PORTLAND CEMENT MODIFICATIONS AND THE IMPACTS ON THE FIBRE CEMENT INDUSTRY

Christoph Haering

Affiliation:
CemTec Beratung GmbH
Feldstrasse 10
CH-6330 Cham
Switzerland
Telephone: +41 41 781 41 36
Fax: +41 41 781 41 37
E-Mail: cemtec@mails.ch

Keywords: Cement, fibre cement process, curing, chromium VI reduction

Abstract.

Due to regulations, e.g. to reduce the CO2 output and chromium VI, and because of the increasing pressure to reduce energy and costs the cement producers intensified their efforts in the recent decades to reduce the percentage of clinker in the Portland cement constantly.
As simultaneously some fibre cement plants ad additionally fine inert stuff, latent hydraulics or pozzolanic material to their Portland cement the clinker percentage of the cement is even more reduced. There are air cured cases where the clinker percentage in the final binder system is only 50% or even lower therefore. Fibre cement manufacturers are not always aware of this and may have to grapple with undesired consequences without realizing the real cause.
So, if the fibre cement manufacturer is not 100% aware of the composition of its Portland cement he quite certainly will face some undesired consequences in his production process and end product.

In the following we will go more into cement types, quality and the negative aspects and their impacts on the fibre cement production process and products if the composition is over changed and will present solution approaches to avoid them.

The following excerpt may illustrate the diversity of problems that may occur as a result of above:

- loss in loads and strength
- cracks in stacks, at roof or facade.
- freezing damages may increase in country's with active frost cycles
- sticking at templates may increase by lover temperature level
- corrosion of templates
- brown discolouring and staining at the products due chromium reduction Fe (II) sulphate