Tyre & Rubber Recycling

Issue No. 38 2018/3
www.tyreandrubberrecycling.com
THE SPECIALIST MAGAZINE FOR THE TYRE RECYCLING INDUSTRY

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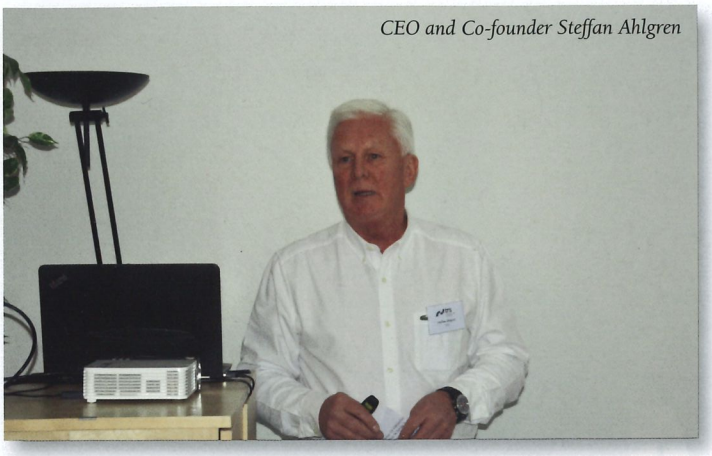
TRS – Taking a Complete Business Approach



CEO and Co-founder Steffan Ahlgren

Swiss start-up TRS has been working on its business plan and developing its pilot plant for some time now. Tyre and Rubber Recycling has spoken to COO Sonia Meggert several times over the years, and the development of TRS has always been slow and steady. Meggert had always made the point that there was no rush to reveal, TRS would not go to the market until the project was ready.

In November 2018, TRS opened its new head office and research laboratory in Préverenges, near Morges. This was a landmark opportunity for the company to promote the move of the operation from its pilot plant at Morges to a full-scale production facility at nearby Yvonand.

CEO and Co-founder Steffan Ahlgren told Tyre and Rubber Recycling that the TRS business plan was built around approaching the whole process, from collection to delivery of materials for end products.

"There has to be the feedstock and there has to be the end market, viable end markets. We have, with our funders and partners, looked at every aspect of this business, and it is clear that we need to be in control of the whole process. We also need to have clearly identified and profitable markets. We have contracts with collectors to guarantee our feedstock, but from that point forward we manage the whole process."

Meggert added, "There are many areas where our material can be used, from reincorporation in new rubber compounds, through moulded materials to 3D printing. Not all of these areas are going to be viable commercial markets. We are looking at higher volume ongoing markets rather than low volume opportunities. We need a consistent market for our materials."

TRS has been funded by a range of investors, many from the Swiss financial sector, many of them long-term contacts of co-founder Steffan Ahlgren, and the project has been supported by local Canton ministers, who have helped build both financial support and open potential markets, to the point that a main stretch of road in Morges may be about to be resurfaced with rubberised asphalt in a partnership project with the Swiss Federal Laboratories for Material Science and Technology (EMPA), where Dr Lily Poulkakos is part of a team heading up research into the use of rubberised asphalt using Swiss originated aggregates.

TRS engineering team with the patented water jetting system

The first stage in the TRS process is the tyre collection. The company has agreements with local Swiss companies for collections to bring car tyres to the pilot plant in Morges. Clients in other markets will have to make their own local arrangements as feedstock is critical to the success of the operation.

The process requires the initial removal of the sidewalls and the cutting of the tread to form a single length. The immediate interest for TRS is the tread rubber. The treads are fed into a UHP water jet operation, where twin water jets strip only the tread rubber from the tyre strips, leaving the belting, carcass and butyl lining for further processing. They call this the TRS Water Pulse process, and the end product is branded as TyreXol CW.

The resulting powder from the water jetting is dried and classified to give a range of new active surface rubber suitable for inclusion in new compounds.

The pilot plant can process 500kg per hour, but the drier and classifying process can accommodate the feed from four such UHP waterjet operations.

The new production facility will include four water jet operations feeding the drier classifier, so a capacity of 2 tons per hour.

The new plant will also see the development of a parallel ambient grinding process that will shred the sidewalls, the remains of the carcass, and also take in truck tyres for recycling. This ambient process will follow a route to micronisation of tyre rubber. This is a market where the tyre industry has already shown an interest. Critically, the purchase of LeHigh by Michelin signposts that the concept of micronisation is acceptable to the tyre industry.

The laboratory at TRS has a dual function. The first is to verify specifications of the TRS output. The second is to research and develop new opportunities. It has a section of the lab dedicated to bio-devulcanisation, and another looking at rubberised asphalt. A team of five researchers operate the laboratory looking for innovative solutions to rubber recycling.

The R&D team focus on development and testing

The solid business plan developed by TRS is already attracting partners around the wold, with a plant being developed in the Middle East in parallel to the plant in Switzerland. TRS have guaranteed an initial offtake agreement that will allow the partner to start business knowing that there is a market for his material. The agreement is that the client will seek his own local markets as the off-take enters a planned reduction. This should give new partners the opportunity to establish their plant with a guaranteed market, and that gives them the breathing space to grow their own clientele in their local market.