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Η Χρήση Δευτερογενών Υλικών και Καυσίμων κατά την Έγψηση του Μίγματος των Πρώτων Υλών στη Βιομηχανία Τσιμέντου (The Use of Secondary Raw Materials and Fuels in the Cement Industry)

Tech. Chron. Sci J.T.C.G., V, Jan. – Dec. 2008, vol. 26, no 1-2, pp. 7-17, tab. 9, 18 ref.

In principle, the clinker burning process offers a series of opportunities for using residual materials from other production processes, and hence for protecting natural resources. Secondary raw materials which contain SiO_2 , Al_2O_3 , Fe_2O_3 and/or CaO as their main constituents and other minor elements can be combined with natural raw materials in such a way that if they are distributed homogeneously it is possible to fulfil the requirements, not only for the clinker quality, but also for environmental precautions and operational safety. However, measures that are indispensable for ensuring quality can restrict the cost-effectiveness. Investigations also indicate that, depending on the type of deposit, other preconditions may apply to the use of secondary raw materials. In individual cases their use can be precluded by minor constituents such as carbon, chlorine, and alkalis in the secondary raw materials, as well as by the greater input of slightly volatile or volatile heavy metals into the kiln system, compared with natural raw materials. A general evaluation of the opportunities for using secondary raw materials shows that the usable quantities are rather on the low side when compared with the total quantities available. The usability of secondary raw materials can be increased if their properties are adapted to suit the requirements of the clinker burning process.

(Authors)

K-W: Cement Industry, Secondary Materials, Rubber Waste, Fuel, Alternative, Burning

Athanassiadis, N. K.

Διαδικασία Διακρίβωσης και Μετρητική Αβεβαιότητα για τα Μικρόμετρα (Calibration Procedure and Measurement Uncertainty for External Micrometers)

Tech. Chron. Sci J.T.C.G., V, Jan. – Dec. 2008, vol. 26, no 1-2, pp. 19-27, tab. 2, 6 ref.

Finding a single way of calculating measurement uncertainties at a national and international level, while at the same time rendering the measurements reliable, facilitates the process of comparing measurement results between calibration laboratories. Micrometers are widely used in industry and in calibration laboratories and are among the most reliable measurement instruments. This paper describes the process of micrometer calibration for external measurements and analyses the elements that contribute to the uncertainty of those measurements, such as the flatness and parallelism of measurement surfaces. A mathematical model is described for categorising uncertainties of type A and B and the expanded and extended measurement uncertainty is calculated.

(Authors)

K-W: Metrology, Micrometers, Calibration

**Grigoropoulos, P.
Damigos, D.**

Οικονομική Αποτίμηση Περιβαλλοντικών Επιπτώσεων από Σταθμούς Παραγωγής Ηλεκτρικής Ενέργειας (Economic Valuation of Environmental Impacts from Electricity Generation)

Tech. Chron. Sci J.T.C.G., V, Jan. – Dec. 2008, vol. 26, no 1-2, pp. 29-42, tab. 9, 28 ref.

The valuation of the environment in monetary terms has received particular attention in recent years from all parties involved in decision-making processes. This paper focuses on a crucial sector for Greece, namely electricity production by means of lignite fuel. The aim of the paper is to present a framework for assessing the external costs from energy production as well as to highlight some recent developments and uncertainties involved in this particular field. Towards this direction, the power plant of Agios Dimitrios in Ptolemais was selected as a case study. The external cost of electricity production was estimated using sophisticated software and adopting state-of-the-art research techniques. These results were compared against the figures derived from the ExternE national implementation study, carried out in 1997, in order to discuss some critical issues of the valuation framework.

(Authors)

K-W: Electricity Production, Human Health, External Cost, Environmental Impacts, Economic Valuation