

CEMENT:

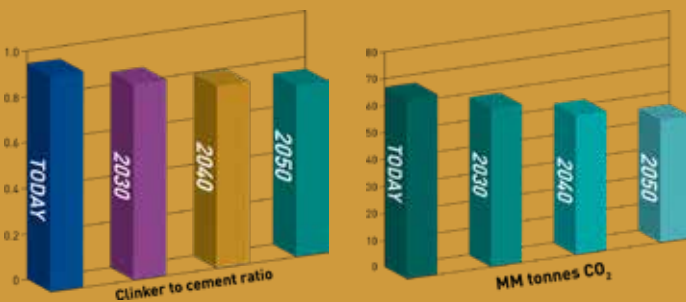
A critical ingredient in concrete—and a critical ingredient in the built environment.

What is cement?

Cement is a binder. When mixed with water and aggregates, cement holds the mixture together to form concrete.

Cement is made of clinker, finely ground limestone, inorganic processing additions, and other materials.

Optimizing the ingredients in cement not only enhances the benefits of cement-based products, but also reduces the carbon intensity of cements.



How can we reduce emissions?

By decreasing the amount of clinker and increasing limestone and other materials, the carbon intensity of cement can be lowered while still creating a durable, resilient product that continues to meet stringent quality standards.

It's a 1:1 benefit. Dropping the clinker amount by 15% reduces the amount of CO₂ by 15%. To reduce the clinker, a supplementary cementitious material (SCM) can be added. SCMs include slag, fly ash, or silica fume—products that would otherwise be landfilled and forgotten.

Lower-carbon cements are available today.

Portland cement specifications limit the amount of limestone that can be added in cement to just 5%. That's why portland-limestone cements (PLCs) were developed, which allow the addition of up to 15% limestone.

- PCA is taking the lead on increasing the use of limestone, fly ash, slag, and many other materials to further reduce cement's carbon footprint.
- Organizations such as ASTM International and the American Association of State Highway and Transportation Officials play a critical role in developing and updating standards and will be key in helping the cement and concrete industry achieve carbon neutrality.



Today, all 50 state Departments of Transportation have accepted the use of PLC, and multiple PCA member companies have committed to producing PLC exclusively at their plants.