

African

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Conveyor Belt Fire Detection Solutions

**Risk analysis and fire prevention key
components in the elimination of conveyor belt fires**

Inside:

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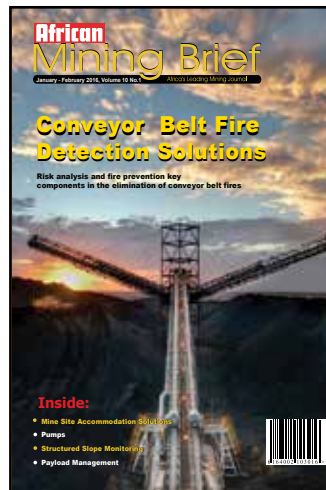


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Conveyor Belt Fire Detection Solutions

Risk analysis and fire prevention key components in the elimination of conveyor belt fires

Cover picture:

Conveyor system at a coal plant

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If you may have noticed, from being regarded as nothing beyond a mere attachment on a haul truck, truck bodies now contribute towards optimising productivity in open cast mines worldwide. And even more striking is that most of them are lightweight.

To unearth unobserved facts about the correlation between lightweight truck bodies and productivity in open cast mines, *African Mining Brief* seeks the views of the managing director of Van Reenen Steel, John van Reenen, the South African manufacturer of off-highway truck bodies, dragline buckets and shovels/dippers, which has over 200 VR standard bodies working worldwide, and won the Swedish Steel Design award for its body. Recently, the company announced the launch of its Featherweight VR Truck Body, whose lightweight, van Reenen claims, enhances productivity.

On account of being 15-20% lighter than a standard VR body, the Featherweight VR Truck Body's payload increase can be up to 3%, explains van Reenen. Also, there is significant fuel saving on the return trip, with the truck carrying less weight.

Maintenance and productivity

However, van Reenen fears that mines could be overlooking the fact that any lightweight truck body can only be as productive as its sound maintenance, in their quest for high productivity.

He has noticed that there is a belief - if not a misconception - that the shorter life span of lightweight truck bodies - which is half of standard versions - can be offset by sustained production increase and lower fuel consumption, which could render a lightweight truck body more cost effective.

Nonetheless, what this line of thinking might ignore is the maintenance costs incurred on the truck body in the second year after purchase. Maintenance may necessitate adding thicker steel plates in high wear areas, cumulatively, making it heavier

over time, van Reenen points out. “The body, heavier after sessions of maintenance may result in loss of production, and an even higher fuel burn than with a body that had been fitted initially.”

Deferring purchasing a new replacement, on account of capital constraints, may result in addition of more steel to ensure that the body is functional. Unwittingly, by the fifth or sixth year, the lightweight truck body would have become as heavy as a standard body or even heavier.

“Experience has shown that a lightweight body, initially weighing 6 tons lighter than a standard body, can add more than 10 tons to its weight over the various repair cycles. Not only do these more frequent repairs reduce the availability of equipment working in the field, the hourly operating cost escalate. Ultimately, the initial capital cost saving of 20%-30% is negated,” deduces van Reenen.

Sustaining lightweight fleet performance

Therefore, to sustain the performance of a fleet with lightweight truck bodies, van Reenen tells mines to consider the following steps:

- Monitor that 2%-3% production increase throughout the truck’s life to ensure it is being attained;
- When the truck body goes into the workshop for maintenance, make sure the repair does not increase the weight beyond what it’s new weight was; and

- Diligently replace the lightweight body with another lightweight body at the end of its design life, which is usually halfway through the life of a truck.

Eventually, once the above-mentioned steps are followed, the marginal profit from small increase in production will counterbalance the increased cost of ownership of a lightweight body.

By and large, says Van Reenen, one of the most important considerations when buying a new truck body, or replacing an old one, is to consider the cost of ownership over the life of that body. Granted, quality truck bodies may be more expensive, but considering where the manufacturer offers affordable maintenance it has the lowest cost of ownership of any truck body.

New innovation for managing carryback

The other new innovation is the VR heated truck body, used where carry-back is a problem. The heating ducts have been strategically placed to heat the vital areas of the truck body, from the exhaust, to 100 deg. C, thus eliminating carry-back completely. A recently installed VR heated body, on a CAT 789 truck, has increased the performance of the truck by 11%, or 18 tons per load.

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