Test of Mercury Vapor Emission from Flyash Bricks

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ABSTRACT

In 2006, the National Science Foundation (NSF) awarded to Freight Pipeline Company (FPC) a Small Business Innovation Research (SBIR) Phase II grant entitled "Compacting Flyash to Make Bricks." One of the multiple research tasks of this project is to test the emission of mercury vapor from the flyash bricks, in order to determine whether there is significant emission of such vapor from flyash bricks to warrant special attention. The test is needed to address concerns by some individuals in the public and in the press that bricks made of flyash, when used indoors, might emit a significant amount of mercury vapor to affect the health of building occupants. This possibility must be ruled out by well-conducted experiments coupled by rigorous interpretation of data. The study is scheduled for completion by the end of 2006.

Experiments will be conducted by using flyash bricks laid into a wall of 1m length by 0.5m height, enclosed inside a hermetically sealed box. From measurement of the concentration of mercury vapor inside the box over a certain time, the emission rate of mercury vapor can be determined. This emission rate can then be used to calculate the concentration of Hg vapor in a typical room with minimum air exchange rates, to see if it exceeds the EPA mandated maximum mercury vapor level of 1 $\mu g/m^3$. The study should settle the controversy as to whether fly ash bricks cause sufficient emission of mercury to warrant health concerns.

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