

Figure 4 The distribution of chlorobenzene in the fly ash samples

Correlation between the TEQ value and the total concentration of chlorobenzene

As shown in Figure 4, the TEQ value correlated well with the total concentration of chlorobenzene in the grate-type MSW incinerator. The correlation coefficient value was up to 0.99. However, no correlation was found between the TEQ value and the total concentration of chlorobenzene in the fluidized bed MSW incinerator. Therefore, different formation routes of PCDD/Fs can be found in the fly ash from the grate-type and fluidized bed MSW incinerator.

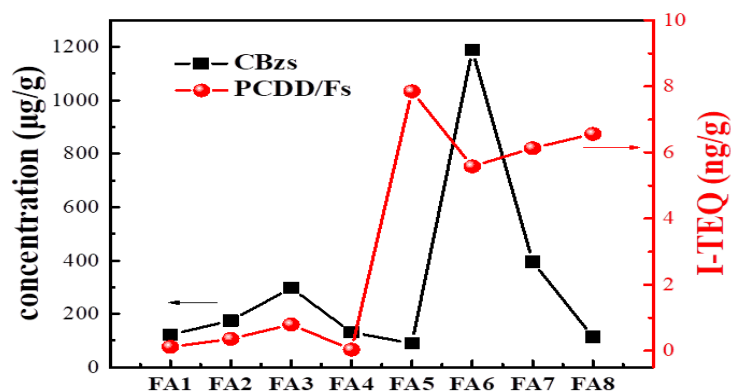


Figure 4 The correlation between the TEQ values and the total concentrations of chlorobenzene

Conclusion

The distribution characteristics of PCDD/Fs, dl-like PCBs, CBzs and the concentration of heavy metals in the leaching solution of fly ash samples from two kinds of typical MSW incinerators in China were studied. Several interesting results were obtained:

1. The TEQ concentrations of PCDD/Fs and dl-PCBs in the fly ash samples ranged from 0.035 to 7.2 ng WHO-PCDD/PCDF-PCB-TEQ/g. It seems that fluidized bed furnace produces more toxic fly ash than the grate-type one does. All the PCDD/Fs levels of fly ash produced from fluidized bed MSW incinerators exceeded the Chinese landfill acceptance criteria for fly ash samples (3.0 ng TEQ/g);
2. Some kinds of heavy metal, especially Hg, Pd and Cr, in the leaching solution of the fly ash samples exceed the national standard value;
3. The levels of CBzs in the fly ash were from 89 to 1189 µg/kg, with the average value of 314 µg/kg. Correlation analysis showed that the TEQ value correlated well with the total concentration of chlorobenzene in the grate-type MSW incinerator.
4. The fly ash produced from MSW incinerators need to be further disposed before landfill.

Reference

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