

# CO<sub>2</sub> Emissions Standards Drive Changes in Cement Specifications

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Effective November 1, 2005, the Illinois Department of Transportation (IDOT) will be permitting portland cement made with up to five percent interground limestone to be utilized on projects. This change comes on the heels of the adoption of new cement specifications by American Society of Testing and Materials (ASTM). Driving this change was the ever tightening carbon dioxide (CO<sub>2</sub>) emissions requirements being implemented by the Environmental Protection Agency (EPA). Those requirements restrict production of CO<sub>2</sub> per ton of finished product.

Though five percent may sound to a ready mix concrete producer as though it could have major

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implications for the finished product, in reality the impact should be minor and in many cases go totally unnoticed. The changes in the specification for portland cement, ASTM C150, reflect changes in this country that are already in place in much of the international market. Illinois' cement producers and suppliers indicate that due to other chemical requirements of the finished portland cement that the maximum content of interground limestone is unlikely to exceed about three percent.

What impact should you, as a ready mix producer, anticipate on your daily operations? To ascertain what the implications might be, IDOT has already evaluated cement supplies from four companies providing product in Illinois: Continental Cement, Holcim, Illinois Cement and St. Mary Cement Co. The evaluation included a look at the basic properties of the portland cement itself and its effect on the finished concrete.

Plastic concrete evaluation included standard pressure meter tests for entrained air and evaluation of impact on slump. Set times were also evaluated. Finished concrete evaluation included strength testing, freeze-thaw durability testing and tests for susceptibility to salt scaling. The results of these tests demonstrate that little or no effect is likely to be observed in day-to-day concrete operations.

Though IDOT has opted to approve the change, it is treating the cement supplies from the individual producers as though they are a new cement producer. Since not all cement producers have been evaluated, IDOT is taking a cautious approach and will require that the individual cement manufacturers submit documentation indicating the cement is one containing interground limestone and treat and administer it accordingly.

As a ready mix producer this means for you that intermixing of the cement meeting the new standards with cement meeting the old standards on IDOT projects will not be permitted. There are a few other minimal documentation requirements at this time, but you should check with your District or Regional IDOT Materials personnel for details.

Also, though we have not seen any adverse effects on admixtures stemming from the specification change, you should also make your admixture technical support personnel aware of the change when you incorporate cement made under the new specification. It is better to be in a prepared mode rather than a reactionary mode.

Adoption of this specification reflects a positive forward change in the cement industry. Though the amount of additional production possible as a result of the change is relatively minor, it significantly enhances portability of the product in an increasingly global climate. This enhances supply, minimizes logistical transportation issues, encourages competition between suppliers and furthers the environmental efforts of our entire industry.

For more information on this issue, contact your IRMCA associate member suppliers of portland cement.