

### Thermal catalytic reduction of oxidized mercury to elemental mercury by transition metals

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Automated on-line mercury analyzers based on well-established techniques including cold-vapor atomic absorption (CVAA) and cold-vapor atomic fluorescence (CVAF) spectrometer are being developed and used to measure both total mercury and speciated mercury emissions.. Both CVAA and CVAF systems measure only elemental mercury. Therefore, if total gas-phase or speciated mercury is to be determined, a conversion unit reducing oxidized form to elemental mercury should be used prior to the analytical instrument. The most common method of reducing oxidized mercury to elemental form is a wet-chemistry system using a liquid reducing agent such as SnCl<sub>2</sub> (stannous chloride). It is anticipated that developments in this area will be critical factor in ensuring real-time mercury measurements. In the present study, the performances of several transition metals were examined for the reduction of oxidized mercury to elemental mercury. The performance of thermal catalytic method for the reduction of oxidized mercury was compared to that of wet method using SnCl<sub>2</sub> solution.