

UptimeAI Prevents Separator Failure and Saves \$150K at a Leading Cement Plant



Customer Profile

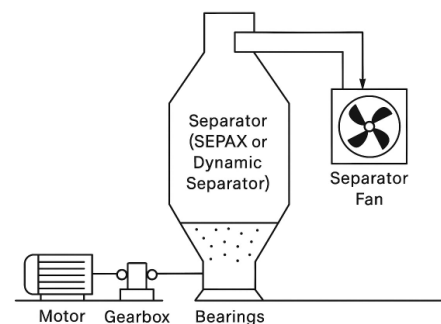
Industry	Failure Modes
Cement	Cement Mill 2
Asset type	Separator –
Cement SEPAX Separator	Mechanical Reliability & Motor Reliability
No of Tags Linked	Plant Output
12	5000 TPD

The Role of Cement Mill Separators in Operations

Cement mill separators are critical for optimizing the grinding process by efficiently separating fine particles from coarser ones, ensuring product consistency and quality. Their performance impacts:

- **Energy efficiency** by minimizing unnecessary grinding.
- **Mill capacity** by recycling only oversized particles.
- **Operational stability** by reducing particle agglomeration and ensuring better flowability.

Any mechanical issues in the separator can impact the cement mill's performance, leading to reduced efficiency and increased operational costs.



Solution with UptimeAI Expert: Early Detection of Separator Bearing Anomaly

On January 18, 2025, the AI Expert detected a steady increase in SEPAX vibration levels (3.5 mm/sec → 4.2 mm/sec) and bottom bearing temperature (65°C → 82°C). The system issued early alerts across multiple dates (January 18, 26, and 29), highlighting abnormal trends and growing severity. These insights combined with the site team's own observations from failure mode recommendations on AI Expert platform, enabled a **proactive intervention**. By February 4, the team addressed the identified failure mode by replacing the deteriorating bearing, thereby ensuring continued smooth operation.

UptimeAI Expert: How it helped to identify the root cause?

Verifying the Anomaly

- Continuous AI monitoring detected abnormal SEPAX vibration and rising bearing temperature.
- The system issued multiple alerts on January 18, 26, and 29, indicating progressive degradation.
- The reliable alerts with vibration time series data were used by the plant team to validate the potential failure mode and plan timely corrective actions.

Isolating the Fault

- Correlation across 12 parameters ruled out issues in the motor and gearbox.
- AI-driven analysis identified **bearing vibration** as the trigger, which was **leading to bearing degradation**.
- Historical trends confirmed **progressive wear that was leading to a potential failure**.

Corrective Action

- UptimeAI's recommendations suggested bearing replacement during the upcoming maintenance window.
- The team proactively procured spare parts in advance, minimizing downtime and maximizing preparedness.
- On February 5, the bearing was successfully replaced, restoring the separator's full functionality.



Operational Impact

In the Cement Industry, separators influence 40% of grinding efficiency, UptimeAI shifts maintenance from reactive firefighting to **proactive reliability management**, ensuring higher uptime, lower costs, and sustained operational excellence.

- Zero Unplanned Downtime:** Prevented a 48-hour production halt.
- \$150K Saved:** Through avoided repairs, energy savings, and uninterrupted production.
- Long-Term Reliability:** UptimeAI now monitors 20+ critical assets to prevent similar issues across multiple sites.