

REDOL Large industry



Redol
ARAON'S REGIONAL HUB
FOR CIRCULARITY

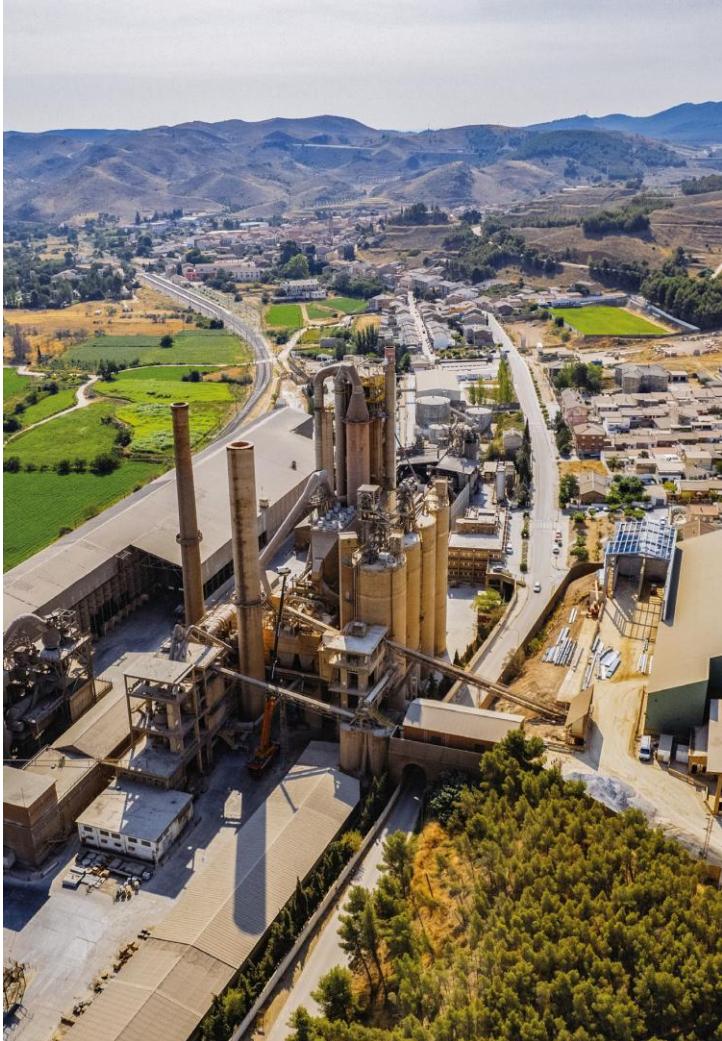


Ana Santos, Cemex

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CEMEX



CEMEX Morata de Jalón (Zaragoza)

CEMEX is a global leader in construction materials

≈56 cement plants worldwide as of 2024.

Operations in more than **50 countries**, with production facilities across the Americas, Europe and Middle East.

Through the ***Future in Action*** initiative:



- Achieve net-zero CO₂ by 2050
- Focusing on **deep decarbonisation**
 - Alternative fuels
 - Hydrogen
 - Clinker optimisation
 - Strong circularity, prioritising resource efficiency, waste valorisation, and innovative industrial symbiosis projects.



Relevance of I-US for the cement sector

Relevance of **REDOL** for CEMEX:

- **Demonstrated technical feasibility of circularity:** up to 10% alternative raw materials can be used
- **Improved material efficiency:** advanced characterisation, sorting, and grinding
- **More low-carbon cement options** with the development of new SCMs and concrete formulations
- **Facilitates future scaling:** ongoing validation and demonstration activities for new materials incorporating recycled materials





Key barriers

Technical barriers:

- Waste streams often show high variability, unwanted or forbidden compounds

Legal barriers:

- Landfilling remains too cheap and insufficiently restricted.
- Environmental permit restrictions (composition, origin, maximum substitution rates). Even when technically suitable, some residues cannot be introduced due to regulatory ceilings.
- Limitation on the use of waste/by-products in Spanish cement regulations compared to those in other European countries
- Regional prohibitions, such as Aragón's restriction on RDF derived from municipal waste.

Administrative barriers:

- Lengthy and rigid permitting procedures
- Municipal regulations not aligned with circular economy principles
- Operational / logistics barriers

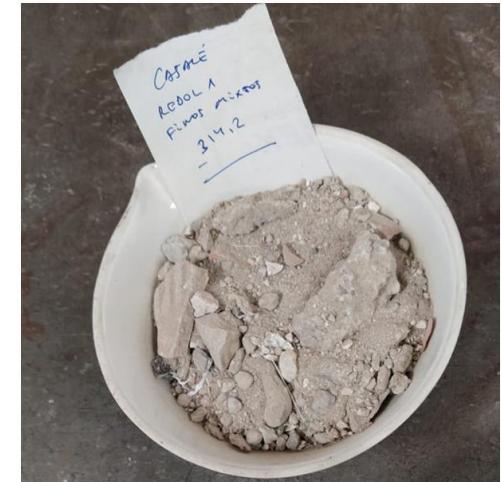
Cultural and social barriers:

- Local community resistance
- Political hesitation at municipal level



Conditions that enable collaboration with cities and waste managers

- **Traceable and reliable data on waste streams**
- **Predictable and stable supply of materials**
- **Clear regulatory frameworks and agile permitting processes**
- **Different legal permits for plants in the same country**
- **Modifications at the plant require permit changes that can take months or years**
- **Early involvement of industry in planning and pilot design** helps align waste characteristics with technical requirements.
- **Plants still have older technologies without modern sensors or sorting capabilities**





Next steps

- **Strengthened collaboration among all key actors**, illustrated by the ongoing work between CEMEX and the University of Zaragoza on identifying and evaluating residues suitable for circular applications.
- **Active participation in the Aragón Circular Economy Cluster**, which brings together public authorities, academia, and industry to jointly advance circular solutions and accelerate the implementation of industrial–urban symbiosis in the region.
- At a global level, continue identifying opportunities for IS



Thank you!

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