

# The Eldan Recycling ScrapBook

Special Edition 2012



HIGH QUALITY AT  
SMALL QUANTITIES



ELDAN'S EXPERIENCE -  
SAVED THE INVESTMENT



LARGEST TYRE RECYCLING  
PLANT IN ABU DHABI



KNOWING YOUR  
EQUIPMENT



FROM IFAT TO IFAT -  
130 PROJECTS INSTALLED

# Toni Talks



The recycling industry is interesting, and it is continuously developing into different new applications. Eldan Recycling is constantly responsive to what is going on in the market, in order to continue to be at the cutting edge of the developments and to enter these new areas with equipment which is reliable and productive.

The recycling market is changing and expanding into new areas both geographically and technically. In order to keep updated on the latest developments, we are active on most markets with our own personnel and through external partners.

Especially when entering new markets, we need to play an important role in clarifying the benefits of using our equipment. Eldan has been manufacturing machines and complete systems for more than 55 years and we have several thousand installed machines worldwide. We have long experience from several markets e.g. more than 25 years in Germany, America, UK and Japan. We are very well known in these markets, while as we enter into new markets the name and reputation of Eldan recycling equipment is not as known. We need to be in the front line in order to offer possible customers the best solutions.

We have during 2011 and 2012 installed many machines and complete systems around the world. We have installed equipment in both new markets like Pakistan and Colombia, and within new recycling areas like mining tyres.

The major exhibition IFAT Entsorga in Munich, Germany, is coming up soon. The exhibition has grown massively during the past few years, and therefore we focus extra on it this year. We will bring a few of our most popular equipment; the Super Chopper, the Heavy Granulator and the combination of Micro Module and smallest Rasper. We look forward meeting you there!

We will as usual we continuously do our best to take care of your business with us and I hope that we see each other soon.



Toni Reftman  
Managing Director

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mail us at newsletter@eldan-recycling.com

## New welding robot

A new welding robot has been acquired for the production facility in Faaborg, Denmark. After courses in handling the equipment for the involved personnel, the robot is now fully involved in production. "Since we deliver modern equipment to our customers, we need to keep up with the technology in our production facility as well, and the welding robot is one step in this direction. It will primarily be used for welding of our hard metal rotors, but other applications are also being tested" says production coordinator Claus Skotte Lange at Eldan Recycling.



## Eldan welcomes



### Monika Weinberg – Production & Marketing Manager

We would like to welcome Monika Weinberg to Eldan Recycling. Monika will be based in Sweden and will be responsible for the global production of the Eldan Recycling marketing material. Monika has several years of experience working with marketing and her latest assignment was at Weight Watchers Sweden

## Did you know this about refrigerator recycling?

If processing refrigerators in an Eldan system, you will in one year, and in one shift process approximately 144,000 refrigerators. Originating from these you will get the following valuable materials:

- Steel: 2,600 ton, which is worth €750,000\*
- Non ferrous: 350 ton, which is worth €420,000\*
- Plastic: 1,000 ton, which is worth €260,000\*

\*at a market price of Fe: €290/ton, Al: €1,200/ton, Plastic: €260/ton

This means that with an investment of approx. EUR 3,000,000.00 and running costs, you will earn back the money within one year!

Also – by collecting the hazardous gases in the refrigerators you will get 40,000 kg of gas – which reduces the release of CO<sub>2</sub> into the atmosphere, by 320,000 ton. This is equal to 1.6 billion kilometres in a car (if the car runs on 14 km/l and 200g CO<sub>2</sub>/km) or Carbon Credits for €2,000,000 (if carbon price is €6.3/ton).

## What happens with your scrapped computer?

WEEE (Waste Electrical and Electronic Equipment) is one of the fastest growing types of waste globally. Imagine that generally the original owner of a laptop will keep it for merely three years before it is scrapped, while cell phones are only kept for maximum 24 months. As an example - the average American household has at least 23 electronic products.

## We bet you didn't know this about your soda can!

- It takes 80-100 years for an aluminium to break down in a landfill.
- Aluminium can be recycled infinitely without losing quality.
- Recycling aluminium cans saves 95% of the energy used making an aluminium can, compared to making it from a raw bauxite or the energy saved by recycling one aluminium can run a TV set for three hours or light one 100 watt light bulb for 20 hours.

## Your Euro coin might have been handled by the ancient Egyptians. It's true!

- Copper is the third most recycled metal after iron and aluminium. Almost half of the copper used each year is derived from recycling - the other half is mined.
- Copper has an infinite recyclable life, and can be recycled over and over again. Most of the copper we use today was mined many years ago, since it is so easily recycled. Some say that the copper used in copper coins today is the same copper which was handled by ancient Egyptians.
- 1 and 2 Euro value coins consist of 75% copper and 25% nickel clad on nickel core.
- It is estimated that 80% of the copper ever mined is still in use today. Applications of copper are in electrical wires (60%), roofing and plumbing (20%) and industrial machinery (15%).

