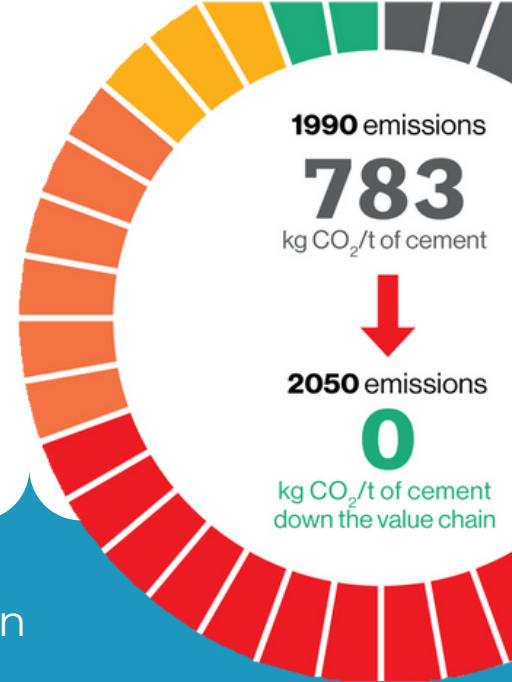


2050 Ambitions & The Role of Secondary Materials



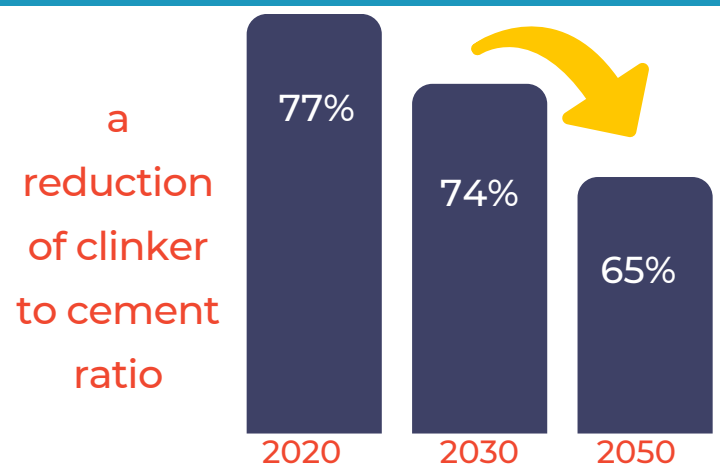
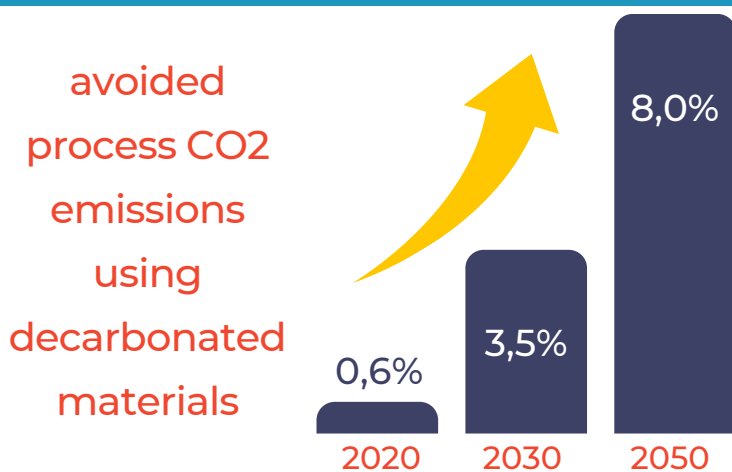
The use of secondary materials is crucial to the cement industry in Europe and plays a key role in achieving carbon neutrality by 2050.

The secondary materials used in the cement industry are:

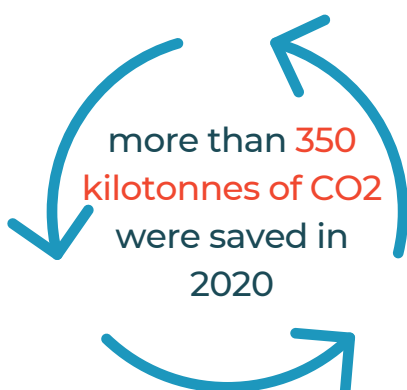
Alternative Raw Materials (ARMs) are defined as materials that are wastes or by-products from other (mainly industrial) processes or societal sectors. ARMs are used in **clinker** production.

Supplementary Cementitious Materials (SCMs) contribute to the properties of hardened concrete through hydraulic or pozzolanic activity. SCMs are used in **cement and concrete** production.

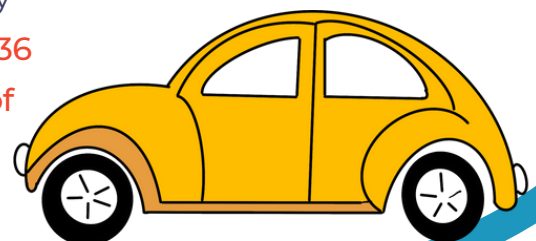
According to the [CEMBUREAU 2050 Carbon Neutrality Roadmap](#) the European cement industry targets :



Thanks to the use of ARMs...



In 2020 the EU cement industry recycled around **36 million tonnes of waste and by-products** ... equals to **36 million Beetles**.



Examples of ARMs & SCMs

Waste Bricks & Clay Roof Tiles

Bricks and roof tiles contain minerals that can replace primary raw materials in clinker production as ARMs and cement constituent. The recycling of burnt clay material offers the opportunity to conserve primary resources and **reduce CO2 footprint of cements.**



Waste Concrete Aggregates, Concrete Fines

The processing of waste concrete in a crusher produces coarse and fine fractions. These can be reused as recycled concrete aggregates in concrete or depending on their composition, they can be used as an alternative raw meal component in clinker production, as a cement component or as a sand substitute.

Fly Ash from Hard Coal Fired Power Generation

Fly ash is an amorphous material that is a by-product in hard coal fired power generation. In compliance with EN 450-1, it can be used as main constituent in cement and concrete, or as a substitute for clinker. It **reduces natural resource consumption and CO2 emissions.**



Health Impact of the Use of Secondary Materials

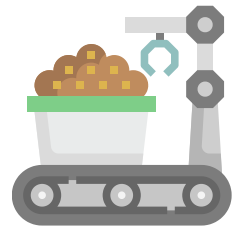
Ensuring health and safety of the employees and stakeholders is the priority of the EU cement industry.



The use of ARMs and SCMs in the production process is performed in full accordance with existing legislation and respective guidelines.



Use of secondary materials requires:



- **Access** to sufficient amount of secondary materials by employing alternatives to fly ash and slag which are due to phase out in a decarbonising steel and power sector
- **Pretreatment** of potential secondary materials to make them suitable to use in cement and concrete
- **Compatibility** of the chemical composition of the secondary materials with the clinker and cement chemical composition

Potential to Increase the Use of Secondary Materials



- **Historic landfills** are a source of waste which can be recovered for cement and concrete production.
- **Construction and demolition wastes** offer quantities of suitable ARMs and SCMs.
- **Industrial symbiosis** to find new suitable secondary materials should be encouraged.



Our goal: Further increase the share of ARMs & SCMs in clinker and cement production in Europe

The EU policy can contribute to this goal by:



- banning waste **landfilling** or introducing high landfilling taxes;
- improving the **separate waste collection** systems;
- **financing** the high investments needed for unimpeded ARM supply and substitution.