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Project: **Research project AiF IGF Nr. 17076 N/1**: "Evaluation of the applicability of carbon based conductive coatings for the use as impressed current anodes for the cathodic protection of steel reinforced concrete members"

Subject: Initial results

Date: 27 November 2012

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Project Summary

An applied industrial research project (AiF - http://www.aif.de/en/about-aif.html) with the topic "*evaluation of the applicability of carbon based conductive coatings for the use as impressed current anodes for the cathodic protection of steel reinforced concrete members*" is executed by IBAC (http://www.ibac.rwth-aachen.de/) and by the Federal Institute for Materials Research and Testing (http://www.bam.de/en/kompetenzen/fachabteilungen/abteilung_6/fg61/index.htm) in Berlin.

Three different conductive coatings[1] are evaluated at IBAC in laboratory trials on a 3 x 35 concrete test specimens (25 x 25 x 5 cm, MMO-Ti mesh as counter electrode), electrochemically at BAM with respect to anode processes focussing on the oxidation of graphite and the organic matrix, and on a technical scale applied on columns in a parking garage in Frankfurt by Koch GmbH (http://www.betonbeschichtung.net) on about 25 m^2 each. The project started in November 2011, test specimens were prepared July/August 2012 at IBAC, electrochemical evaluations of the anodes started at BAM June 2012, technical installations at the parking garage in Frankfurt were realized October/November 2012.

Initial results communicated 21 November 2012 at the 3^{d} project board meeting at DECHEMA in Frankfurt for the CAST^{3+} Composite Anode:

Sheet conductivity:	**10,9 Ohm/Square (0,4 Ohm.cm)**
Evaluation of electrochemical carbon oxidation:	**No carbon oxidation at pH 12,6 (saturated $Ca(OH)_2$ solution)**

[1] CAST^{3+} Composite Anode System (www.cas-composite.com)

Zebra System (http://www.protector-kks.de/index.php/produkte/zebra)

EMACO CP30 (http://www.basf-cc.co.uk/en/ProductSolutions/ConstructionSolutions/CathodicProtection/Pages/default.aspx)

the Composite Anode System CAST^{3+} installed on 35 concrete - testspecimens 25 cm x 25 cm x 5 cm 20 July 2012, IBAC, RWTH-Aachen

Installation of the CAST^{3+} Composite Anode on columns supporting the roof of the parking garage of FES in Frankfurt a. Main, Germany: The CAST^{3+} Composite Anode paint is applied by airless spray