## Your tyres can do more than take you to the office every day!

- The textile liberated in the tyre recycling process can be purchased or picked up from tyre recyclers, since it is a bi-product of tyre recycling. It is not as often reused as the rubber granulate or steel, but it can still be used for various purposes. The liberated textile has a very high effective burning value, since it consists of nylon and rubber powder. It can therefore be mixed with other materials in order to increase that material's effective burning value. As an example - the cement industry mixes the textile with alternative fuel with lower effective burning value (e.g. wood, carton, paper, plastic). Some cement plants also use it for cleaning out the sludge from the rotation ovens, since the temperature while burning, causes the sludge to burn; hence the oven does not have to be closed down for manual cleaning. Finally, we have heard that the textile can be used as noise insulation and to reduce vibration in industrial plants.
- Eleven of the twelve largest tyre recyclers in the US use Eldan recycling equipment. Together they process approximately 182 million tyres a year!
- The liberated steel from tyre recycling can be further cleaned into a steel fraction which is 99% free from foreign material, as textile and rubber, and has a heavy weight density of +700 kg/m<sup>3</sup>. The largest European steel works regularly use recycled and further cleaned steel produced from Eldan tyre recycling plants.



# *From IFAT to IFAT - more than 130 projects installed world wide*

*In September 2010 all eyes of the recycling industry focused on the IFAT Entsorga exhibition in Munich, Germany. It was at this exhibition that Eldan first introduced the Micro Module and sold the first copy. When entering the IFAT Entsorga this year, we have recently introduced our solution for recycling of huge mining tyres, which has also received a flying start.*

*Below you find a list of what has been installed since the last IFAT Entsorga, up until this one. More than 130 projects installed in one third of the countries of the world. From recycling of 250 kg cable per production hour to 4-6 ton mining tyres – we have the system for you!*

## Europe

**Austria.** A complete cable recycling plant designed for recycling of mixed cables at approx. 0,7-1,5 ton per production hour depending on the type of cable. The plant includes e.g. a Multi Purpose Rasper (MPR120), a Fine Granulator (FG952), a Separation table (C22) and Classifier (PC12).

**Austria.** A Cable Stripper (M6) was installed at an existing Eldan cable recycling plant.

**Belgium.** A Separation Table (C22) was installed at an existing recycling facility.

**Belgium.** A double rotor Super Chopper (SC2118-II) was installed at an existing WEEE recycling facility. It will process circuit boards and smaller electronic equipment at approx. 16 ton per production hour.

**Belgium.** A Super Chopper (SC2118T) was installed at an existing tyre recycling facility. The Super Chopper will process 6-8 ton car and truck tyres per production hour.

**Belgium.** Heavy Granulator (HG209) installed for processing of MSW (Municipal Solid Waste) to be used as RDF (Residual Derived Fuel).

**Belgium.** Fine Granulator (FG952) installed in existing tyre recycling plant. It will increase the capacity, and improve output quality.

**Belgium.** A Micro Module was installed for processing of approx. 250 kg mixed dry cables per production hour.

**Czech Republic.** Separation equipment including a Separation Table (C15) was installed at an existing Eldan customer.

**Czech Republic.** A Rasper (R1207) and Fine Granulator (FG476) was installed at an existing Eldan cable recycling customer.

**Czech Republic.** A complete tyre recycling plant (D5000T) was delivered to an existing Eldan tyre recycling customer. The plant will process pre-chopped car and truck tyres coming from the existing

Eldan Super Chopper at approx. 5 ton per production hour.

**Denmark.** A Shredder (S1000) was installed at an existing Eldan customer processing lead cables. The Shredder will process the cables at approx. 3 ton per production hour.

**Denmark.** A Steel Cleaning System was installed at an existing Eldan tyre recycling customer. The output steel fraction from the new system will be 96-98% free from rubber and textile.

**Denmark.** A Super Chopper (SC2118) was installed at a new customer processing plastic waste (pressed and on rolls).

**Denmark.** A Micro Module delivered to a municipality beginning to recycle waste cables. The Micro Module will process at approx. 250 kg per production hour.

**Denmark.** A Multi Purpose Rasper (MPR200T), Classifier (PC15) and a Magnet was installed at an existing Eldan customer.

The equipment was acquired to additionally optimize the output quality, and to increase capacity.

**Denmark.** A Fine Granulator (FG952) was installed at an existing Eldan customer to process various scrap.

**Finland.** An ACSR Shear (M16-2) was installed at a new cable recycling customer. It is designed to process ACSR (Aluminium Conductor Steel Reinforced) in coils and single pieces.

**France.** A Cable Stripper (M3) for an existing cable recycling facility.

**France.** Fine Granulator (FG1504) sold to existing Eldan customer within cable recycling. By adding it the production capacity will be increased, and output quality further optimized.

**France.** Cable Stripper (M3) sold to existing recycling facility. The machine is

designed for processing of cables at approx. 30 m per production minute.

**France.** Two Silos (SMV and SMV double), one Classifier (PC12) and one Separation Table (C22) where installed in an existing recycling system.

**Germany.** A Heavy Granulator (HG169) was installed at an existing Eldan cable recycling customer. It is designed to process approx. 5 ton shredded cables per production hour.

**Germany.** A Steel Cleaning System was installed at an existing Eldan tyre recycling customer. The output steel will be approx. 98-99% free from textile and rubber, with a density of over 0,7 (700 kg/m<sup>3</sup>)

**Germany.** A Separation Table (C22) was installed at an existing Eldan customer. It will efficiently separate valuable metals from the insulation by using a well balanced combination of air flow, table inclination and oscillating movements.

**Germany.** A Super Chopper (SC2118T) was installed at an existing tyre recycling facility. The Super Chopper will process car tyre at 10-15 ton per processing hour, and truck tyres at 6-8 ton per production hour.

