



Differences in basic standards of common cements

V. Zetola*

Universidad Católica de Norte, Chile

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ABSTRACT

Considering that norms relating to cement are applied according to geographic scope, political or economic, can produce significant differences between them. In order to analyze the regulatory differences that may occur, this paper studied the regulations of the common basic standards for cement NCh (Chile), ASTM and UNE applied in Spain.

These differences manifest themselves in different classifications of cement, differences in specification, differences in the tests performed to fulfill given specifications, differences in the degree of development of regulations and its relation to legal codes and enforced.

I conclude that the regulations present differences in the case of the ASTM and UNE regulations, makes for greater harmonization difficult time. Cement standards including additions, contribute a product with lower environmental impact.

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1. Introduction

In order to appreciate the regulatory differences that may occur, it will highlight some aspects of the basic regulations for common cements. It includes the regulations of a developing country, as is the case of Chile, ASTM regulation, which is also adopted by the ACI Code and the UNE regulations applied in Spain. Those standards have also been applied in Chile have been quoted in the specifications on some major projects, with engineering that is not done in Chile.

2. The normalization of cement in Chile

The National Institute of Standardization is the body that's mission in Chile is to develop and disseminate the Chilean standards (NCh). The cement control in Chile is mandatory, and all the cement

produced is controlled and certified. The imported cement are tested at entry into Chile, then in general, are not monitored systematically.

Cements are mainly produced with additions, those with a better performance to sulfate attack. The norm specification of cement is [1]. Considered as an addition to the granulated steel slag, the pozzolan and added type A (mix of material calcined clay limestone more than 900 °C and other silicon-based materials, aluminum and iron). This latest addition is not currently used. Do not consider other additions, or mixture of them.

Does not provide additional requirements related to durability. In major projects this is solved if the specification includes the application of sulfate resistant cements, either ASTM or UNE. NCh 170 [3] specifies a limit on the water-cement ratio in concrete structures exposed to chemically aggressive environment. In smaller construction, or even larger construction, in that part of its concrete are exposed to an aggressive environment, but that its specifications do not include cements resistant to these environments, cements have been used to satisfy Chilean regulation, but according to ASTM and UNE standards are inadequate.

* Tel.: +34 912484383.

E-mail address: vzetola@ucn.cl.