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New machine to recycle SA's waste mining tyre stockpiles

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LOCALLY MANUFACTURED The Mobi-Shred OTR can shred tyres ranging from 35" to 63" into 2" chips, as well as remove the steel from the tyre beads



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based machine building company Nicaud Trading has developed a tyre-recycling shredder to process and recycle waste off-the-road (OTR) tyres for the local mining industry.

A project in which the machine will be used, which is a joint venture (JV) between Nicaud Trading and newly formed recycling company Kabusha OTR, will help tackle the current environmental problems created by legacy tyres.

The Mobi-Shred OTR shredder has been locally designed and manufactured by Nicaud Trading and will be operated by the JV in Westonaria, Gauteng.

The shredder will assist Kabusha OTR in providing a turnkey, cost-effective, OTR tyre waste management solution to mitigate the mining industry's substantial historical OTR tyre legacy, states Kabusha OTR director **Johann Lehmann**.

The shredder will predominantly recycle historical waste OTR tyres. These are tyres that were manufactured before the Recycling and Economic Development Initiative of South Africa's Integrated Industry Waste Tyre Management Plan came into effect in 2013 and are, therefore, excluded from the plan.

The tyres are recycled in a single process, thereby eliminating the need for additional space, time, hardware and handling. The one-step process results in a more cost effective and productive recycling process than any of the recycling solutions available from international companies, Lehmann claims.

The Mobi-Shred OTR shredder can shred tyres ranging from 35" to 63" into 2" chips, as well as remove the steel from the tyre beads. The average cycle time is 30 minutes per tyre and tyres are cut right up to the bead.

The steel from the tyre beads will be reused in marine and heavy engineering applications, while the rubber chips will be supplied to the local recycling industry.

The machine is ecofriendly, as 100% of the waste tyre is recycled, while no churn is left after the process. No chemicals are used in the shredding process and no soil, water or air pollution is registered.

Lehmann explains that the size and composition of OTR tyres currently prevents their destruction. Consequently, they are stored on the mines with no apparent solution, creating an "environmental nightmare", when mines are doing rehabilitation of the mined areas.

However, the waste management regulations, introduced by government in 2008 to regulate the storage of waste tyres, put the onus on the stockpile owners, such as the mines, to provide the Department of Environmental Affairs with an abatement plan for these tyres.

Kabusha OTR realised that a gap in the market to recycle historical OTR tyres from the local opencast mining sector existed.

Participating mines will pay a fee varying according to the stockpile size, their location and sizes of the tyres to be recycled. Lehmann states that this fee will be negotiated with individual mines after a survey has been done of a particular mine's tyre stockpile.

Although Kabusha OTR is still in discussions with the iron-ore and coal mining sectors, the OTR tyre recycling process has already started. Lehmann says that he anticipates the first Mobi-Shred OTR shredder to be in full production during February 2016.

The development and manufacturing of a second shredder, similar in size and processing volume as the Mobi-Shred OTR, is 50% complete. Lehmann expects the machine to start operations in November this year.

Nicaud Trading is also developing smaller shredders, which will process tyres smaller than 35" used in underground mining operations. Lehmann expects the smaller machines to start processing OTR tyres in early 2017.

According to fellow Kabusha OTR director **Phindile Langa**, the JV would like to achieve a significant reduction of historical waste OTR stockpiles by the end 2018. ☒

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