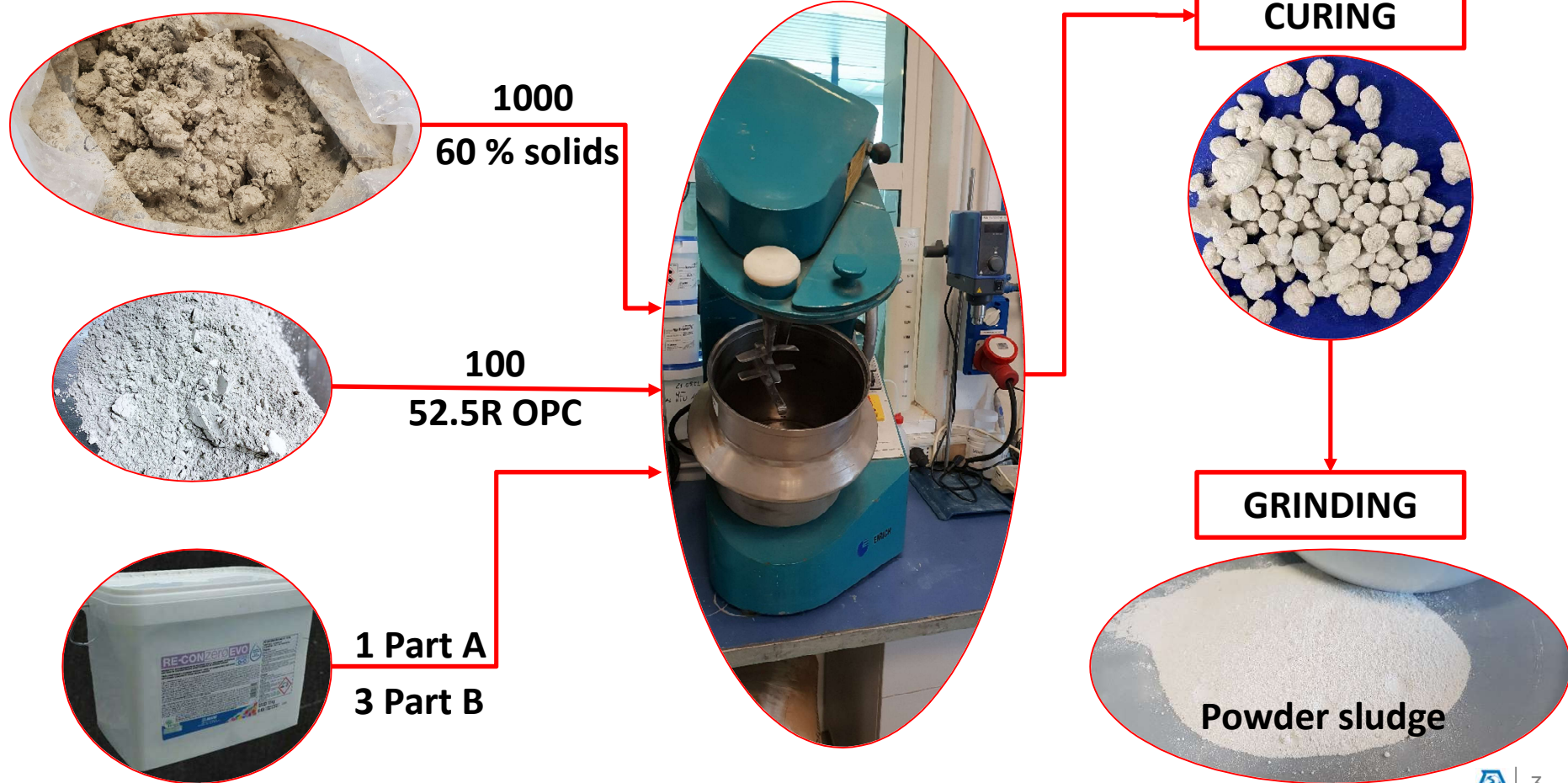
Sludge impact on:

- ❑ **ENVIRONMENT**
- ❑ **LOGISTIC/OPERATION**
- ❑ **ECONOMICS**

The only actual full-scale processes for managing sludge are:

- ❑ **NR-MIX TECHNOLOGY**
Eliminates sludge by incorporation in non-structural concrete with RZC aggregates.
- ❑ **RCZ DRY WASHING TECHNOLOGY**
Strongly reduces sludge formation by dry washing of trucks with RCZ aggregates.