**Germany.** A Multi Purpose Rasper (MPR160T) was installed at an existing Eldan customer.

It will increase capacity by size reducing down to approx. 12 mm chips and liberate up to 98% of the steel content.

**Germany.** A Separation Table (C22) was installed at an existing cable recycling plant. It is used for the final separation of material into a at least 99,5% clean metal fraction.

**Germany.** ACSR shear (M16-2) was installed for processing ACSR cables (Aluminium Conductor Steel Reinforced).

**Germany.** An Aspirator (UP1500) and Separation Table (C26) were installed in an existing cable recycling plant.

**Germany.** An Aspirator (UP1500) and a Separation Table (C26) was installed at an existing Eldan cable recycling customer. The equipment will efficiently separate metals from insulation by using a well balanced combination of air flow, table inclination and oscillating movements

**Germany.** A Classifier (PC12) was installed at an existing Eldan cable recycling plant, in order to optimize the quality of the output material.

**Hungary.** A Classifier (PC12) was installed at an existing cable recycling facility. It will effectively remove copper and aluminium fines from the plastic fraction.

**Hungary.** A complete tyre recycling plant (E4000T) was installed at a new customer. It will process whole car and truck tyres at 3-4 ton per production hour. The plant includes for example a Super Chopper (SC1412T), a Multi Purpose Rasper (MPR160), a Fine Granulator (FG1504), two Classifiers (PC10T and PC15T) and an Aspirator (UP1750).

**Hungary.** A Separation Table (C22) was installed at an existing cable recycling facility. It will efficiently separate metals from insulation by using a well balanced combination of air flow, table inclination and oscillating movements.

**Hungary.** A complete tyre recycling plant (E4000T) was delivered to a new tyre recycling customer. It will process whole car and truck tyres at 3,3-4 ton per production hour. The plant includes for example a Super Chopper (SC1412T), a Multi Purpose Rasper (MPR160), a Fine Granulator (FG1504), two Classifiers (PC10T and PC15T) and an Aspirator (UP1750).

**Hungary.** A complete granulation and separation plant for tyre recycling. It is designed for processing cars and truck tyres at approx. 4 ton per processing hour. The plant includes e.g. a Super Chopper (SC1412T), a Multi Purpose Rasper (MPR160), two Fine Granulators (FG1504), two Classifiers (PC10T and PC15T) and an Aspirator (UP1750).

**Italy.** A Cable Stripper (M6) was delivered to an existing Eldan cable recycling customer. It is a reliable peeler, suitable for most cable types including plastic, paper and textile insulated cables, rubber insulated cables, lead armoured cables and steel armoured cables.

**Italy.** A Multi Purpose Rasper (MPR160T), a Classifier (PC15T) and a Tumble Back Feeder (TBF) were installed at a new tyre recycling customer. Processing car and truck tyres they can process 3,3-4 ton per processing hour.

**Italy.** A Fine Granulator (FG1504) was delivered to a recycling facility processing cables and aluminium scrap of all types.

**Italy.** A Super Chopper (SC2118T) and a Multi Purpose Rasper (MPR160) was installed at a new tyre recycling customer. They are able to process complete car and truck tyres at 13-20 ton per hour in the Super Chopper. The output can then be processed at 3,3-4 ton per hour in the Multi Purpose Rasper.

**Italy.** Complete Granulation and Separation Plant for tyre recycling was installed at a new Eldan customer. Designed for processing tyre chips at approx. 1 ton per production hour (producing 0-4 mm rubber granulate). The plant includes e.g. Fine Granulator (FG1504), a Classifier (PC15T) and an Aspirator (PC15T).

**Poland.** A Super Chopper (SC2118T) and a Multi Purpose Rasper (MPR200) was delivered to an existing recycling facility. They will be used for processing tyres.

**Poland.** A Steel Cleaning System was installed at an existing Eldan tyre recycling plant. The system is designed to process 3 ton steel (mixed with rubber and textile) per production hour, producing a 97-98% pure steel output.

**Poland.** An existing Eldan tyre recycling plant was upgraded by adding e.g. a Classifier (PC15T), two Fine Granulators (FG1504), three Classifiers (PC1750 and PC1000), an Aspirator (FP1750) and a Separation Table (C26). Processing car and truck tyres, ca-

**Malta.** A Classifier (PC12) was installed in an existing tyre recycling plant in order to separate the steel from rubber and textile, and thereby receiving a more desirable steel quality.

**Netherlands.** Three Fine Granulators (FG952 and FG1504), a Separation table (C15) and a Silo (SMV) was installed at an existing Eldan cable recycling customer.

**Netherlands.** A Cable Stripper (M6S) was installed at an existing Eldan customer.

**Netherlands.** A Silo (V4) and a Conveyor Belt were installed at an existing Eldan cable recycling plant. The Silo is used for optimized operation and enhanced throughput between a Rasper and a Granulator.

**Norway.** An existing Eldan cable recycling plant was upgraded by adding e.g. a Fine Granulator (FG952).

**Norway.** A Cable Stripper (M6) was installed at an existing cable recycling plant.

**Norway.** A Drum Wind Screen (DWS12) sold to existing Eldan cable recycling plant.

**Norway.** An existing Eldan cable recycling plant was upgraded by adding a Heavy Granulator (HG169), Fine Granulator (FG1504), Separation table (C22) and Classifier (PC15T).

