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Construction

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Evaluation of Corrosion Resistance of MMFX 2 Steel Reinforcement Used in Concrete Structures

Objective

To evaluate the corrosion resistance of MMFX 2 steel in reinforced concrete structures subjected to corrosive environments.

Background

The use of corrosion resistant reinforcing steels can greatly improve the durability of concrete structures. One such potential product now commercially available is MMFX microcomposite steel (or MMFX 2), which is said to have a corrosion resistance similar to that of stainless steel, while its cost is similar to that of epoxy-coated reinforcing steel. However, limited data are available on its corrosion resistance. An independent investigation is therefore needed to evaluate the corrosion properties of MMFX 2 when used as reinforcement in concrete structures.

Statement of Work

This project will evaluate the corrosion resistance of MMFX 2 rebar in various conditions to simulate different environmental exposures by:

- Determining the chloride threshold value of MMFX 2 steel (that is, how much chloride it can resist before corrosion is initiated).
- Evaluating the effect of carbonation on corrosion resistance.
- Determining the corrosion rate after corrosion is initiated.
- Comparing the results obtained for MMFX 2 steel with those obtained for carbon steel and stainless steel.

Expected Outcomes

- Interim and final reports describing the technical basis of the study, experimental method, results and interpretation.
- Presentations at conferences and journal articles.

Partners

Alberta Infrastructure and Transportation, British Columbia Ministry of Transportation, Manitoba Transportation and Government Services, Ontario Ministry of Transportation, Saskatchewan Highways and Transportation

Start/Expected Completion Dates

This project began in 2006 and will be completed in 2008.

Project Managers

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For more information, see http://irc.nrc-cnrc.gc.ca/ui/cs/mmfx2_e.html



Corrosion Test Cell

Factsheet 76, October 2006