

# The Eldan Recycling *ScrapBook*

Autumn 2011



24 DIFFERENT  
TYPES OF RUBBER



REPUTATION BREEDS  
SUCCESS



INDIA - A MARKET HOTTER  
THAN INDIAN CURRY?



STILL THE FIRST CHOICE  
IN RECYCLING EQUIPMENT



A HAPPY CUSTOMER  
ALWAYS RETURN

 **ELDAN**  
RECYCLING

# 24 different types of rubber granulate

*PVP Triptis GmbH is not a typical tyre recycler – their focus is instead on the production of rubber matting. This German manufacturing company specialises in the development and manufacture of products made of rubber granulate combined with polyurethane – e.g. for sporting, construction, acoustic and transport applications. Controlling the entire process, from granulate production to the finished product, they know the importance of quality.*



## Looking for the best

As co-owner and one of PVP Triptis GmbH's managing directors, Max Madelung has been involved in the company from the beginning. PVP was founded on curiosity and great opportunities.

PVP recycle end-of-life tyres and turn them into granulates or powders of various sizes, which would then either be sold to external customers or further processed internally in the production of rubber matting. In this production, various types of granulate are combined to produce cylinders, which are then cut into mats and rolls for a large variety of applications. These products are then used in gyms, sports halls, rooftop gardens, as artificial turf, and in hundreds of other varied and interesting applications. The key to the company's success is in producing its own raw material for making these products. This philosophy allows for extensive R&D and for the customisation of products for specific customer needs.

In order to achieve the flexibility required in granulate production, a turnkey tyre recycling plant needed to be installed. Various suppliers were considered, with the emphasis on power efficiency, easy maintenance and low levels of downtime. In the late 1990's there were not many companies supplying complete tyre plants with references to prove it. "Comparing Eldan to other players on the market, Eldan was clearly the leader. I remember looking at some of Eldan's larger competitors. Some of the com-

peting plants were about 50% more expensive and used about twice as much power as the one we have. Some alternatives were also much larger in size, which would have forced us to extend our production facility considerably" says Max.

Although at that point Eldan had not yet supplied a complete tyre recycling plant in Europe, they still had an extensive track record in the global tyre recycling industry. Germany had for some time been an established market for Eldan and they had already installed around 60 cable, aluminium and WEEE (Waste Electrical and Electronic Equipment) systems there. "Eldan stands for solid and excellent quality, as well as smoothly running equipment, produced and developed from many years of experience. Eldan already had about 18 year's experience of tyre recycling, so they knew what they were doing, and had the reputation to prove it" says Max.

## An E6000 line installed in 2000

In 2000, a complete and customized Eldan tyre recycling plant was acquired by PVP. Specially built for them, the plant included one Tyre Feeder, one pre-chopper (Super Chopper), and two tyre granulation and separation lines (D3000T). The pre-chopper had capacity enough to supply both tyre granulation and separation plants with tyre shreds. The entire plant had an average capacity of 5 tons of input per production hour, producing 0-5 mm granulate. >>



In October 2000 the plant was delivered to Triptis, and five months later single-shift trials were started. As PVP was completely new to tyre recycling and processing, there was still much to learn. In March 2001, PVP started to construct the bale production facility for rubber mat production.

In December 2001, the trials with the Eldan plant were completed, and PVP started to run the plant on a single-shift basis. In 2002, processing was stepped up and started to run in 3 shifts, 5 days a week.

### Booming business

Rubber mat production has been very successful for PVP, and in December 2007 the company realized that they would need to increase their rubber granulate production to meet future raw material requirements. At this point, they needed so much crumb rubber for their own production that they were forced to purchase more than

1100 tons externally. So, at the beginning of 2008, PVP decided to double their own plant capacity.

To understand the developments and innovations introduced over the 8 years since they purchased their first equipment, PVP once again researched the market for the best possible solution. As before, power efficiency, service, and flexibility in output materials were all vital requirements. This time there was yet another factor added to the equation – the plant had to be installed and operational within one year.

### A true partnership

Once again, PVP's research showed that Eldan was the best alternative. "We knew the technology already acquired from Eldan, and were already very satisfied. Looking at capital expenditure, running costs, delivery dates and installation, there was no other company that came close to competing with Eldan's offering," comments Max.