**Poland.** A Super Chopper (SC2118T) and a Multi Purpose Rasper (MPR200) was delivered to an existing recycling facility. They will be used for processing tyres.

**Poland.** A Steel Cleaning System was installed at an existing Eldan tyre recycling plant. The system is designed to process 3 ton steel (mixed with rubber and textile) per production hour, producing a 97-98% pure steel output.

**Poland.** An existing Eldan tyre recycling plant was upgraded by adding e.g. a Classifier (PC15T), two Fine Granulators (FG1504), three Classifiers (PC1750 and PC1000), an Aspirator (FP1750) and a Separation Table (C26). Processing car and truck tyres, ca-

pacity will be approx. 3 ton per processing hour producing 1-3 mm rubber granulate.

**Poland.** A complete granulation and separation plant was installed at a new facility for tyre recycling. It is designed for processing truck tyre at approx. 4 ton per production hour, producing 2-6 mm granulate. The plant includes e.g. a Super Chopper (SC1412T), a Heavy Rasper (HR202T), a Fine Granulator (FG1504), two Classifiers (PC10T and PC15T), a Fine Granulator (FG1504) and an Aspirator (UP1750).

**Poland.** ACSR Shear (M16-2) line sold for recycling of ACSR cable (Aluminium Conductor Steel Reinforced) at approx. 250-2000 kg per production hour (depending on type of input cable).

**Portugal.** A Tyre Feeder (TF600) and a Super Chopper (SC2118) was installed at a tyre recycling facility. The equipment will process whole car and truck tyres as well as super singles at approx. 13-20 ton per production hour (depending on the input material).

**Serbia.** A Multi Purpose Rasper (MPR160) and a Steel Cleaning System was installed in existing Eldan tyre recycling plant. This enables the capacity of the plant to be increased, and to clean the output steel further.

**Serbia.** A Super Chopper (SC2109T) was installed at an existing Eldan tyre recycling customer. It will process larger OTR and pre-chopped mining tyres at approx. 10-12 ton per production hour producing 50-300 mm shreds.

**Slovenia.** Granulation equipment was installed at a new Eldan recycling customer. It will process lead separators at approx. 3 ton per production hour. The plant includes e.g. a Fine Granulator (FG952) and a Separation Table (C22).

**Spain.** Two Fine Granulators (FG1504) was added to an existing Eldan tyre recycling facility, already including an E8000T line, in order to increase the production capacity additionally. Each new Fine Granulator will be able to add capacity of approx. 2,4 ton

tyre per production hour.

**Spain.** A Classifier (PC12) was installed at a cable recycling facility. It will efficiently separate the metal from the plastic fraction, ensuring minimal loss of valuable metals.

**Spain.** A Heavy Granulator (HG209) was installed at an existing Eldan recycling customer. It will process Shredded Heavy Fractions from end of life vehicles at approx. 6-10 ton per production hour, depending on screen size and type of input material.

**Spain.** A Classifier (PC12) was installed at a cable recycling facility. It will effectively remove copper and aluminium fines from the plastic fraction, ensuring minimal loss of valuable metals.

**Spain.** A Classifier (PC12) was installed in an existing Eldan cable recycling plant. The Classifier efficiently separates the metal from the plastic fraction.

**Spain.** A Multi Purpose Rasper (MPR120T) was installed at an existing Eldan tyre recycling plant. It will increase the capacity of the plant.

**Spain.** A Heavy Granulator (HG209) with pusher for processing of industrial waste at 8 ton per processing hour.

**Spain.** Micro Module and Rasper (R400-3) was installed for cable recycling. The combination is designed for processing mixed dry cables at approx. 400 kg per processing hour.

**Brazil.** A Micro Module, Rasper (R400-3) and an ACSR Shear (M16-2) were installed at a new cable recycling facility. The equipment will be able to process dry cables (including Aluminium Conductor Steel Reinforced cables) at approx. 300-350 kg per production hour depending on type of cable.

**Sweden.** Silo (SMV) and Separation Table (C15) installed in an existing cable recycling plant. It will separate metals from insulation, and give an almost 100% clean output fraction.

**Switzerland.** A Separation Table (C22) was installed at an existing Eldan customer. It will efficiently separate valuable metals

from the insulation by using a well balanced combination of air flow, table inclination and oscillating movements.

**United Kingdom.** Two Cable Strippers (M6) was installed at an existing Eldan cable recycling facility. They will efficiently peel 30-150 mm cables.

**United Kingdom.** A Cable Stripper (M6S) was installed at an existing Eldan cable recycling facility. It will efficiently peel 10-150 mm cables.

**United Kingdom.** Three Cable Stripper (M6S) was installed at an existing Eldan cable recycling facility. They will efficiently peel 10-150 mm cables.

**United Kingdom.** A Multi Purpose Rasper (MPR200) was installed at an existing Eldan aluminium recycling plant. It will be processing UBCs (Used Beverage Cans).

**United Kingdom.** A Ring Shredder (S1500) was installed at an electronic waste recycling facility, which is one of the largest in the country.

**United Kingdom.** A Heavy Granulator (HG209) was installed at a large recycling facility. It will be used for processing PU at approx. 4 ton per processing hour.

