

Research on Evaluation of Coal Ash Characteristics

1. Outline of Research

Because of the steady annual increase of coal consumption in Japan, the accompanying amount of the coal ash has been increasing. Then, to cope with it, the expanded use of coal ash has become promising particularly in the fields of civil and construction works, etc. In a case when the coal ash is used as for earth and concrete materials, **it is required for us to use it after confirming that there is no problem exceeding its environmental standards on elusions of those micro-elemental metallic components.**

In the research, we intend to promote effective use of the coal ash in clarifying a quicker evaluation of its environmental characteristics which will be necessary for us to use coal for such construction materials as stated above. Incidentally, the following Research and Survey are planned to be conducted, during which a widely available database will be drafted by reviewing and in putting on such data as coal brand, utilization patterns of coal, basic natures of coal (chemical composition, microelement, etc.) and dissolving characteristics, etc.

- (1) To develop an environmental characteristics prospecting program by analyzing the input data using a statistic process, together with its obtained variable figures.
- (2) Based on the results of analysis and its related review, a practical and rational method would be proposed regarding the measuring method, etc.

By undertaking these research and survey, we would promote effective uses of coal ash in quickening and clarifying the evaluation of environmental characteristics of coal ash as of an earth work/construction material.

2. Results

The research is planned to continue for approximately 3 years or so from FY2000. The results in FY2000 is as follows,

(1) Drafting a Data Base

- In choosing two kinds of data preserving formality, we selected items for inputting data, and then decided the skeleton of the database.
- We rearranged 140 samples of the existed data, and put them into the new database.

(2) Analysis and Evaluation of the Input data, which were obtained by the statistic analyzing process.

- Regarding the analyzing method, we have confirmed that a duplicated recursion analysis with dispersing recursion applied in parallel was found effective, and also that

it was effective for us to classify the data into groups by category information on the coal producing regions, etc.

- By a duplicated recursion analysis, we drafted a recursion equation regarding T-Cr, Hexad Cr and Hg, etc. and then evaluated its own accuracy.

For reference, an exemplified data base of the selected starting menu on display in the right hand figure, as follows,



Figure 1. Starting Menu Selection on the Display

An example of the Accuracy Evaluation obtained by the statistic method is shown in the Figure 2.

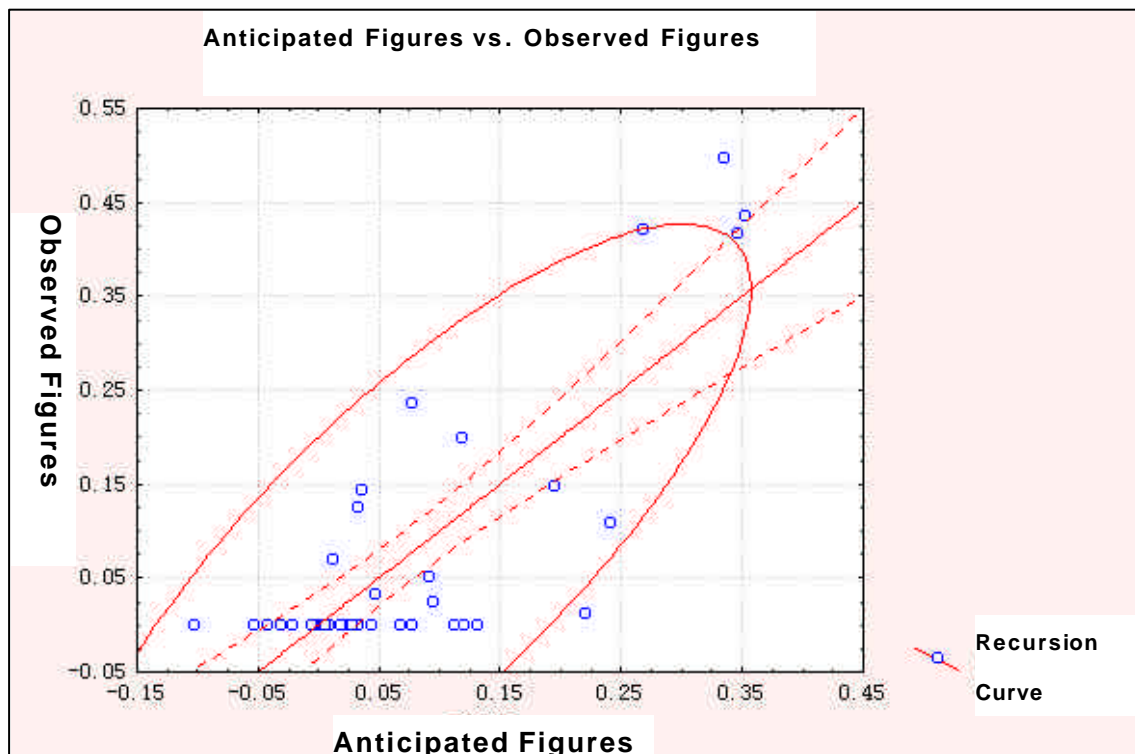


Figure 2. An Example of Accuracy Evaluation by Recursion Evaluation

3. Cooperation Company

The research has been under implementation by the cooperation of Ube Kosan Co., Ltd.

4. Schedule of Research

	FY2000	FY2001	FY2002	FY2003 or later
Study and Review based upon acquired data and information				-----▶
Analysis on characteristics of coal ash				
Analysis on characteristics of hardend materials made of fry ash				
Analysis on characteristics of melt- out refraining agent				
Study on various melt-out tests				
Information gathering on related technologies				