

Plastics News

Australia recycler on track for big railroad tie contract

By: **Kate Tilley**

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Reservoir, Australia — After successfully testing composite railroad ties made from recycled plastics, an Australian company is embarking on an ambitious bid to win major business with Queensland Rail.

The Queensland Rail (QR) network, owned by the Queensland government, has more than 4,500 miles of track across the state, transporting passengers and freight,

including major coal exports.

Integrated Recycling, a business unit of the Integrated Packaging Group Pty. Ltd., based in the Melbourne suburb of Reservoir, is one of six companies that won tenders from QR to develop prototype railroad ties, which are known as sleepers in Australia.

QR wants a product that is not timber, concrete or steel.

Stephen Webster, general manager at Integrated Recycling, told Plastics News one company has dropped out and the remaining five are developing alternative sleepers. As far as he's aware, Integrated Recycling is the only tenderer focusing on recycled plastic versions.

The companies are funding their own development costs in the hope of winning a share of an A\$100 million contract to supply QR with 700,000 sleepers over five years. In time, that could extend to the full QR network, which has about 2.4 million timber sleepers.

"If I were QR, I would want at least three companies supplying," Webster said.

Integrated Recycling has completed a design phase and will now move to testing, with the help of the Institute of Railway Technology (IRT), a specialist rail research center based at Monash University in Melbourne.

"We'll submit a design report [to QR] by the end of 2017. If it meets requirements, we will make 150 sleepers to go into the field for testing. Then there's nine to 12 months of testing," Webster said.

He said QR has "crossed the Rubicon and wants to move away from traditional materials. There's no risk for QR, the companies doing the work are paying all the costs." Integrated Recycling can wear the development costs because it is part of a larger company.

Integrated Recycling recycles unwashed plastic "so we're selective about what we take," Webster said. Much of the recycled content is agricultural films, including table grape vine covers. The recycled resin is a mix of polyethylene, some polypropylene and polystyrene from fruit boxes collected from retailers.

Webster said Integrated moved into railway sleepers because "we were seeking to use recycled plastic in a structural sense. We wanted industrial-scale opportunities for our products, not just cottage industry products."

The Victorian government's Public Transport Victoria was unable to source sufficient timber sleepers for its historic and tourism rail lines, so needed an alternative and contacted Integrated.

"Timber sleepers are not available in the quality, quantity and price required and an advantage of recycled resin is durability," Webster said.

He has collaborated with IRT to develop guidelines for recycled plastic sleepers and the institute has lab tested Integrated's product to better understand its performance and ability to hold trains' weight.

Integrated developed the DuraTrack brand and tested various resin combinations and monitored sleepers on different grades of historic tracks. Webster said DuraTrack is mainly a mix of recycled PE and PS plus additives and color.

"We continue to develop different mixes and resin combinations. We get them tested at IRT to ensure we can use a variety of products.

After testing with several of Victoria's historic railways, Integrated won its first commercial contract in mid-2016 for the Mornington steam train railway, which operates as a tourist attraction. In September Integrated installed recycled plastic sleepers at the line's pedestrian crossings.

Webster said a key advantage of recycled plastic sleepers is their 50-year lifespan, compared to an average of 14 years for timber sleepers.

He said plastic sleepers are “significantly cheaper in the long run” and not susceptible to termites and water rot, which are the biggest problems for traditional timber sleepers.

After the successful Mornington installation, Webster will now start marketing to historic railways around the nation.

Integrated also has a wide range of recycled plastic products manufactured under its Envire brand, including fencing, benches, decking, boardwalks and pallets. Its timber substitute is a composite PE and PS mix with some wood fiber, made at its factory in Mildura.

It also imports the DuraComp brand of decking from China and distributes the EverTuff brand, manufactured by Dulwich, Australia-based Cosset Industries Australia Pty. Ltd., which Integrated Recycling bought in September.

Webster, a former banking and finance lawyer who got “bored with law,” has been with Integrated Recycling for seven years.

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