**United Kingdom.** A Fine Granulator (FG952) was installed at a scrap metal recycler.

## North & Latin America

**Brazil.** A Micro Module, Rasper (R400-3) and an ACSR Shear (M16-2) were installed at a new cable recycling facility. The equipment will be able to process dry cables (including Aluminium Conductor Steel Reinforced cables) at approx. 300-350 kg per production hour depending on type of cable.

**Canada.** Two Fine Granulators (FG1504), two Silos (V4) and transport equipment was installed at an existing Eldan tyre recycling customer. The added equipment will increase capacity of the complete plant.

**United States of America.** A Cable Stripper (M3) was installed at a new cable recycling customer.

**Canada.** A Fine Granulator (FG1504) was installed at an existing Eldan tyre recycling plant.

**Canada.** A Fine Granulators (FG952) was installed at an existing Eldan tyre recycling customer. The added machine will increase capacity of the plant to approx. 1 ton production hour.

**Canada.** A Fine Granulators (FG952) was installed at an existing Eldan tyre recycling customer. They will process de-beaded tyres from an existing Eldan Multi Purpose Rasper at approx. 0,9 ton per production hour.

**Canada.** Two Fine Granulators (FG1504) was installed at an existing Eldan tyre recycling facility. Each Fine Granulator will be able to add capacity of approx. 2,4 ton tyre per production hour.

**Colombia.** A Micro Module was installed at a new cable recycling facility. It will process dry cables at approx. 250 kg per processing hour.

**Mexico.** A Multi Purpose Rasper (MPR120) was installed at an existing Eldan tyre recycling customer.

**Mexico.** A Fine Granulator (FG1504) was installed at an existing Eldan tyre recycling customer.

**United States of America.** Two Fine Granulators (FG1504) where installed at an existing Eldan tyre recycling customer. The added machine will increase capacity of the plant.

**United States of America.** Fine Granulator (FG1504) added to existing Eldan tyre recycling plant, in order to expand capacity additionally.

**United States of America.** Two Fine Granulators (FG1504) were installed at an existing Eldan tyre recycling customer, in order to increase capacity.

**United States of America.** A Cable Stripper (M3) was installed at a new cable recycling customer.

**United States of America.** A cable stripper (M3) was installed at an existing Eldan cable recycling customer.

**United States of America.** A Cable Stripper (M3) was installed at a new cable recycling customer.

**United States of America.** A Fine Granulator (FG1504) was installed at an existing Eldan cable recycling plant. By adding an additional Fine Granulator capacity and output quality are optimized.

**United States of America.** A Multi Purpose Rasper (MPR160) was installed at an existing tyre recycling facility. It is a heavy duty rasper for efficient size reduction.

**United States of America.** A Cable Stripper (M6) was installed at a cable recycling facility. Standard inner bushings Ø40, Ø50, Ø65 and Ø150 are included.

**United States of America.** A complete cable recycling plant (E5000T) and a Water Separation System were installed at a new customer. The plant will be able to process mixed Cu cables in various types and sizes at approx. 5 ton per production hour. The plant includes e.g. a Super Chopper (SC2118), Multi Purpose Rasper (MPR160), a Fine Granulator (FG1504), a Separation Table (C26) and a Classifier (PC15).

**United States of America.** A Fine Granulator (FG1504) was installed at an existing Eldan tyre recycling plant.

**United States of America.** A Cable Stripper (M3) was installed at a cable recycling facility. It is designed for processing cables with a diameter of 10-150 mm.

**United States of America.** A Multi Purpose Rasper (MPR200) was delivered to an existing Eldan tyre recycling plant. It will increase capacity, and improve the output quality.

**United States of America.** A Multi Purpose Rasper (MPR200) and two Fine Granulators (FG1504) were delivered to an existing Eldan tyre recycling plant.

**United States of America.** A Cable Strip-

per (M3) was installed at a cable recycling facility. It is designed for processing cables with a diameter of 10-75 mm.

## Asia/GCC/Oceania

**China.** A Micro Module was installed at a new cable recycling customer. The Micro Module will process mixed dry and steel free cables at approx. 200 kg per production hour.

**India.** A complete Granulation and Separation Plant was installed at a new tyre recycling customer. It is designed for processing 5 ton per production hour. The plant includes e.g. a Multi Purpose Rasper (MPR200), an Overband Magnet (DM1850), three Fine Granulators (FG1504), a Classifier (PC10T and PC15T) and an Aspirator (UP1750).

**India.** A complete Granulation and Separation Plant was installed at a new tyre recycling customer. Designed for turning car and truck tyres into granulate (and powder) at approx. 5 ton per production hour. The plant includes e.g. a Super Chopper (SC1412T), a Multi Purpose Rasper (MPR200), three Fine Granulators (FG1504), two Classifiers (PC15T and PC1750T), an Aspirator (FP1750) and a Cracker Mill system.

**Israel.** A complete tyre recycling plant (E4000T) was installed at a new customer. It will process whole car and truck tyres at 3,3-4 ton per production hour. The plant includes for example a Super Chopper (SC1412T), a Multi Purpose Rasper (MPR160), a Fine Granulator (FG1504), two Classifiers (PC10T and PC15T) and an Aspirator (UP1750).

**Japan.** A Multi Purpose Rasper (MPR160) and an Overband Magnet (DM1850) were installed at a cable recycling facility. They are able to process cable scrap at approx. 5 ton per production hour, downsizing it to <30mm.

