Making inroads into tyre recovery in Victoria

A newly designed mobile shredder puts Tyrecycle at the forefront of efforts to reduce the stockpiles of end-of-life tyres across Victoria.

The risk of abandoned tyres

Victoria has tyres stockpiled across the state, particularly in remote and regional areas. Stockpiled tyres are a considerable fire risk and provide a breeding ground for vermin and mosquitoes that harbor viruses such as dengue fever.

It is estimated that 51 million standard passenger car tyres reach their end of life in Australia each year. Approximately 12 million of these are currently processed by Tyrecycle, Australia’s largest tyre recycler with processing plants in every state.

Recycled rubber can be used to manufacture new products or as an alternative fuel for the cement and paper manufacturing industries. However, with the cost of transporting tyres from regional or remote locations to reprocessing facilities, the majority end up in landfill or are discarded – usually in stockpiles.

Reprocessing at the source

Tyrecycle is always looking for new and innovative ways to increase the recovery and recycling of tyres from landfill and stockpiles. The company began researching whether it could design a portable manufacturing plant capable of processing end-of-life tyres at their location before transporting the tyre chip back to their head office in Somerton, Victoria for processing into powders and granules for new products.

While there are mobile shredders available on the commercial market, these machines reduce tyres in size by tearing them apart with force and, as a result, the output is only suitable for landfill. Tyrecycle wanted to design a machine capable of processing tyres into products of the same quality and specification that are produced in its permanent facilities located across Australia.
Building the business case

The mobile processing unit needed to be strong enough to shred tyres while having a small enough footprint to be easily transported by road and rail. Using in-house expertise and state-of-the-art computerised modelling, the company researched and designed a machine capable of processing not only passenger, light truck and truck tyres, but also off the road tyres and conveyor belts used in mining, construction and agricultural industries.

The plant was also designed to be incorporated into Tyrecycle’s granulation processing facility at Somerton. This would allow Tyrecycle to produce more granules and powders for high value recycled products during periods of high demand.

“The business case provided a strong argument for investing in the unit,” says Jim Fairweather, Tyrecycle’s CEO. “The ability to increase our capacity to produce even more high value recycled products and from a greater range of tyres – such as the mining industry – will allow us to differentiate our services in a very competitive marketplace,” explains Jim.

Innovation leads to new opportunities

Tyrecycle is already reprocessing tyres and conveyor belts from the mining industry into rubber powders and granules at their Somerton plant. These can be used in asphalts, adhesives, explosives and other high value recycling applications.

“This shredder increases our capacity to produce recycled rubber products for use in the manufacturing of new products, civil engineering or use as an alternative fuel for the cement and paper manufacturing industries,” explains Jim. “This will allow us to better serve our customers with Australian-made, recycled products, and increase the use of recycled rubber products to strengthen the circular economy.”

An environment conducive to growth

Tyrecycle continually consults with all local and state governments on its recycling operations. “State and local government are always supportive of our initiatives and EPA Victoria have been outstanding on cleaning up the industry and supporting investment,” says Jim.

Having their head office located in Victoria meant that Tyrecycle could take advantage of recent changes to the regulatory framework for tyres by the EPA.

“These types of investments are challenging as they depend on the regulatory environment maturing to support the commercial aspects of the investment,” explains Jim. “Without the EPA’s help we would not be investing in increasing our capacity and providing a solution for the clean-up of historic stockpiles”.

Returns on investment from innovation

The investment and build project was completed in early 2015. The new portable shredder provides the capability to process tyres in regional and remote locations to help councils, miners and remote land owners eliminate stockpiling risks and recover a valuable resource from landfill.

The machine can process between 8 and 10 tonnes per hour and save around 30% in costs when processing at a particular site, as opposed to transporting the whole tyres back to a fixed recycling plant.

“The investment is still new, but the opportunity it provides for legacy tyre stockpiles and to ensure no new stockpiles are generated suits our corporate profile,” says Jim.

“With this unit there is no reason why any stockpile of whole tyres should still exist as they can all be recycled.”

Jim Fairweather, Chief Executive Officer, Tyrecycle