



## Discussion

A reply to the discussion by A. Demirbas of the paper  
“Influence of natural pozzolan, colemanite ore waste, bottom ash,  
and fly ash on the properties of Portland cement”<sup>☆</sup>

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The authors would like to thank Mr. Demirbas for his discussion of our paper and wish to make the following comments in reply. His discussion includes several statements that seem to have editorial problems. Examples include “For the characterization of a cementitious/pozzolanic materials as a binding agent for concrete it is not sufficient to determine bending and compressive strengths, setting time and soundness. Its physical properties such as specific gravity, specific surface, grain size distribution, aggregate to cementitious/pozzolanic material ratio, fineness, water demand, and moisture content should be available”. However, most of these properties of the materials were already given in text and in Tables 1, 2, and 3.

In our study, we examined the effect of natural pozzolan (NP), colemanite ore waste (CW), and coal fly ash on the properties of cement and concrete. Our current paper mainly focused on the compressive and bending strengths and on the setting characteristics of the cement and concrete. As stated by Mr. Demirbas, the setting characteristics of concrete are influenced by a number of variables. The authors are under no misapprehension that CW retards cement setting due to its  $B_2O_3$  content and certainly do not hold the apparent view of Mr. Demirbas that the setting time of

the cement is not clearly related to the  $B_2O_3$  content in CW. From Table 3, it can be clearly seen that the general effect of the NP is to decrease the final setting time of the paste. However, the presence of CW, which contains  $B_2O_3$ , in cement results in greater retardation in both the initial and final setting times. These results comply with the previous finding of other researchers [1–5].

## References

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<sup>☆</sup> *Cem. Concr. Res.* 33 (2003) 1175–1182.

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