**Japan.** A tyre recycling plant (type C) was installed at a new customer. It is designed to process car and truck tyres at approx. 2 ton per processing hour. The plant includes e.g. Super Chopper (SC2118) and a Multi Purpose Rasper (MPR120).

**Japan.** A Super Chopper (SC1412T) was delivered to an existing tyre recycling plant.

**Japan.** A Heavy Granulator (HG209) and a Multi Chopper (MC1448) was installed at an existing tyre recycling facility.

**Pakistan.** A tyre recycling plant installed was installed at a new tyre recycling facility. It is designed to process passenger car tyres, light truck tyres and truck tyres at approx. 18 ton per production hour - i.e. 6 ton per production hour per Multi Purpose Rasper. The system includes e.g. a Super Chopper (SC2118T) and three Multi Purpose Raspers (MPR200T).

**Pakistan.** A Multi Purpose Rasper (MPR200) was installed at a new Eldan customer. It is designed to turn waste turn into TDF (tyre derived fuel) to be used in the cement industry.

**Pakistan.** A Multi Purpose Rasper (MPR160) installed in a tyre recycling facility. The machine is designed for processing of pre-shredded car tyres and truck tyres (50-300 mm) or whole car tires at approx. 3-5 ton per production hour producing <25 mm tyre chips.

**Pakistan.** A Tumble Back Feeder and Vibrating Discharge Conveyor an existing tyre recycling plant.

**Pakistan.** A Multi Purpose Rasper (MPR200), a Classifier (PC12), a Vibrating Discharge Conveyor and an Overband Magnet (DM1850) were installed at an existing tyre recycling plant to produce Tyre Derived Fuel (TDF).

**Pakistan.** A Super Chopper (SC2118T) was installed at to an existing Eldan tyre recycling customer. It is added to the plant to increase the capacity.

**Pakistan.** A Super Chopper (SC2118T) and a Multi Purpose Rasper (MPR200) was installed at an existing Eldan tyre recycling customer. They will add to the capacity of the entire recycling facility.

**Pakistan.** A Multi Purpose Rasper (MPR200) was installed at a new tyre processing facility.

The chips will be used as TDF (tyre derived fuel) in cement production.

**Pakistan.** A Steel Cleaning System was installed at an existing Eldan customer. The system will further clean steel, making it a more attractive input for steel works with an approx. density of over 0,7 (700 kg/m<sup>3</sup>).

**Papua New Guinea.** A complete tyre recycling plant (E4000T) was installed at a new customer. It will be used for processing of truck and other large size tyres like mining tyres. Processing tyres with a weight of max 100 kg each, the system will process at approx. 4 ton per production hour. The system include e.g. a Tyre Feeder (TF600), a Heavy Duty Super Chopper (SC1406T HD), Multi Purpose Rasper (MPR200T), two Fine Granulators (FG1504), two Classifiers (PC10T and PC15), an Aspirator (UP1750) and a Separation Table (C26).

**South Korea.** A Super Chopper (SC2118) has been installed at an existing Eldan tyre recycling customer. It will increase the capacity of the plant significantly.

**Syria.** Cable stripper (M6S) installed at an existing recycling facility, stripping cables at approx. 30 m per processing minute.

**United Arab Emirates.** A complete tyre recycling plant was installed at a new tyre recycling customer. The system is designed to process car end truck tyre at approx. 8

**Qatar.** A Micro Module was installed at a new cable recycling customer. It will process dry cables at approx. 250 kr per production hour.

**Russia.** Super Chopper (SC1412T) and Multi

Purpose Rasper (MPR160) were installed at a new tyre recycling customer. The system is designed to process whole car and truck tyres (including super singles) at approx.

3,5-4 ton per production hour, producing 1" chips.

**Saudi Arabia.** A Cable Stripper (M3) was delivered to a cable producer wishing to recycle waste production cables.

**Saudi Arabia.** A Cable Stripper (M6) was delivered to a cable manufacture for processing of waste cables.

**South Africa.** A Micro Module was installed at a cable recycling facility, enabling the customer to process mixed cables at approx. 250 kg per production hour.

**South Africa.** A Super Chopper (SC1412) was installed at an existing Eldan cable recycling customer.

**South Korea.** Two complete Steel Clean-

ing Systems has been installed at one tyre recycler in two different locations. They are designed to process 3-4 ton car and truck tyre per production hour, processing 98-99 % pure steel.

**South Korea.** A Multi Purpose Rasper (MPR200) has been installed at an existing Eldan tyre recycling customer.

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**South Korea.** Two complete Steel Clean-

**Pakistan.** A tyre recycling plant installed was installed at a new tyre recycling facility. It is designed to process passenger car tyres, light truck tyres and truck tyres at approx. 18 ton per production hour - i.e. 6 ton per production hour per Multi Purpose Rasper. The system includes e.g. a Super Chopper (SC2118T) and three Multi Purpose Raspers (MPR200T).

**Pakistan.** A Multi Purpose Rasper (MPR200) was installed at a new Eldan customer. It is designed to turn waste turn into TDF (tyre derived fuel) to be used in the cement industry.

**Pakistan.** A Multi Purpose Rasper (MPR160) installed in a tyre recycling facility. The machine is designed for processing of pre-shredded car tyres and truck tyres (50-300 mm) or whole car tires at approx. 3-5 ton per production hour producing <25 mm tyre chips.