In February 2008, PVP acquired one Tyre Feeder, one complete Eldan tyre granulation and separation line (E4000T), one Quality Upgrade System, and lastly, one full-size Powder Plant. Like the system purchased in 2000, the new equipment would also be processing both car and truck tyres. The customized system has an average capacity of 4 tons of input per processing hour, and produces 0 - 4mm granulate and powder.

Unlike the plant purchased in 2000, which featured two

parallel production lines, this new plant only had a single line. Thanks to their new Quality Upgrade System, PVP could now benefit from the ultimate quality possible to obtain from the main rubber granulate fraction, which is 99.99% free from textiles and steel. If necessary, the output can be further processed in the Powder Plant, to meet customer and market requirements for powder down to 50 Mesh size. The Powder Plant is a separate unit, and is only run when powder production dictates. ➤



Top left: Used tyres on their way into the SuperChopper, Top right: Separation Table (C26), Bottom left: Rubber granulate Bottom right: Rubbermat from PVP

*“If I got the opportunity to rebuild our production facility ...One thing is however sure – I would always choose Eldan as our partner again”*

Max Madelung, Managing Director and co-owner PVP



Throughout this project, PVP and Eldan have worked in close cooperation, which is vital when working to such short deadlines and when supplying technology tailor-made to customer requirements. “Good two-way communication and great project management is fundamental in projects with deadlines as short as this one. When we had our first meeting with PVP in February 2008, they didn’t even have a facility to install the equipment in – there was just an empty field” says Bjørn Laursen, Product Manager at Eldan. “However, I’m proud to say that we delivered the equipment over July and August, and PVP started granulate production in November 2008. The close collaboration between Eldan and the team at PVP, and in particular with Technical Manager Jürgen Niemann was the key to success in getting everything up and running in just 9 months.”

Proven technology is Eldan’s motto, and PVP got to experience this firsthand. “Over the years, Eldan and PVP have been developing and modifying various parts of the plants, so in 2008 PVP was able to take advantage of the latest and most modern technology

available. The difference in technology between the plant supplied in 2000 and the new one was huge, so it took us quite some time to get used to the new one” says Max. “The developments that impressed us most were the electrical control boards, with which you can control the power and production of the entire plant, and also the Separation Table (C26), which is easily our favourite machine.”

### **Eldan only as successful as their customers**

Although PVP uses Eldan tyre recycling equipment to produce granulates and powders from 0-6mm, this is not actually the company’s main business. “We’re not a recycling company, but rather a company producing rubber matting for various applications” says Max. “We produce 24 different types of rubber granulate and powder, 60% of which is used in our own production, with the other 40% going to external customers in Germany and abroad. We have a great competitive advantage in the fact that we can customize our rubber according to customer requirements.”

PVP predicts that they will process 32,000 tons of tyres in 2011, and produce 20,000 tons of rubber granulate and rubber powder. In order to get the best possible quality in the end product, they are very specific about the quality of the tyre input.

The fact that Eldan has its own production facility in Denmark is an advantage, according to Max: “As the equipment is custom-made, we know that Eldan has complete control over the final quality of the plant. These machines communicate with each other in a way that equipment sourced from several different manufacturers would not. As with any investment, we take good care of our equipment, and we do the recommended maintenance. We’ve had two of the four lines for over 11 years, they’ve run for more than 50,000 hours and we still have an average uptime of up to 80 percent! If there are serious problems that we can’t fix on our own, then we know that Eldan will be there within 8 hours, with personnel and/or spare parts. As we run the plant in three shifts, a stop in production is very costly for us. We’re only earning money when we’re up and running.” The importance of regular maintenance cannot be

stressed enough. “If you take good care of your equipment, naturally it will last longer and run more smoothly. PVP has had two of their lines since the beginning of 2000, and I can tell you – they almost look like the new machines” says Bjørn. “To run the equipment they only use qualified personnel, people who have been in the company for a long time. Sometimes it seems like PVP know more about the end products produced by our equipment than we do, so our relationship with PVP is of the highest importance to us.”

