Concrete as an Atmospheric Carbon Dioxide Sink

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Climate change and greenhouse gas emission is a socially relevant topic. Modern builders are utilizing Environmental Product Declarations to determine the effect of their buildings on the environment. Cement is contributing between 5-8% of the global carbon dioxide generation. Calcium hydroxide is a byproduct of the cement hydration process; calcium hydroxide will carbonize with atmospheric carbon dioxide, reducing atmospheric greenhouse gasses. Understanding the extent and the conditions that affect the carbonization of concrete is useful to a total lifecycle analysis of concrete.

The CalPortland Colton, California Cement Plant was originally built in 1891. This facility has portland cement concrete that has aged from 10 to 115 years. Sampling and testing concrete from this facility at various ages and various environmental conditions will show the extent of absorption of atmospheric carbon dioxide in the concrete. Concrete samples are taken from around the site and examined for the extent of carbonization.