**Pakistan.** A Tumble Back Feeder and Vibrating Discharge Conveyor an existing tyre recycling plant.

**Pakistan.** A Multi Purpose Rasper (MPR200), a Classifier (PC12), a Vibrating Discharge Conveyor and an Overband Magnet (DM1850) were installed at an existing tyre recycling plant to produce Tyre Derived Fuel (TDF).

**Pakistan.** A Super Chopper (SC2118T) was installed at to an existing Eldan tyre recycling customer. It is added to the plant to increase the capacity.

**Pakistan.** A Super Chopper (SC2118T) and a Multi Purpose Rasper (MPR200) was installed at an existing Eldan tyre recycling customer. They will add to the capacity of the entire recycling facility.

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**United Arab Emirates.** A Micro Module and Cable Stripper (M6S) installed for processing of mixed cables at approx. 200 kg per production hour.



## High quality at small quantities

Hierros y Metales Díez in Zaragoza, Spain, is active with a number of various products and services within industrial waste management – e.g. waste collection and transportation, destruction service and recycling. The company was founded in the 1950 by Jesús Díez. Today the company is run by his two sons together with the involvement of a third generation within the Díez family. The company is symbolized by quality and modern technology.

Having experience from using other Eldan Recycling equipment, it was an obvious choice for them who to turn to when acquiring cable recycling equipment. ➤

### Following the trends of Spain

The third generation of the Díez family is currently active within Hierros y Metales Díez. Jesús Díez (I) founded the company during a time when the recycling industry was erupting in Spain, and everyone wanted to get a piece of the possibly highly profitable recycling cake. The general idea was that all materials, like for example rags, where recyclable, and nothing should go to waste.

During the years the material processed and recycled by Hierros y Metales Díez has changed and the business has evolved with the general and waste trends of Spain. By adapting to which kind of waste was provided, the company has continuously changed and grown. The largest changes have happened during the last few years, and have been a result of technical improvements within processing equipment as well as new legislations.

Today Hierros y Metales Díez mainly focus on ferrous metals, but can also treat any non-hazardous waste. Since many years, they process electronic waste manually as well as end of life vehicles. Including the family, 30 people are employed at the company. "Since we have increased in the number of employees, one might think that we are no longer a family business, which is far from true. It is important to us to have a close relationship within the company and attend each

others weddings and baptisms etc. The close relationship also includes our external collaboration partners like Eldan and their Spanish agent Recycling Equipos" says Jesus Díez (II). "My father, who founded the company, never retired, but was active within the company until his passing at the age of 83. Today, my brother and I run the company. In regards to the future, it is nice to know that it will be run by family then as well. Our children are already involved within the company, and get more and more involved in the central parts."

In 2010 the Díez decided to get into recycling of electronic waste (WEEE), since they saw great potential within that field. Jesús Díez (III) had previously been involved in that area of recycling business, and knew that recycling of electronic scrap generate a lot of waste cables, which would be highly profitable to recycle. Since they had long experience from Eldan Recycling equipment, they decided to contact the Spanish agent, Recycling Equipos S.L. to see what equipment could be offered.

Hierros y Metales Díez was searching for low capacity equipment, yet producing a high quality output attractive for potential customers. "Díez and many other customers told us that the Mini Module, with a capacity of approx. 450 kg per production hour, was still too big for many companies and we took the idea of a smaller plant to



Eldan" says Marcos Clavel, sales manager at Recycling Equipos S.L. "Eldan decided to design the Micro Module. Díez pretty much bought it before having seen it, and even said that if Eldan is building a Micro plant, it will be good. We want it. It is not possible to get a better reaction from a customer."

When the Micro Module was introduced at the IFAT Entsorga exhibition in Munich, Germany, in September 2010, it only took 2 hours before it was labelled with a "SOLD" sign...

### Trusting personal experience

The Micro Module displayed and run at the exhibition was purchased by Hierros y Metales Díez, along with a small Rasper (R400-3) specially designed to increase capacity of the Micro Module. They purchased the equipment without even looking at the offer of the competitors, as he knew that the equipment could be trusted.

By just acquiring the Micro Module they would be able to process at a capacity of approx. 250 kg per production hour - depending on type of cable and method of feeding. The input cables would have to be dry pre-cut cables without any steel and with a maximum diameter of 15-20

mm and a maximum length of 300-400 mm. The cables usually have copper or aluminium conductors and plastic, rubber or paper insulation, e.g. communication wire, installation wire, power cables with copper or aluminium conductors, copper wire and mixed household wire. The main machines in the Micro Module are a Granulator, a Separator and a filter.

By adding the Rasper Hierros y Metales Díez is able to either process at a higher capacity, include cables with larger dimensions and/or cables containing steel. The combination of equipment is able to increase the input capacity up to approx. 400 kg per production hour processing dry cables with a maximum diameter of 40 mm. The capacity depends on method of feeding and screen size in the Rasper.

### Trusting Eldan technology

In March, 2011, the Micro Module and Rasper has been in production at Hierros y Metales Díez for almost 1,5 years, and it is running like a clockwork producing high quality copper. Production Manager Pepe Diez comments "We have always dreamt of a machine that would turn scrap into gold. Well, this machine is one of the closest to that dream, in terms of input-output."



