

MINING APPLICATIONS

Creating Solutions to Mixing Challenges Unique
to the Mineral Processing Industry



Purpose designed agitation solutions tailored to provide durable service in harsh environments

WHY CHOOSE PHILADELPHIA MIXING SOLUTIONS?

Since 1897 Philadelphia Mixing Solutions® has been providing its expertise to the process industry. Today, we offer one of the world's most comprehensive testing lab facilities. We are dedicated to manufacturing top-of-the-line mixing equipment and developing preventative maintenance programs that improve efficiency and reduce costs. With more than 300 years of combined industry-leading experience between our engineers and PhD-level experts, we bring expertise, technological know-how, and a proactive nature to our relationships with customers.

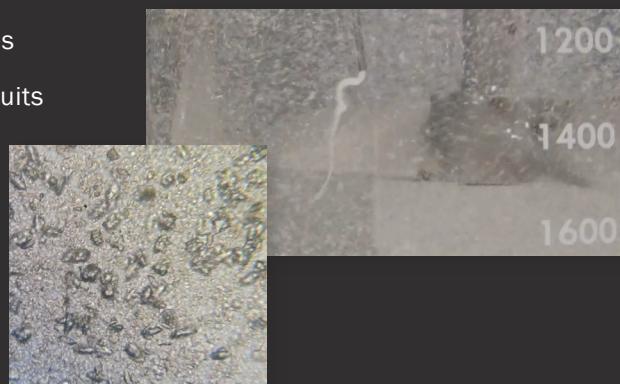
Our goal is to bring technology closer to our customers and provide data-driven problem solving to determine the true root cause of failures. What goes on in our lab is knowable, demonstrable, and repeatable. Trust Philadelphia Mixing Solutions to find the best mixing solutions for your specific applications.

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PHOSPHATES MOLYBDENUM IRON PGM NI
IRON PGM COPPER NICKEL GOLD LITHIUM

REACTION KINETICS

We know that in the extractive metallurgical world, running more efficient processes—where greater throughput can be achieved from existing infrastructure and at lower energy consumption rates—is crucial. That's why understanding and designing toward process chemistry is key. With our experienced Process Technology Team, and our industry-leading laboratory capabilities, Philadelphia Mixing Solutions is your perfect partner for optimizing process performance. We collaborate with customers in a variety of areas, including:

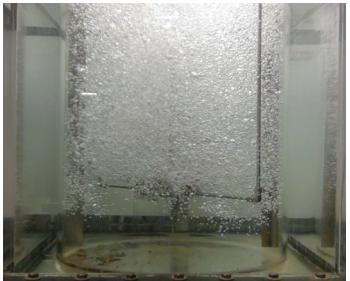
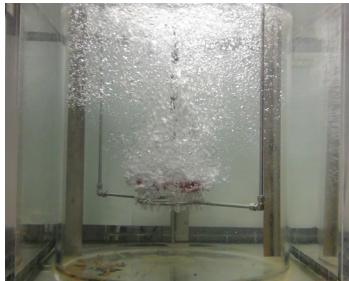
- Crystallization and precipitation processes
- Addressing scaling and fouling within circuits
- Defining ideal process time scales in reactive leach processes



GAS DISPERSION

One of our strengths is interpreting the delicate balance in designing optimized solutions for gassed systems—a capability especially critical in agitation systems where the presence of solids calls for the management of three phases in the agitated space. Our designers identify the multiple demands placed on an agitator by a three-phase system and design with those in mind, ensuring the agitator's optimal operation. This is particularly useful to processes such as:

- Oxidative leaches
- Cyanide destruction
- Biological leaching
- Pressure-oxidative leaching

