

**Technical committee on systematization of electrochemical measurements  
based on physicochemical theory (JCI-TC-134A)  
The second protective layer WG meeting minutes (draft)**

**Date:** December 19<sup>th</sup>, 2013, 15:00-18:00

**Place:** JCI, conference room #5

**Attendance:** YAMAGUCHI chairperson, KANEMATSU secretary, MINAGAWA co-secretary,  
IYODA committee, OKAZAKI committee, KURUMISAWA committee

**Handout:**

WG1-2-1 The first protective layer WG meeting minutes (draft) in Japanese

WG1-2-2 The first protective layer WG meeting minutes (draft) in English

WG1-2-3 List of bibliographic surveys

**Meeting Agenda:**

1. **Review of the 'First Protective Layer WG Meeting Minutes' (materials: WG1-2-1-1, WG1-2-2)**

The minutes (Japanese and English) were reviewed by the attendees.

2. **Regarding the English translation of the minutes**

The work procedures of translating the minutes into English, were confirmed.

3. **Policy regarding the list of bibliographic surveys**

- ✓ The policy regarding the list of bibliographic surveys were discussed, based on material WG1-2-3.
- ✓ It was decided, that MINAGAWA co-secretary will categorize the surveys listed, and assign a member to be in charge of the category. The assigned member will search and analyze bibliographic surveys regarding that category. The selection of members will be discussed via e-mail.
- ✓ Categories of bibliographic surveys are as following:
  - electrical properties of the subject of research, electrical resistivity, mobility, electric permittivity, electromagnetic waves, electro-osmosis, etc.
  - keywords: void structure, moisture content, temperature, associations with other physical properties, method of measurement, interpretation of measured values, etc.
  - Measurement period: 3 stages can be conceived. 1. Hydration to Form

removal 2. Completion inspection (material age: 28 to 91d) 3. Operation and maintenance

- Impact factor of the bibliographic survey
- ✓ MINAGAWA co-secretary is to reorganize the keywords to be arranged in a hierarchy.
- ✓ Analysis of the surveys will be based on the WG Operating Principles (see 4. Future Policies)

#### 4. Future Policies

- ✓ The main objective is to summarize the current state of technology. The following 3 areas will be taken into special consideration.
  - ① Effect of testing conditions (including pretreatment), application limitation, occurrence factors of measurement error and variability
    - In addition to bibliographic surveys, re-evaluation of data held by committees will take place. Each committee will be requested to submit raw data, prior to deletion of measurement failures and error.
    - With the aim of complementing the data, conduction of a uniform examination will be considered.
  - ② Organizing the physical/chemical correlation between physical properties (including mass transfer coefficient) and electrical properties
    - The process will be based on a micro point of view (electric double layer of void structures and pore walls, ion composition of pore solution, etc.) and macro point of view (composition (admixture, aggregate), moisture content, temperature, carbonation, existence of cracks, etc.)
  - ③ Organizing the evaluation method of protective layers
    - It should be kept in mind, that the stages to be considered, are 1. Fresh and strength development (form removal period), 2. Material age 28 to 91d (after hardening, completion inspection), 3. Operation and maintenance.
    - From the point of view of steel protection performance evaluation, the relevance with other methods (such as water and gas permeability tests) should be organized as well.
    - Comparative experiment between the default (obtained from the specimen in the uniform examination) and the results of the long term exposure test, will be considered.

5. **Others**

- ✓ It was decided, that IYODA committee will contact the Steel Nippon Slag Association and Japan Cement Association, to ask for permission to disclose their measurement results concerning the self-potential of steel to the committee.
- ✓ YAMAGUCHI chairperson is to contact Professor Takewaka, concerning the possible use of raw data of the monitoring results of the Kitakyushu Airport access road, and also to inquire about the type of monitoring device used.

6. **Next WG Meeting**

- ✓ **To be held: 2014 March 20<sup>th</sup> (Thursday), in the afternoon (exact time to be decided later)**
- ✓ Indicate the writing policy concerning the current situation of technology, based on the categorization by MINAGAWA co-secretary.
- ✓ KANEMATSU secretary and MINAGAWA co-secretary will consider the necessity of a uniform examination, and coordinate one if deemed necessary.

End of minutes