Being a successful company does not only depend on the manufacture of good products or services. The true capital of a company lies in the experience of the employees who have been with the company for many years. “I know that PVP and Eldan are very similar in the way we regard personnel and customer relations as top priority. Eldan is only successful if their customers are successful with their Eldan plants. Here at PVP we see it the same way. Only when our customers are successful with our products will PVP be successful, as customers will be coming back for more.” says Max. ➤



## PVP Triptis GmbH

**Location:** Triptis, Germany

**Founded:** 2000

**Employees:** 60 employees

**Max Madelung**, managing director and chief of operations and production in Triptis

**Charles Course**, managing director

**Susanne Madelung**, research and development department and vice president of ETRA (European Tyre Recycling Association)

PVP Triptis GmbH is a manufacturing company specializing in the development and manufacture of products from a mix of rubber granulate and polyurethane. The company is the only one in the world that manufactures its own raw material (rubber granulate) for its production of rubber sheets and rolls.

PVP's granulation division produces approximately 20 000 tonnes of rubber powder and granulates per year. Currently, there are more than 2 million m<sup>2</sup> PVP products installed as mats or shaped sections around the world, as: PROTECTMAT (construction applications), ACOUSTICMAT (sound/noise applications), SPORTMAT (sports and equestrian applications) and TRANSMAT (transport matting).

With "Technology in Gummi – Made in Germany" – PVP satisfies the highest quality standards according to DIN EN ISO 9001:2008 and DIN EN ISO 14001:2005. The variety of products and services offered by PVP demonstrates a high degree of technical competence and innovation. PVP contributes to a sustainable environment, by conserving resources while at the same time imposing the highest standards of quality on its products.

### Brief background:

- 2000: the foundation of PVP
- 2002: the bale production, and tyre processing facility was finished. The company was reconstructed and two shareholders left the company.
- 2004: together with an UK financial investor, the new PVP was created.

### Mutual collaboration – a rewarding partnership

Since the foundation of Eldan in 1956, the company's byword is to listen to its customers and to give them what they need. "You could say that there are two main reasons why we keep choosing Eldan; the equipment and the company" says Max. "The equipment is flexible, and we can produce a number of different end output fractions in our facility. It's also very power-efficient, which is vitally important if you have high electricity costs, as we do in Germany. At the moment, the Eldan equipment uses 1.5MW per production hour, so PVP uses about 7 GWh annually. Equipment maintenance, including knife and screen change, is easy and the machines are built to be operator-friendly – an important criterion in reducing downtime on the lines."

Even though tyre recycling has been a hot topic in Germany over the last decade, Max sees the future as being bright: "Firstly, we're seeing an increase in the demand for products made from rubber granulate. Secondly, the demand for rubber asphalt roads is increasing, as test results have shown that noise is significantly reduced on this type of road, and that they also last longer, thereby saving costs. Once this application is fully established, there are many roads in Germany that need to be repaired and covered with rubber asphalt."

Finally, as an experienced tyre processor – is there anything PVP would do differently a third time? "If I had the opportunity to rebuild our production facility, there are naturally some things I would change. Maybe I'd relocate a few of the machines, or perhaps I'd go for a larger facility. One thing is for sure however – I would always choose Eldan as our partner again" says Max.



# Recycling in India

## -a market hotter than Indian curry?

*Eldan Recycling is focusing on India. During the autumn, two complete tyre recycling plants have been installed in Mumbai, and there is already a noticeable increase in the demand for equipment. By introducing Eldan recycling equipment onto the Indian market, we are planning on reshaping their views on recycling in a revolutionary way over the next few years. At the exhibition Tyre Expo India in Chennai this July, customer requests and feedback supported this prediction, and our participation at the show was declared a success.*

### Up to 24 sizes of recycled rubber

Eldan has been active in the development and manufacturing of tyre recycling equipment for more than 25 years. The first complete tyre granulation plant was installed some 20 years ago, and since then over 200 plants have been installed all over the world.

For tyre recyclers, the main priority is getting at the rubber. The cleaner the material is, the more reuse potential and value it has. When reducing scrap tyres in size, the non-rubber fractions (e.g. textile, steel, nylon) are liberated in the automated process. The smaller the granulate gets, the cleaner it gets, i.e. depending on how pure an output the buyer requires, the material can be further reduced in size. Our process and technology focus is on "output per customer requirements". ➤