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Press Release

Nippon Instruments Corporation Publishes New Method for Measurement of Total Mercury in Coal Using Direct Mercury Analysis

June 22, 2017 – Osaka, Japan. Nippon Instruments Corporation today announced the publication of a new application report describing the measurement of mercury in coal by thermal decomposition using atomic absorption spectroscopy. NIC Application Note MA-3A-EG-001 includes complete information about sample preparation, calibration and measurement, and demonstrates the performance of the MA-3000 direct thermal decomposition mercury analyzer. The method complies with ASTM D-6722, *Standard Test Method for Total Mercury in Coal and Coal Combustion Residues by Direct Combustion Analysis*.

Mercury occurs naturally in coal and other fossil fuels. When such fuels are burned for energy, the mercury becomes volatile and evaporates into the atmosphere. It is hazardous to natural ecosystems and humans because it is highly toxic and can damage the central nervous system. Mercury from the food chain is also known to bioaccumulate in humans, as mercury in fish and birds carries over into human populations. It poses a particular threat to human development in utero and in early childhood.

NIC MA-3000 Direct Thermal Decomposition Mercury Analyzer

In the United States, coal-burning power plants account for approximately half of all man-made mercury emissions. To prevent mercury poisoning, it is necessary to accurately quantify total mercury in coal so that mercury emissions into the atmosphere may be carefully controlled.

For the analysis described in the report, calibration was done using certified aqueous ionic-mercury standards and measurement was performed by the NIC MA-3000 mercury analyzer. The MA-3000 analyzer is a dedicated direct mercury analyzer that selectively measures total mercury by thermal decomposition, gold amalgamation and cold vapor atomic absorption spectroscopy, on virtually any sample matrix. It was developed to meet the need for equipment that is easy to use and does not require wet pretreatment.

Without wet pretreatment using acids or alkalis, samples such as waste, soil, coal, and foods are directly measured, shortening analysis time by up to 86%.

The results show the MA-3000 analyzer is able to reproduce good standard addition recovery of coal and can effectively analyze coal samples with excellent precision.

A copy of this report may be requested at shar-nic@rigaku.co.jp

About Nippon Instruments Corporation

Nippon Instruments produces a broad line of Hg monitors suitable for surveying for vapor-phase elemental mercury in air, and elemental and mercury compounds including methylmercury, in gases, liquids and solids. Materials analyzed include fuels – coal, lignite, crude oil, natural gas; liquids such as waste, drinking and river water; incinerator stack gases; animal products; human tissue and blood and solid waste streams.

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