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Dear all

I have read the "Draft guidance on cement clinker production facility" and I would like to suggest you to expand two sections by the following:

Additive to chapter 6.4.1

6.4.1 Accuracy of a material balance

... ..

For setting up a mercury balance of a kiln system the corresponding mass flows and the mercury concentrations must be determined.

Primarily cement plants are interested in the accuracy of the cement weigh feeders. These feeders are calibrated and exact. Much less emphasis is placed on the accuracy of the weigh feeders in the kiln system. Raw meal weigh feeders often indicate only the approximate size of the mass flow. Behind the dust recycling systems weigh feeder are even missing completely.

The fluctuation of the content of elements (e.g. Hg) in the ppb range is mostly in the range of 20 to 40 [%]. Here difficulties arise in a representative sampling and still in the inaccuracy of analysis in the laboratory.

Even with very optimistic assumptions the inaccuracies in the determination of the individual mass flows are in the range of well over 30 %. Therefore, a mercury mass balance can give not more than an indication of the situation in kiln system but never replace an emission measurement. As a consequence, it should not be recommended as a monitoring method and should be removed from the document

Additional Chapter

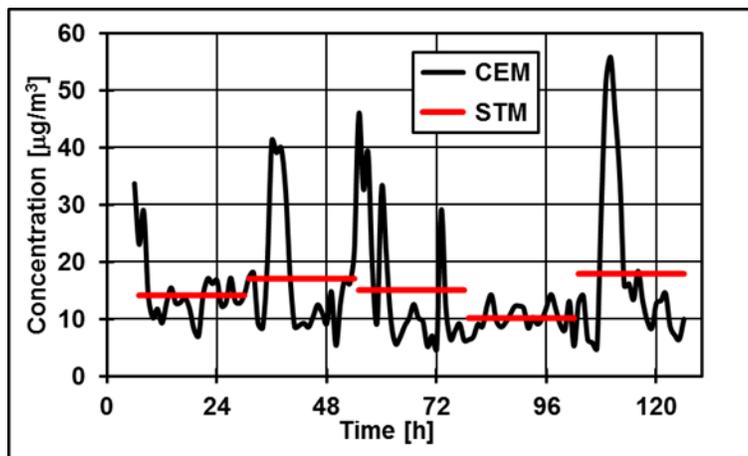
6.4.5 Semi-continuous (Sorbent trap method) vs. continuous monitoring system (mercury CEMS)

In Europe, the limit values are defined as daily averages, or even as hourly or half-hourly average values. Therefore in Europe the emission must be measured

on basis of real-time data, i.e. with continuous emission monitoring systems (CEMS). In the USA the limit values are defined as long-time averages, [lb/MM tons clinker]. With the sorbent trap method averages over a longer time period can be determined but never real-time data.

The next figure shows the measured mercury emission from a cement plant with preheater system. The original stored minute values are concentrated to hourly averages. The (black) curve shows some peaks, because of mill stops (so-called direct operation).

If a sorbent trap method (STM) would be installed, it would be only possible to get averages over a certain time period. In terms of cost, it is certainly not possible to measure hourly averages or even shorter averages. Realistic are long-term values, such as daily averages (red) or averages of some days. From the hourly averages such daily averages are calculated (no measurement).



If one considers only the emissions, it can be assumed that the two value sets give the same information with respect to the control of the emission limit value in the United States. But with the sorbent trap values it is hardly possible to control the process or to take corrective action on the process.

Therefore this method can be used to control the US limit values but if Hg emissions shall be reduced by means of control techniques, e.g. activated carbon injection, then this method is not suitable as a measurement signal is permanently required. Then CEMS must be used.

Kind regards

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