

## Influence of non-hydrocarbon substances on the compressive strength of natural rubber latex-modified concrete

### Abstract:

Inclusion of polymeric substances into hydraulic cement concrete has made a tremendous impact towards improving its performance properties. However, polymers to be included into concrete should neither cause damage to its mechanical capacities nor to its durability characteristics. This article reports experimental findings regarding influence of non-hydrocarbon substances present in natural rubber latex (NRL) on the compressive strength of NRL-modified concrete. Six selected clonal latexes were chemically analyzed for thirteen compositional parameters each. The latexes are used in making modified concretes and specimens obtained from these concretes were given both moisture and dry curing treatments for effective cement-hydration and latex-film formations respectively. Eventually, concretes modified with latexes containing higher non-hydrocarbon substances especially volatile fatty acids (VFA) and zinc were observed to suffer significant compressive strength losses. Indeed, 12.4% loss in compressive strength was recorded against concrete modified with the latex having the highest contents of VFA and zinc. However, 2% and 4% increase in the strength over normal concrete were observed in relation to two of the latexes investigated.