

### What is Portland Limestone Cement?

Portland-limestone cement (PLC) contains up to 15% interground limestone, compared with about 5% in Ordinary Portland Cement (OPC). This reduces clinker content and associated CO<sub>2</sub> emissions while maintaining comparable performance in concrete when properly designed and placed.

Concrete made with PLC may behave differently in terms of workability, setting, and finishing. Awareness of these differences and using suitable construction practices are essential to achieve durable, high-quality concrete.

### Key Differences in Placing and Finishing

Concrete made with PLC may feel slightly stickier and less fluid. This can affect workability and may require minor adjustments to slump or admixture dosage to ensure proper placing and finishing. When used with supplementary cementing materials, setting time may be extended, increasing the placing window but requiring closer monitoring to avoid premature or delayed finishing.

PLC concrete may exhibit reduced bleed water, which increases sensitivity to drying conditions. As a result, surfaces may be more prone to tearing, sticking, or plastic shrinkage cracking. Careful consideration should be given to preventing premature and early evaporation of surface moisture and drying. The surface may appear slightly lighter in color, which can be noticeable in exposed or architectural concrete.

### Best Practices

Use trial batches to confirm workability, setting behavior, and finishability.

Optimize mix designs in accordance with CSA A23.1 exposure class requirements and adjust admixtures as needed rather than adding water.

In some applications, it may be necessary to increase the cementitious content to allow for additional water in the mix design, ensuring both specification requirements and contractor finishing demands are met.

During placement, ensure proper consolidation while avoiding over vibration.

Delay finishing until the surface is ready and avoid sealing the surface too early. Monitor temperature, wind, and humidity, and use evaporation retarders or fogging when necessary.

Begin curing immediately after finishing and maintain curing to ensure adequate strength development and durability. Protect concrete from extreme weather conditions. Proper training of finishing crews and clear communication among all parties are essential when working with PLC based concretes.

When these practices are followed, Portland-limestone Cement provides durable, high quality concrete while supporting meaningful reductions in greenhouse gas emissions.

### References

1. CSA A23.1 A23.2 2024. *Concrete materials and methods of concrete construction Test methods and standard practices for concrete*. CSA Group
2. *Design and Control of Concrete Mixtures*. 9<sup>th</sup> Edition. Cement Association of Canada

### Disclaimer

*The information provided above is intended for general information and educational purposes only. It does not replace project specific requirements, professional judgment, or applicable standards and codes. Readers are responsible for reviewing and complying with all project specifications, contract documents, and governing standards before applying any of the information discussed.*