

Old Tyres – Shredded and Tracked!

It is estimated that NZ'ers dispose of some 4 million tyres each year. About half of these are simply dumped into landfill. What is the potential for re-use?

We take a short look at New Zealand's largest tyre recycler, to see what's happening in the industry these days.

J & J Laughton Shredding Services Ltd.

Jim and Janene Laughton established their business in 1996, becoming NZ's first tyre collectors and recycling operation.

Over the past nine years, Laughtons has serviced the Rodney, Auckland and Waikato areas, collecting tyres from a large pool of customers, making J & J Laughton the largest waste tyre collector/recycler in NZ. The operation is based at Glendene, Auckland where they hold a current waste collection and waste management facility licence.

Their Glendene property covers an area of 3647 square metres. This includes a workshop, office, lunchroom, dangerous goods shed, a car park, and storage areas for bags and rims.

The company has the reputation of being reliable, efficient, professional and fair. Over the years, they have received several awards from Councils and waste awareness groups for their initiatives in recycling.



Jim and Janene have also had a lot of media exposure, with visits from the Ministry for the Environment, Councils, and overseas companies.

Tyre Track

In recent years, Jim has become involved with MFE/MTA/Tyre Track, as well as with a working group with other tyre recycling operators from other parts of NZ. This group (although relatively new) is very strong, and is asking for support from government on rules/regulations nationwide regarding markets and incentives to recycle.

A more recent innovation is the set-up of an industry group, which has been formed to promote the re-use and recycling of old tyres. Jim and Janene Laughton are founding members, and believe that this organisation will help with promoting alternative uses of tyres, so that in the future, none will have to go to landfill.

Tyre source and collection

Laughtons' customers are tyre retail outlets, garages, car wrecker yards, re-treading plants, resource recovery centres and members of the public. They have ongoing collection contracts with

several Councils ranging from tyre dumping to inorganic kerbside collections.

Over the nine year period that Laughtons have been operating, they have worked hard to make tyre recycling sustainable.

They have educated the public and tyre outlets of the need for a user pays system and provided customers with a laminated poster endorsed by several Councils to help make user-pays an accepted practice in New Zealand.

For a fee depending on the size of the tyres i.e. car, truck, tractor, the new tyre customer at a tyre outlet pays for the disposal of their old tyres. The retailer then calls on Laughtons to collect them. Laughtons operate a small fleet of vehicles for collection of these tyres.

Tyre generators from outside Auckland often come to the premises to drop off tyres. The tyres are sorted into groups by the yardmen, e.g. car, 4WD, light truck or tractor, and are then further sorted from steel-free tyres to steel belted to other tyres needing de-rimming.

Depending on the market demand on the day, tyres are shredded, chipped, granulated or left whole for re-use, silage or matting etc.

All sizes of tyres that enter Laughtons are processed at the premises. The machinery handles tyres easily, and they have back-up machinery in case of mechanical failure, preventing any stockpiles building up.

Disposal Options

Markets for recycled scrap tyre rubber were virtually non-existent when the Laughtons first entered this business, so they had to primarily focus on civil engineering and recreational applications, and create their own markets. Some of these include:

- Land erosion control;
- Sub base in roads (private properties and farms etc);
- Surface water diversion;
- Embankment retention;
- Sports turf-management;
- Horse arena surfaces;
- Backstop firing ranges.

“Generally speaking, there are three grades of processing and shredding.” Jim Laughton.

Primary Shred

Primary shred is fairly coarse at 50-300mm and the product is used for drainage, for bank retention, backfill of retaining walls and even as landfill cover.



Secondary Shred

With secondary processing a smaller chip is formed, from 50mm down to 16mm. This is steel free.

Markets for the products

One of the success stories of JLLSS is the market creation of their sports horse arena surfacing rubber.

The product is in demand all over NZ and several professional Olympic equestrian riders are now enjoying this excellent surface and recommending the product to others.

Using rubber as a back-stop for firing ranges is also popular, due to the lead being recoverable from the embankment, whereas with the old practice, the lead would stay in the clay bank, leading to contamination of the ground.

Many playgrounds now have the rubber being used as a rubber chunk layer, laid down before fabric and a fine rubber layer is placed on top.

Tertiary Processing

Under this process the chip rubber is ground into small particles, but note that this is not currently done here in New Zealand. An example of this would be where rubber chip is reduced to sugar-sized granules. There is a growing market for this in 'modified asphalt'. This provides for a potentially long-lasting and quiet roading surface and there is increasing use of this product in the UK.

Further grinding of the chip results in a fine, powdery rubber crumb, which is used in the manufacture of rubber bollards and rubber road dividers. This uses large quantities of vulcanised crumb and has a potential for use in NZ. Crumb can also be used as a base material for shoe soles, solid rubber tyres for machinery such as fork lifts, for rubber floors, and can be made into waterproof membranes. It can also be

used in the manufacture of sports-ground surfaces, such as sports-turf for hockey grounds and tennis courts, and along with other materials such as sand, can be used at golf courses to improve drainage.

Potential uses and markets

There is the potential for secondary and tertiary shred to be sent to Asia, and markets are being found for rubber crumb, but markets are fickle, prices fluctuate wildly, and long term contracts are hard to find.

Here in New Zealand, Opus Consulting is currently doing a trial using rubber in roading, and this is into its second year.

Because of increasing fuel prices, various uses of tyre-derived fuel are being considered. Tyre shred is being considered for use as a fuel in cement kilns, and one of the largest wood manufacturers is also looking at this as a potential fuel.

The opportunity for alternative fuels is also increasing. Studies are underway in NZ for the consideration of waste rubber, with its high calorific content, as a fuel source for conversion into bio-diesel through pyrolysis. It is already being used this way in Japan.

Future Developments

A percentage of tyre rubber still goes to landfill. The potential to reduce that figure is on the increase with a number of companies showing keen interest in rubber as a feed stock.

With the increasing need to process our wastes and use them as a resource, rather than simply dumping them, the future for tyre recycling is looking pretty solid.