1. SCOPE AND PURPOSE:

1.1. This method measures mercury in protein concentrates, animal tissues, vegetable oils, roughage, food, feeds, cereal, grain, organic samples, vitamin/mineral premixes, and ingredients. Samples that combust well in an oxygen environment, such as paper products and bedding are suitable for this method.

1.2. There is no assurance that matrices other than those listed can be assayed using this method.

2. PRINCIPLE:

2.1. Solid and/or liquid samples are transferred quantitatively into a nickel sample boat. The sample boat is then dryed and combusted in an oxygenated decomposition furnace. Decomposition products are then carried to an amalgamator that selectively traps mercury. After the system is flushed with oxygen the amalgamator is rapidly heated releasing the mercury vapor. Flowing oxygen then carries the mercury vapor through absorption cells where a single wavelength atomic absorption spectrometer measures the corresponding absorbances.

2.2. This method utilizes a two tiered standardization method. The instrument is equiped with a long and short path length cells and can be standardized over a low range (2.5 to 30 ng of mercury) and a high range (100 to 300 ng of mercury).

2.3. Known Interferences: Mercury bound in silicates or other complex matrices that prevent thermal decomposition are not suitable for this method.

2.4. Using a 100 mg sample, the lowest confidence level of this method is 0.025 ppm mercury. This lowest confidence level may vary with sample matrix.

2.4.1. Lower confidence levels may be obtained with larger sample sizes. Consult team leader as needed.

3. PRECISION:

Records of method precision based on Method Validation and/or known control summaries are located in the QA Master file for this test method. Assay precision may vary with test matrix and analyte level. Terms used to describe method precision are defined in NPSOP3000, *Validation of Quantitative Chemical Tests*.

4. REFERENCES:

4.1. Mercury in Solids and Solutions by Thermal Decomposition, Amalgamation, and Atomic Absorption Spectrophotometry, EPA Method 7473.

4.2. Hydra-C Automated Direct Hg Analyzer Operations Manual, Teledyne Leeman Labs, 150-00278 Rev. A