



Safe and Sustainable

DYNA Engineering has installed a specialist manufacturing line to cope with increased demand for conveyor componentry made from HDPE rather than traditional steel. Unlike steel, HDPE welding, shown here, requires no heat-resistant PPE to be worn.

DYNA Engineering's HDPE (plastic) conveyor guards are providing Australian miners with a sustainable solution for site safety.

In 2017-2018, about 3.4mt of plastics were used, with just 9.4% recycled, according to the World Wildlife Foundation.

Of that 320,000t, about 46% was reprocessed in Australia with more than half exported for re-processing.

One of the reasons that a significant amount of plastic waste is sent overseas is because Australia does not currently have a large, sustainable market for recycled waste products.

DYNA Engineering General Manager Thomas Greaves said sustainability and recycling within the mining and manufacturing industry is the direction in which these industries are moving.

This was why the company has developed its own high-density polyethylene (HDPE) manufacturing line that takes advantage of recycled materials.

"Our customers care about sustainability and using new plastic hurts the environment," Mr Greaves said.

"We've also seen the popularity of HDPE start to dramatically increase since we released our new conveyor guards."

HDPE is a thermoplastic polymer produced from monomer ethylene.

With a high strength-to-density ratio, it is commonly used in the production of plastic bottles, corrosion-resistant piping, geomembranes, plastic flooring and componentry.

When it comes to the mining and bulk handling industry, it has a number of significant benefits when compared with steel guards.

One of the main differences is weight. Steel guards are often heavier than 15kg, which can present heavy lifting risks.

HDPE can be up to 40% lighter and DYNA's guards can be removed in a matter of minutes.

Steel guards require costly on-site welding, grinding, cutting and a hot works permit to make simple modifications.

To modify a HDPE conveyor guard, it's easy to just shave a few millimetres off where needed.

Installation is easy, with the guard simply sliding into place and fastened with two bolts so it can't be removed.

No complicated instructions or special skills are required, reducing the likelihood and risk of accidents.

"Steel guards can also rust and corrode where HDPE does not," Mr Greaves said.

"Additional advantages are they will never need repainting as the colour is inherent in the material used and they are metal detector friendly."

Due to the size of the mesh, painting steel guards is a costly and wasteful process.

A lot of paint is used, and a significant amount is lost in the process.

Often, operators resort to hand painting, which is very time consuming and expensive. DYNA Engineering recently manufactured about 660m2 of HDPE conveyor guards for three conveyors, using about 12t of recycled plastics.

They were produced for an iron ore operation in WA's Pilbara, which requested them to be made in the colour pink, to support breast cancer awareness.

The decision to use pink came up in early talks and was easy to implement as part of the manufacturing process, because the recycled plastic is supplied by colour.

"The site also required the guards to allow employees to work alongside it while running," Mr Greaves said.

"The weight of steel guards would have made this impossible as the structure could only carry so much."

The guards have a life span of about 10 to 15 years and are themselves fully recyclable, meaning they can be melted down and recycled over and over.

Mr Greaves said the mining industry was the perfect sector for recycled material uptake, as the projects required vast amounts of construction materials.

"Using recycled plastic for smaller projects is helpful, but there's an opportunity to really build an end market for recycled products.

"In addition, the Federal Government has announced a \$500m package to help build an end market for the recycled material," he says. **AMR**

Conveyor componentry made from HDPE is on the increase.



DYNA Engineering General Manager Thomas Greaves



HDPE guards are lightweight and fully recyclable.