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SWOT ANALYSIS ON THE SPECIFICATION OF DURABILITY BY PERFORMANCE

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Abstract

The strengths, weaknesses, opportunities and threats arising from the specification of durability by performance are reviewed from the perspective of the ready-mixed concrete industry. The way in which the specification of durability by performance might be implemented will impact the opportunities and threats to concrete producers. Therefore the SWOT analyses are based on the more likely scenarios, these being an option for special structures, a combination of performance requirements and limiting values, and performance requirements when the concrete is outside the scope of national provisions. The main strengths with this approach are that it measures properties of more direct interest to the designer, e.g. carbonation resistance, and not some indirect property, e.g. w/c ratio, and the system is capable of coping with the ever increasing range of constituents. The main weaknesses lie with the test methods and this testing has cost implications. From a ready-mixed concrete viewpoint, the opportunities are limited. It will enable the use of types of constituents that are standardized at the European level but outside of local experience; however, in general constituents that are available in the local market are covered by national provisions. The opportunity to use less onerous limiting values may be limited if there are also limiting value requirements. There are several threats that need to be addressed with unknown commercial risks. The main one being the desire to specify durability by exposure resistance classes. If the producer uses deemed-to-satisfy limiting values to produce the concrete, the user is free to measure the performance and they might conclude some months after supply that the concrete did not meet the specification. The specification of durability by performance will be driven by the concerns of specifiers to ensure durability given the ever increasing range of constituents and the need for low carbon cements.

Keywords: Specification, Durability, Carbonation, Chloride diffusion, Freeze-thaw, Performance testing, Commercial risks, SWOT analysis.