

# METALLURGICAL ACCOUNTING

## OPTIMIZING YOUR METALLURGICAL PROCESSING OPERATION

SGS is a global technical leader in the field of metallurgical accounting. As your strategic partner or independent technical consultant, we can help you improve your existing met accounting system, or establish a completely new system based on industry best practices and our extensive practical experience. Available globally, our services are aimed at providing you with a met accounting system that provides the information you need to make informed, effective business and production decisions.

### MET ACCOUNTING

Met accounting is an ongoing process that involves sampling, analyzing, and accounting for the gold or other commodities that are part of your metallurgical circuit. Just as financial accounting provides the necessary framework for financial decisions; met accounting provides the diagnostic information required for effective metallurgical decisions. Properly designed met accounting procedures are a powerful tool that can provide insight, help monitor and address remedial measures for:

- Production variability
- Unexplained material losses and gains in pay metals
- Process inefficiencies
- Production forecasting problems.

### BENEFITS OF RELIABLE MET ACCOUNTING

Met accounting is an integrated component of most efficient metallurgical plants. It provides valuable information about plant operations, recovery rates, plant mass balance and potential areas of material losses. Our metallurgical experts understand the complexities involved and will work with you to provide the procedures and technologies you need to define and track your processing circuit.

We will ensure that the sampling equipment and analytical procedures in your met accounting system are fit-for-purpose and easy to manage. The end product will be a system that provides all company stakeholders, including management, marketing, and production staff, with accurate data. SGS provides you with an unbiased, third party perspective of industry best practices as your benchmark of excellence.

Whether you are a custom processor or part of a vertically integrated operation, we ensure that your met accounting program monitors the key performance indicators (KPI's) that are crucial to your operation's performance.

Once your system is properly established and your overall metallurgical balance improved, you can expect many of the following benefits:

- Decrease in production variability and untracked commodity losses
- Improved information flow to management
- Better trouble-shooting capabilities for metallurgical process problems or deficiencies
- More accurate determination of process efficiency and recovery rates

- More informed flowsheet design and modification
- Increase in plant efficiency through better diagnostics
- Increased ability to accurately check the Mine Call Factors (MCF) for gold and other commodities, in particular when the amount of commodity anticipated by the mine grade control group differs significantly from that accounted for by the mill.

### THE SGS TEAM

Our met accounting team members are process experts. They are senior metallurgical staff with extensive testing and industry experience. They have the ability to establish your met accounting system from the outset or to advise you on the appropriate changes needed to optimize your existing process.

### THE IMPROVEMENT PROCESS

An SGS met accounting consultation is initiated with a request to solve specific metallurgical problem(s). It could also start early in your flowsheet design process, enabling you to have the right sampling equipment integrated into the right places in the mill. In the latter option, the program is then supported by effective testing and reconciling procedures right from start-up.

In either case, our met accounting experts start the process with a systematic metallurgical plant audit. The plant audit forms the basis for all our met accounting proposals.

It consists of a rigorous examination of all your met accounting systems to ensure all unit operations are effective and appropriate, including:

- Sampling equipment and calibration procedures (automatic and manual)
- Weightometer accuracy and appropriateness
- Mineral analysis processes
- Final reconciling policies and procedures
- Security issues.

Our experts, who have years of practical metallurgical experience and have dealt with hundreds of metallurgical flowsheets, will be looking for deficiencies, inefficiencies, and procedures that are inappropriate or ineffective for the tasks that need to be accomplished. Our goal is to determine the most appropriate KPIs for your processing circuit and to ensure they are monitored accurately with proper sampling points and analysis procedures.

### SAMPLING

The key to a successful met accounting system is proper sampling. This must provide representative, unbiased samples consistently over time. To accomplish this, we ensure that your sampling points are properly located to account for the metals in your metallurgical processes. We pay specific attention to the KPI's that are crucial to your operational success. Sampling equipment is checked for appropriateness and manual sampling procedures, if applicable, are evaluated and documented.

Particular attention is paid to the repeatability of your sample analyses. Accordingly, we will examine possible root causes of poor repeatability from the sampling side of the equation and advise you on mitigation strategies.

### CHEMICAL ANALYSIS

Whether your analysis is accomplished through online analysis (OLA) or laboratory testing, results need to be accurate, unbiased and fall consistently within a high level of statistical confidence. Our technical experts have experience with OLA systems for many commodities worldwide. They can diagnose your equipment and ensure the proper calibration, location and maintenance procedures are in place to adequately support your met accounting process.

Additionally, SGS maintains a global network of laboratories that will help meet all your independent verification requirements, or ongoing extensive analytical programs. Our laboratories are staffed by professional chemists who work in state-of-the-art support facilities to provide you with complete, accurate, and timely assay results. Quality standards are constantly monitored through our participation in numerous industry and standards quality assurance programs, such as the Laboratory Quality Services International (LQSi) proficiency test program.

### MINERALOGICAL TESTING

Advanced mineralogical assessments are also available using our high definition mineralogy facilities. This service provides you with statistically accurate mineralogy, alteration, and texture data suited to your specific ore type and process flowsheet.

### RECONCILING

The goal of any met accounting procedure is to reconcile “what went in” with “what came out” over a defined period of time (often monthly). Our process experts understand that your plant is unique and requires custom parameters, settings and computations.

We can guide your decisions regarding standard met accounting software, or advise you on improved methodologies if you use Excel-based met accounting procedures. At SGS, we strive for transparency in all data handling and generation exercises. This will help you to ensure future material discrepancies are easily tracked and rectified.

### CONCLUSION

SGS can act as your strategic partner or independent technical consultant, providing informed and experience-based alternatives to improve your existing met accounting system. We can also establish a completely new system based on industry best practices. Once your new or improved system is in place, you can look forward to numerous operational and financial benefits including:

- Decreased production variability
- Reduced material losses
- Better diagnostic and troubleshooting capabilities for process problems or deficiencies
- Monitoring and tracking process-specific KPI's
- More accurate determination of process efficiency and recovery rates
- Increased accuracy for checking Mine Call Factors
- Enhanced production forecasting capabilities.

### CONTACT INFORMATION

Email us at [minerals@sgs.com](mailto:minerals@sgs.com)  
[www.sgs.com/mining](http://www.sgs.com/mining)