The Cross-Check Torque Seal from DYKEM

MechChem Africa talks to Richard Lundgren, BI Product Manager about the DYKEM tamper-proof vibration-warning indicator paste and how it can be simply applied to improve safety, reduce inspection time and reduce failure risks across a number of applications and industries.

hen a piece of equipment vibrates – whether it be a car, airplane, crane or water supply pump – there is always the chance that the torque of any nuts and bolts may loosen. It is essential to be on the lookout for this when servicing equipment or carrying out routine maintenance in order to prioritise safety and reduce downtime," begins Lundgren.

Applications for DYKEM® Cross-Check Torque Seal® range from haul trucks to head gaskets in vehicles, gearboxes, and even conveyor belts. With DYKEM Torque Seal, once perfect torque has been achieved, the artisan literally draws a line of the paste from the bolt head and along the threads of the screw. At the next inspection, he or she checks to see if the brightly-coloured mark is still in alignment. If not, action can be taken there and then on that specific bolt, instead of having to retighten all the bolts. This speeds up the process dramatically and reduces the possibility of any loose bolts being missed.

"A mine conveyor can be a kilometre long, with hundreds of support rollers along its length," says Lundgren. "If the torque of every bolt along its length has to be checked, a team of five or six maintenance technicians might take a whole day to complete the task. If, however, DYKEM's torque solution has been previously applied, a single artisan can simply walk the length of a conveyor and visually check if the marks have been broken. If nothing has changed, no action is needed, while any loose nuts or bolts will clearly need to be investigated and retorqued. This saves a huge amount of time, without adding risk. In fact, by using this indicator paste, risk is reduced because technicians may easily miss torqueing a bolt. By marking every bolt after torqueing, it becomes clear when the job is 100% completed," he adds.

"A failure due to a critical nut or bolt coming loose can have massive implications," he continues. He cites a case in Guinea where the front wheel of a dump truck at a mine came loose. "These trucks are rated for a 100 t payload and the front wheel's tyre and rim combination weighs about 2.0 t. It was actually wobbling on this truck and, while the drive stopped in time, it became a major safety issue on the mine," Lundgren tells *MechChem Africa*.

"By adding a tamper proof torque mark across the wheel nut and stud, any vibration that causes the nut to loosen can quickly be detected by anyone, including the driver, by simply walking around the truck to see if anything has moved," he adds.

"Mine excavators have a big slewing ring to enable the cab and bucket to swivel. The bolts that connect the ring to the load-bearing bucket and cab are critical and have to be routinely torqued to ensure operational safety. The application of DYKEM's high visibility torque indicator makes checking and reacting to loosening far easier and much less time consuming," Lundgren says.

With its excellent adhesion to all types of materials, including steel, the indicator paste comes in a range of eight colours for high visibility, and is also fluorescent under UV lighting. "While the colour is largely a matter of preference, if each artisan is allocated a different colour, it enables simple traceability to the individual who did the maintenance work, which helps to raise the quality standards," he says.

"The safety aspect of this product cannot be overstated, especially when you consider the potential danger of a bolt coming off a kilometre-long conveyor belt in a factory where people are working. Preventing potential dangers like this by using a vibration-warning indicator paste means safety checks can be



carried out more regularly, as they now take just a few minutes," Lundgren argues.

The indicator paste is supplied in a tube and comprises a gel-like substance. This is dry to the touch in one to two hours, and fully cured in 24 hours. "It also has a two-year shelf-life," Lundgren points out, meaning clients can be sure of the quality of their stock. The product is GHS compliant, meaning it meets the Globally Harmonised System for classification and labelling of chemicals, the guideline for ensuring the safe production, transport, handling, use and disposal of hazardous materials.

Summarising the product features, he includes:

- Tamper-proof Torque Mark.
- Safe for most surfaces.
- Highly visible.
- Excellent adhesion.
- Visually detects loose nuts and bolts.
- Provides warranty protection.
- GHS Compliant Labelling.
- Two year shelf life.
- Boeing specification: BMS8-45 Type 11.

"We have now completed a product focus to all BI Branches to introduce the DYKEM Cross-Check Torque Seal and we anticipate increased demand from manufacturers, agricultural organisations, mines and even the power generation sector. It's a product that should be in every workshop, maintenance facility or warehouse," Lundgren concludes.



Drawing a line from the bolt head along the thread creates a tamper proof torque mark across the wheel nut and stud so any vibration that causes the nut to loosen can be quickly detected. **Inset:** By allocating each artisan a different colour, simple traceability to the individual who did the maintenance work is made possible.