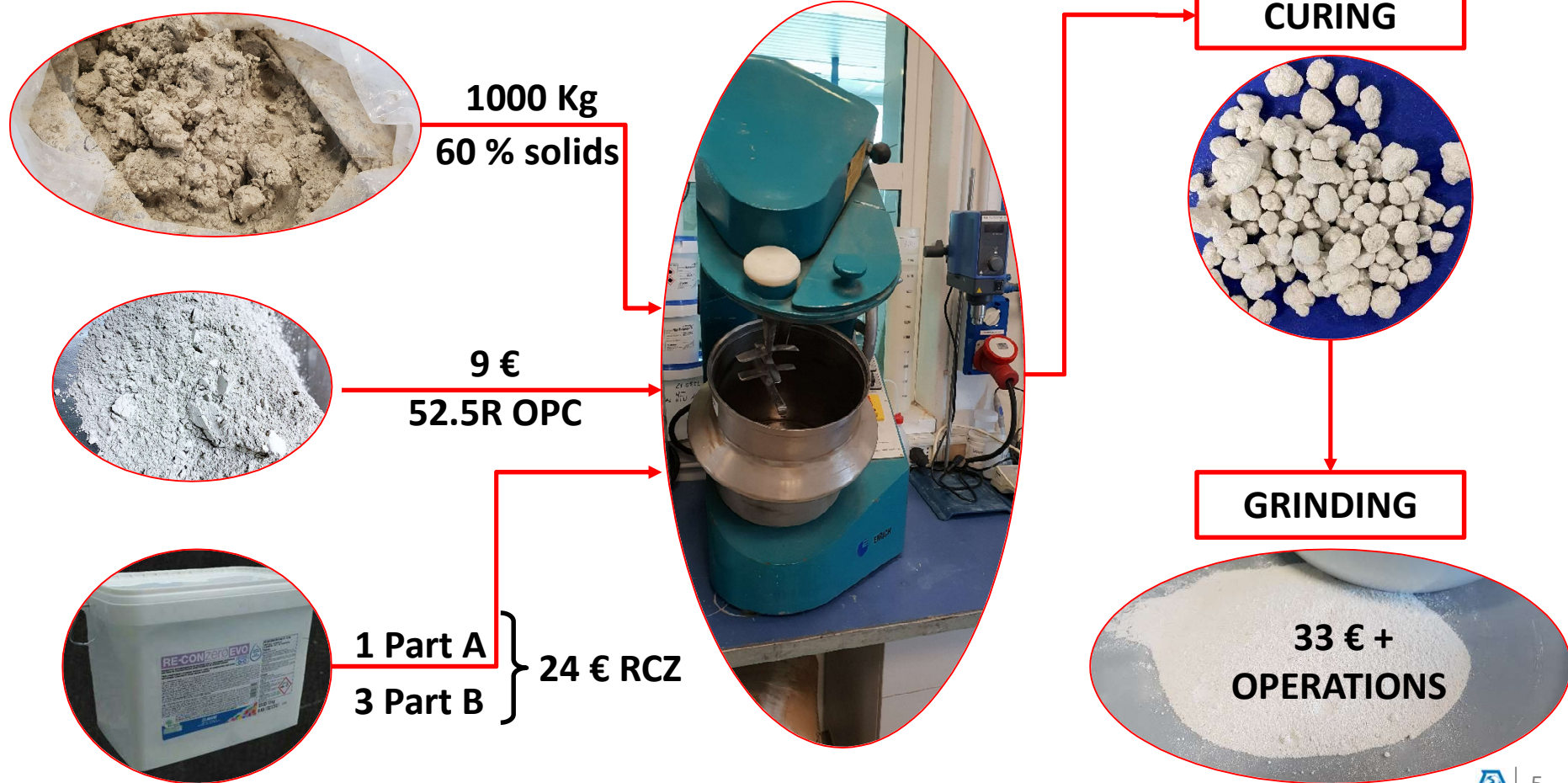
Schematic flow of RCZ-CD process applied to sludge



Results of mortar tests using increasing amount of solidified sludge with RCZ + Portland cement.

Ingredients	Mortar mixes				
	Mix 1	Mix 2	Mix 3	Mix 4	Mix 5
CEMIIIB 42.5N – Slag cement	450	450	450	450	450
Water	189	189	189	189	189
Standard sand	1350	1350	1350	1350	1350
Sludge powder	0	11	22.5	50	-
Sludge powder - Fraction < 63 µm	-	-	-	-	50
Superplasticizer - Dynamon NRG1030	1	1	1	1.5	2
Spread - Flow Table					
mm	210	212	198	205	213
Compressive strength (MPa)					
19 h	6.4	6.6	6.9	7.5	7.3
7 gg	37.5	38.3	38.5	41.0	40.3
28 gg	55	57	56.5	53.1	54.3

Economics of RCZ-CD process applied to sludge



Future work

- 1 - Optimization of the RCZ-CD process applied to sludge;**
- 2 - Pilot tests at the Emiliana Conglomerati plant;**
- 3 - Deeper investigation on the effects of solidified sludge to concrete;**
- 4 - Application of RCZ-CD process to other waste/materials.**



Thank you
for your attention

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