



## PENOX

PENOX is a chemical manufacturer with global operations and four production sites across Europe and Mexico. One of its facilities in northern Mexico transforms raw lead into active materials used in vehicle battery production. With a steady demand from automotive and industrial markets, PENOX plays an important role in the battery supply chain and relies on secure transport to keep its operations running smoothly.

[www.penoxgroup.com](http://www.penoxgroup.com)

# securing mineral transportation across northern Mexico.

## Background

Every day, PENOX moves tons of lead oxide by road across northern Mexico, from extraction sites to its industrial facility and from there, finished product to its customers. The process involves a continuous flow of hopper trucks passing through multiple checkpoints and handled by drivers, guards, and providers.

These materials are the backbone of PENOX's operation. Securing the supply chain isn't just a logistical task, it's essential to quality, compliance, and profitability.

Over time, something wasn't adding up. Loads were leaving full and arriving lighter. With no tamper-proof system or shared visibility between stakeholders, pinpointing the problem was nearly impossible. The losses revealed how difficult it was to maintain full control across the transport chain. In an industry where traceability is essential, even small discrepancies can raise concerns.

How PENOX regained control and confidence across every kilometre? How do you secure a moving target - without slowing down the operations?

## Solution

When a customer recommended ALCEA, the PENOX team was ready to explore new options. After reviewing several technologies, they chose to work with ALCEA to implement ABLOY PROTEC<sup>2</sup> CLIQ, a secure, trackable connected locking system tailored for high-value logistics.

From the start, ALCEA approached the problem not just as a security issue, but as a workflow challenge. The team took time to understand PENOX's logistics flow, identified key points of vulnerability, and designed a lock-and-key system that could be integrated without slowing things down.

Today, every truck is equipped with tamper-proof locks, installed in minutes and managed centrally. Each locking event is tracked, giving PENOX clear, time-stamped visibility into when and where each load is secured and opened. Since the system's implementation, no irregularities have been reported.

What stood out was ALCEA's ability to align the solution with PENOX's real-world operations, combining technical reliability with responsive, transparent support at every stage.



### ABLOY solution

- ABLOY PROTEC<sup>2</sup> CLIQ

### Benefits

- Losses during transport: eliminated
- Full traceability of loads, weights, and deliveries
- Installed in minutes, the locks became a routine step in daily operations.
- Centralized control over operators, guards, and suppliers



“We’re very happy with the ABLOY PROTEC<sup>2</sup> CLIQ solution. It delivers control, security, and confidence. Any company that wants better oversight of their logistics should seriously consider it.”

**Noé Bernal**  
Commercial and Logistics Manager, PENOX