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Ružovič, Tomáš
2021

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Student: Ing. Tomáš Ružovič
Supervisor: Assoc. Prof. Michael Pohořelý, Ph.D.
Supervising Expert: Assoc. Prof. Karel Svoboda, Ph.D.

The transport, transformation and accumulation of toxic mercury compounds in nature and the food chain increases the risk of damage to health and reduces the quality of the environment. Anthropogenic emissions of all forms of mercury must be reduced at sources, particularly in power plants, waste incineration units and in the chemical industry.[1]

This work briefly describes the sorption apparatus measuring the efficiency of removal of the gaseous form of elemental mercury (GEM) under model conditions. Mercury removal from model dry and wet gaseous mixtures is performed using non-impregnated and sulfur-impregnated sorbents.[2] Impregnated carbonaceous sorbents based on bio-char produced from softwood by pyrolysis showed higher efficiency than mineral bentonic/zeolitic sorbents. Impregnation of sorbents with elemental sulfur increased the overall efficiency of mercury removal in both, carbonaceous and mineral sorbents. In the case of the model gas simulating flue gas with acidic components there was a better removal of mercury than in the case of inert gas. The effect of water vapor presence in the model gas (in a concentration range of 1–3 vol.%) was insignificant, but these tests need to be repeated and confirmed also in a broader range of water vapor concentrations. The measurement of the breakthrough curves in mercury vapour sorption, evaluation of sorption capacities of the selected sorbents, and as well as the speciation of mercury forms in model gases,[3] are the subjects of further research.

References

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