

Peñoles Quimica del Rey deploy “Game-Changing” technology for their Calibration Process



Peñoles Quimica del Rey, Mexico

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STORY

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A BETTER WAY TO CALIBRATE

Peñoles Quimica del Rey, the Latin-American based intermediary, operates within the metallurgical-mining and chemical industries and are part of the Peñoles Group, the second largest Mexican mining company and the first Mexican producer of gold, zinc, lead and silver.

Peñoles Quimica del Rey maintain their domestic leadership by supplying 56% of the national magnesium sulphate market and are the largest Sodium Sulfate plant in the Western Hemisphere. Despite strong competition, the company are ranked third in the world in terms of their installed capacity of sodium sulphate which is used for the production of detergents, glass and paper.

The History of Peñoles Quimica del Rey

In March 1964, Quimica's production of Sodium Sulphate began with a capacity of 60,000 tons per year, and in 1970, Quimica started the production of Magnesium Oxide with a capacity of 30,000 tons per year.

In 1967, the project of the Dolomite mine in Esmeralda Coahuila was started, and in June 1969, operations began with an approximate capacity of 650 tons of dolomite per day to supply the Magnesium oxide plant.



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In 1997, Quimica's Specialties and Epsom Salt plants started up.

From 1964 to 2001, different extensions and modifications were made to the facilities of Peñoles Química del Rey to reach a production rate of 480,000 tons per year of Dolomite to supply the Magnesium Oxide plant, 620,000 tons per year of Sodium Sulphate, 100,000 tons per year of Magnesium oxide, 5,000 tons of Magnesium Specialties and 30,000 tons of Epsom salt.

Now Peñoles Quimica del Rey has a modern and controllable system of skilled labor and technology to obtain quality products to supply the world market.

Quality-Controlled Production Process

Peñoles Quimica del Rey pride their success on maintaining quality-controlled processes, “excellence of people” and “ethical leading”. With a dedicated instrumentation department consisting of 26 people and a mission statement dedicated to providing high quality products, the production process at the plant is ensured to remain in optimal conditions with precise readings at all times.

Accuracy and precision during the production stages aligns the company view that “a better decision can be made at any time” and “if you cannot measure it, you cannot improve it!” Roberto Lopez, the Supervisor of Instrumentation Department at Peñoles Quimica del Rey, goes on to say,

“Calibration plays a fundamental role in ensuring that our business objectives are fulfilled, measurements are accurate and controlled processes are in place. The precision of the measurements in the different stages of production determines the quality; if we have inaccurate measurements we will have low quality products, but if the measurements remain accurate and correct, we will continue to supply high quality products.”

Enhancing Processes with Documenting Capabilities

One of the core principals in the decision-making process for Peñoles Quimica del Rey was inevitably to find an accurate

calibrator, but one which also featured documenting functionality and a supporting software solution to aid the process. The Beamex MC6 calibrator was rendered an appropriate choice of equipment for the company along with CMX, the Calibration Management Software, to help compliment and streamline the process. Lopez commented on the deployment:

“Due to the great versatility of the CMX Calibration Software, it helps us in the planning, management, analysis and documentation stages, ensuring that we work in a safe and efficient way. The Beamex MC6 is a truly functional piece of equipment that helps us to perform calibrations with just a single piece of equipment required. Being a field communicator with great precision makes it a great tool for our technicians.”

Furthermore, Peñoles Quimica del Rey cover a range of physical and chemical variables such as flow, pressure, temperature, level, electrical pulses, conductivity, Ph, O² and CO². In the search for new calibration equipment, it was fundamental that the calibrator provided the compatibility to communicate with smart transmitters and that there are continuous updates of the Device Descriptor libraries.

Digitalisation and Software Integration

Prior to rolling out with the Beamex product solution, Peñoles Quimica del Rey trialled the equipment and discovered that the time taken to complete the calibration was reduced by two hours. Automatic calibrations using the Beamex POCs and Temperature Blocks, in addition to the automatically generated documentation produced through CMX and the MC6, has made huge time savings for the company and has significantly enhanced efficiency and productivity within the department.

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CMX is now an integral part of Peñoles Quimica del Rey calibration process. Calibrations are performed in accordance to their annual maintenance plan CMMS, Maximo, and Performance Management software, Meridium. The Work Orders raised in Maximo are integrated into CMX which provides necessary information on the instrument and process required for calibration. Guidance is provided throughout the procedure indicated by the MC6 and once complete, measurements are uploaded into their CMX software for reference.

The implementation of the Calibration Management software has digitalised the process for Peñoles Quimica del Rey, aligning their business policies by enabling strict maintenance of documentation. CMX has provided a secure repository for measurement data and provides a window into calibration history complying with the ISO 9001 and 14001 regulations.

Furthermore, the CMX software has helped Peñoles Quimica del Rey to plan and organise their maintenance procedures by providing calibration ‘trends’ and a history of results to estimate the next recommended calibration according to the instruments’ reading history.



The accurate measurements provided with the MC6 in parallel with the integrated software solution continues to help Peñoles Quimica del Rey produce a high-quality product, it reduces the waste of raw materials, cuts costs and reduces their carbon footprint.

Overall Experience

Peñoles Quimica del Rey had a number of business requirements and expectations when seeking new calibration equipment. After using Beamex for a number of months, they were asked if they were happy with their decision; Lopez commented, "We are truly gratified with our decision. The impact the equipment has made

“ WE ARE TRULY GRATIFIED WITH OUR DECISION. ”

has surpassed our initial expectations and has become a game-changer in our calibration process. Streamlining the process has made huge time savings, enhanced efficiency, maintenance, improved productivity, but fundamentally, it has helped us to achieve our business principals and continue with the delivery of our high-quality products.”



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KEY POINTS:

- Quimica's calibration process was taking too long, so they sought new equipment and technology.
- Priding themselves on the quality of their products, Quimica employ strict routines and procedures for instrument maintenance.
- Accurate Measurements during the production process is pivotal to the quality of the products Quimica produce.
- Since deploying Beamex's software solution and rolling out with the Beameax MC6 calibrators, Quimica's calibration process has been halved.
- The Beamex CMX software solution has helped to streamline processes for Quimica.
- The integration of their CMMS, Maximo, with the CMX software has become an integral part of their maintenance plan and has streamlined their calibration process.
- Quimica are delighted with their decision and the implementation of their new equipment has been a game-changer.

QUIMICA'S BEAMEX CALIBRATION EQUIPMENT AND QUANTITY

- x5 MC6's Field Calibrator with Hart and FF protocol.
- x2 MC5's Field Calibrator with Hart and FF protocol.
- x2 External pressure modules (EXT600 and EXT10mD).
- x2 POC6's.
- x2 POC8's.
- x1 PGPH, 1 PGV, 1 PGXH and 1 PGM Pumps.
- x1 FB660 Series field temperature block.
- Beamex CMX Professional

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