

**2020 IPMI Sampling and Analytical Committee Winter Seminar  
February 10<sup>th</sup> – 12<sup>th</sup>, Houston Texas**

Presentation Abstracts

**“IPMI SAC Round Robin Exercise #13: Interlaboratory Comparisons of Spent Ethylene Oxide Catalysts”**

This will be a comprehensive review of the recent interlaboratory exercise (round robin) between member laboratories of the IPMI Sampling & Analytical Committee. The sample used in this exercise was a spent catalyst used in ethylene oxide production. These catalysts are comprised of silver deposited on an aluminum oxide support. The samples were processed, homogenized and divided by **Bureau Veritas – Precious Metals division** and sent to each participating laboratory. 12 laboratories were involved in this exercise and samples were analyzed for soluble and total silver on a dry basis. The results of the exercise will be presented and discussed along with a statistical evaluation of the results for normality, repeatability and outliers.

**“LPPM-IPMI Joint Interlaboratory Exercise: Trace Impurities in Fine Grade Platinum”**

This first of its kind interlaboratory exercise was a joint collaboration between the laboratories of the IPMI Sampling & Analytical Committee and the laboratories associated with the LPPM (London Palladium and Platinum Market). Purity grade platinum disks were produced and the homogeneity validated by **Metalor Refining**. Samples were distributed to 27 laboratories and analyzed for trace impurities as well as platinum content. The results of the exercise will be presented and discussed along with a statistical evaluation of the results for normality, repeatability and outliers.

**“Determination of Trace Impurities Precious Metals, A Review of Methods and Calibration Options for Palladium and Platinum”**

Algis Naujokas, Laboratory Director, Sabin Metal Corporation

This review will focus on the two types of analysis and instrumentation presently in use in industry for determining trace impurities in precious metals: Analysis by solution and analysis in the solid state. A comparison of the techniques will be made with the advantages, disadvantages and challenges encountered. A brief synopsis of a method for preparing in-house solid calibration standards of palladium and platinum will be presented.

**“Laboratory Sub-Sampling Methods for Powders and Implications for the Analysis of Spent Petrochemical Catalysts”**

Peter Jaenike, Chemist/Chemical Engineer, Sabin Metal Corporation

High quality reproducible assays on fine powders begin with appropriate sub-sampling methods and procedures. The first phase of this research utilized a synthetic material (based on a method by Notton and Teichman, Johnson Matthey)<sup>1</sup> to compare four common sub-sampling techniques. The second phase of this research compares two of the sub-sampling methods using various spent catalysts comprised of low-grade precious metal bearing powders. Lastly some experimentation was done on the acquisition of moisture and ignition loss data since this is a known problem area for assaying powder samples.

<sup>1</sup>Notton, J; Teichman, RA. *The Use of Synthetic Materials in Sampling and Analysis*. Proceedings of the Sampling and Analysis Seminar, March 1991, pp 7-33

**“Robotics in Final Sample Preparation”**

Bert Pauels, Umicore, NV

Umicore Precious Metals Refining strives to be an industry leader in Sampling and continuously innovating our sampling processes. In this presentation we want to share the newest Automation Project in the Sampling Department. This Automation is situated in the final sampling and provides increased robustness and minimizes throughput times in comparison to our manual operations. The installation includes milling, sieving machines which substitute manual labor. Through continuous improvement and research, we aim to optimize this installation further.