

Autonomous inspections turning minesite data into action

For mine operators, the challenge is not collecting more data. It is knowing which issues need action, when to act and how to reduce risk without slowing production. Kal Tire's KalPRO™ TireSight and KalPRO™ HaulSight help mines turn inspection data into prioritised decisions that improve tyre life, productivity and safety.

Together, the systems provide autonomous visibility across two critical parts of a haulage operation, the tyres on the truck and the road beneath it. TireSight, powered by Pitcrew AI, identifies tyre-related risks such as hot spots, tread damage and belt edge separations as trucks pass through inspection stations without needing to stop. HaulSight utilises Decoda's LiDAR and camera sensors on the front and rear of the truck to provide instant alerts to haul road hazards such as spillage, undulations, high G-force zones and non-compliant berms.

The strength of these offerings is that they don't leave it up to site teams to interpret a high volume of alerts. Kal Tire combines autonomous inspection technology, AI-driven detection, experienced 24/7 condition monitoring analysts, TOMS (Kal Tire's Tire & Operations Management System), and site-level planning in a single workflow. Together, they filter findings, validate priorities and trigger the right next step. Technology is only part of the solution – it takes human expertise to turn data into decisions that mine operations can trust.

“That workflow gives site teams stronger control over tyre risk, and HaulSight's ability to detect road hazards, means mines can prevent the tyre damage that TireSight detects,” says Christian Erdelyi, technology services director, Kal Tire's Mining Tire Group. “Additionally, our condition monitoring analysts are a team of engineers, working 24/7 reviewing all required scans to ensure no truck slips through that may have an issue.”

HaulSight helps teams detect and prioritise hazards that affect speed, fuel efficiency, tyre life and component stress. TireSight provides visibility into whether a critical event triggers an escalation for a truck to stop, or if a tyre needs repair and can be planned to take place during scheduled truck maintenance.

HaulSight also supports longer-term decision-making through severity scoring and trend data. By showing where road conditions are affecting performance, the system helps planning teams decide where maintenance or capital improvements will deliver the greatest operational return.

Value realization is the only metric that matters in mining maintenance. AI can identify anomalies at scale, but mine operations need recommendations grounded in site context, customer priorities and real operating conditions.

“Our technology offerings help customers act on the issues that matter most, reduce risk, protect production and support better planning across the haulage operation,” says Erdelyi.



25 systems in operation across Canada, Australia, Chile, Colombia

At a Canadian operation, average cycle speeds increased by 24%, tyre life declined by 40% and there was an increased number of tyre fires.

TireSight enabled 49% of the fleet to be monitored on a 4-hour inspection. Within the monitored portion of the fleet, **tyre fires were reduced to zero**, and 37 potential fire events were prevented over a 12-month period.

**KALPRO** HaulSight

14 systems in operation across Canada and Australia



At a Chilean copper mine, 235 vehicles passed a TireSight inspection station in a 7-day period.

Damage was identified in 16% of the thermal image scans, **TOMS** business rules determined **only 5% needed to be manually inspected**, triggering 2 work orders, contributing to a **20% reduction in downtime**.