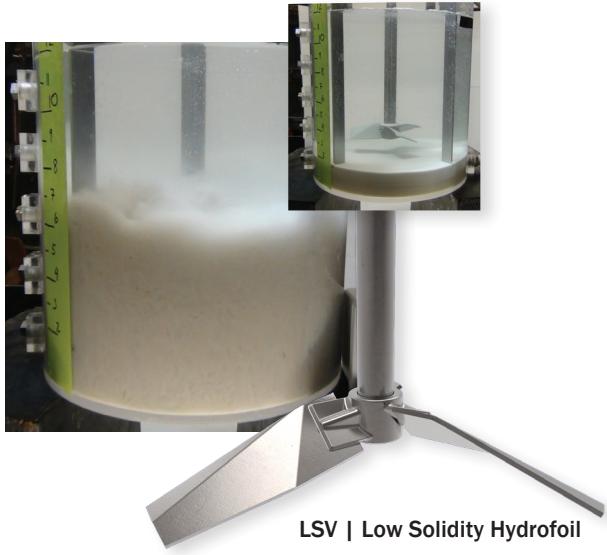


GDX2 | Gas Foil

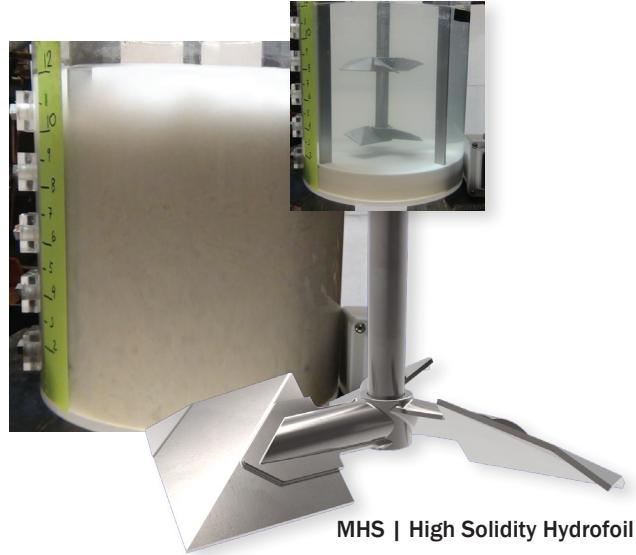
SOLID SUSPENSION AND HOMOGENIZATION

Managing solids within slurries is an ever-present challenge in the world of hydrometallurgical process. Philadelphia Mixing Solutions has a proven history of designing agitation solutions that are both efficient and process effective for challenging solids/liquid duties. In application areas where fine and high solids loadings complicate slurry rheological behavior, our solutions are second to none:

- Filter feed tanks
- Large slurry surge and holding tanks
- Leach processes
- Processes handling clay-rich ores



LSV | Low Solidity Hydrofoil



MHS | High Solidity Hydrofoil

REDUCED DOWNTIME AND IMPROVED EFFICIENCY

Dealing with an unplanned shutdown not only affects production, it shuts down your company's bottom line. Philadelphia Mixing Solutions develops equipment that is durable and easy to maintain, with many of our products still working in the field after forty years. Don't settle for a standard solution when you can have one designed specifically for your real-world application.

TESTING CAPABILITIES

In our fully instrumented pilot scale test facility, we can measure and characterize your specific process fluid as it pertains to mixing. We characterize rheology and process parameters, including power, torque, and tip speed, using state-of-the-art equipment custom developed for mixing applications. We work with you to understand your critical data points and to simulate your process in scale so that our tests work the same way as your process does in your own environment.

Come visit our laboratory facility and learn how Philadelphia Mixing Solutions can help you. Other professional services include:

- Material profiling
- Process optimization
- Lab/pilot testing/cold-flow
- The latest in CFD modeling for more accurate predictability
- Reactive precipitation/crystallization of precious metals

All of our products are tested to the highest standards possible in our ISO 9001-certified facility.

COPPER GOLD NICKEL LITHIUM PHOSPHATES MOLYBDENUM IRON RON PGM COPPER NICKEL GOLD L NICKEL LITHIUM PHOSPHATES PGM

**Contact us to discuss your
mining process mixing solution.**

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