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Introducing Technical Bulletins

A monthly look at what's new in the industry, a discussion on how different products effect your concrete mixes, and some best practice tips.



Portland Limestone Cement: Coming to a Pour Near You.

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What is it? - Portland Limestone Cement or "PLC", is Type I/II Portland Cement blended with 5-15% finely crushed limestone. It is also sometimes referred to as a Type IL Cement.

Why should I care? - The cement industry has made a commitment to be carbon neutral by 2050, which is a big deal as 8% of greenhouse gas emissions worldwide come from cement plants. One of the first steps of this plan is to convert production of Type I/II cements nationwide to PLCs, as soon as possible. This transition immediately reduces greenhouse gas emissions at cement plants by 5-10%. For the three cements available in the Quad City market and surrounding communities, that transition will happen sometime this spring, likely in April, with a 10% limestone blend.

How is PLC going to change my concrete? - Likely, the change will be unnoticeable. Current Type I/II cements already have around 5% limestone already ground into the finish product. For example, our two cements we use have 4.3% and 4.6% limestone additions at this time. Thus the increase in limestone is around 5%. PLC's have been engineered to match the performance of the existing Type I/II cements in regards to set times and strength development. Primarily, this is achieved by grinding the entire cement product finer, allowing for quicker reactions and strength growth. One potential drawback could be an increased shrinkage potential, as more finely ground cements tend to exhibit more shrinkage. The cement companies, State DOT's, engineering firms, and even Hahn Ready Mix have done testing with this new cement and feel confident that the performance is substantially identical.

Where else has PLC been used?- PLCs are actually not a new idea. Europe has been using PLCs for decades, and indeed is the most widely used type of cement on the continent. PLC has also been the standard cement in Canada since 2008. In the US, PLCs have been used on various projects in Colorado, Utah, and Oklahoma for the past 15 years. These projects have seen equal or slightly improved performance from PLC.

What about submittals and getting PLC approved for my project? - PLC has been approved by both the Iowa and Illinois DOT's (and 42 other state DOT's), as well as SUDAS, FAA, ACI 301 & 318, ICC, AIA, ASTM C94. It has also been endorsed by the American Concrete Paving Association, Concrete Foundations Association, National Concrete Pavement Technology Center, National Concrete Masonry Association, National Ready Mixed Concrete Association, Portland Cement Association, Concrete Reinforcing Steel Institute, The Iowa Ready Mixed Concrete Association, and the Illinois Ready Mixed Concrete Association. Furthermore, having no access to Type I/II available in the market will force engineers to accept PLC.

Where can I learn more? - Visit greencement.com for more information, including studies, trials, history, and more.

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