*"We would recommend anyone who is interested in a low capacity cable recycling plant to acquire a Micro Module and a Rasper. Eldan equipment and the continuous support is truly worth every cent!"*

Jesus Diez

The relationship between Eldan and Hierros y Metales Díez is mutually respectful, and a bit special. "Since Jesús and Pepe were our first customers of the Micro Module and Rasper, we naturally have a closer relationship to them. The feedback has been really positive, and it is always nice to know that a customer return when they plan to acquire additional equipment" says Flemming Hansen, Product Manager for cable recycling at Eldan.

A good relationship in combination with high quality equipment is the optimal solution. Eldan has many well known customers in Spain, and success leads to success. Jesus Diez comments with a laugh; "No matter if there is currently a machine running or not, when we are in need of equipment, we will always buy it from Eldan".

During the past 13 months, Hierros y Metales Díez has processed 900 ton of low copper content cable, coming from WEEE. "It is amazing to see the high quality of the output product, coming from such a difficult input material" says Jesus. "We would recommend anyone who is interested in a low capacity cable recycling plant to acquire a Micro Module and a Rasper. Eldan equipment and the continuous support is truly worth every cent!"

### Hierros y Metales Díez

**Employees:** 30 people

**Founded:** in the 1950's

**Located:** Zaragoza, Spain

Hierros y Metales Díez is active with a number of products and services within industrial waste management – e.g. waste collection and transportation, destruction service and recycling.

Within recycling they process electronic waste (WEEE) and cable.



## The largest plant for tyre recycling in Abu Dhabi

There are several million used tyres in Abu Dhabi, many of them in unmanaged landfills. Because of the high fire hazard, the tyres represent a threat to health and the environment. Beside the efforts to minimize the risks for the environment in Abu Dhabi and the United Arab Emirates as a whole, recycling is increasingly seen as an innovative business opportunity. Currently less than 1% of all waste is recycled. The new tyre recycling plant in Al Ain will in future make a major contribution to the expansion of recycling activities planned by the Centre of Waste Management, Abu Dhabi.

In order to deal with this issue, a complete Eldan tyre recycling plant was opened in Al Ain, Abu Dhabi in the beginning of November 2011. The plant can process up to 8 ton old tyres per production hour, making it the largest in the United Arab Emirates. The produced granulate of sizes between 0.5 - 4 mm naturally conform to the highest quality standard. The plant was sold by Eldan representative in the region; Ferrostaal. As part of the comprehensive service package for the plant operator OMNIX, Ferrostaal secures financing for the purchase of the equipment.

"This region, including the entire United Arab Emirates, is expanding faster than any other market globally. Not just expanding fast, but they are also a world leader in adopting new technologies, and ideas. We are therefore extra happy about installing a top modern tyre recycling system here" says Dr. Toni Reftman, Managing Director of Eldan Recycling.

"We are continuing to expand the trading activities and services for recycling plants in the region. We provide support to our customers through comprehensive consulting and services, covering everything from the project development and financing to commissioning, training and maintenance of the machinery," explains Bernd Ahlmann, responsible for the business segment Trading at Ferrostaal AG. Through the subsidiary Ferrostaal Equipment Solutions FZE in Dubai / UAE, Ferrostaal is well positioned in the region. The company supplies plants for the recycling of waste tyres, cable, aluminium and magnesium scrap, as well as refrigerator and electrical scrap. In the field of environmental technology, Ferrostaal also supplies plants for industrial water treatment and odour neutralisation.



## Tyre recycling in Vapi, India

In January S&J Granulate Solutions Pvt. Ltd. started production in their new fully automated tyre recycling plant from Eldan Recycling. The plant, which is located in the Vapi region in Gujarat, India, has currently the highest capacity of any such facility in India. The system was marketed by the Eldan representative in the region, Ferrostaal AG.

The production line is capable of processing up to 5 ton of shredded used tyres per production hour. The output fraction is a rubber granulate 99.9% free of steel and textiles, which meet the highest international quality standards.

The market potential for the rubber granulate is high. Possible finished products from rubber granulate are surfaces for sports fields and playgrounds, insulating material for noise insulation or hoses for the under soil irrigation of plants. The rubber granulate can also be used as an additive to asphalt for road construction.

With predicted economic growth of between 7-8 % in 2011/2012, India is one of the fastest growing economies in the world. Thanks to its substantial manufacturing and service industries, the country offers immense recycling resources. "Our goal is to establish and further develop

local recycling projects. Ferrostaal is a long-term partner in this process, one that brings technology and market knowledge to the table and is able to cover the entire process; in this case from the delivery of the raw material through to approval of the end products from the tyre-recycling plant in India", explain Amit Agarwal, Director at S&J Granulate Solutions.

"We were very keen to work with Ferrostaal and Eldan, not just because of the excellence in the technology they provide, but also due to their global vision on recycling" says Amit Agrawal, Director S&J Granulate. "Our visit to an operational Eldan plant in Europe is a testimony on how we have modelled our plant in Vapi. With the support of Ferrostaal in regards of feedstock supplies and also to arrange off taker's for our end products, we finally found a long term partner who would guide us to expand and diversify into other areas of recycling", says Kunal Jiwarka, Director of S&J Granulate.

"Ferrostaal is our representative in many regions where recycling has begun to get strong interest during recent years like the GCC region, India, China and Latin America. We want to continue to expand our business in those areas together", says Dr. Toni Reftman, Managing Director of Eldan Recycling.



# *Happy cows equals better milk producers*

A well rested and content person perform better at work and in the everyday life. This statement is generally accepted - why would not the same be true for animals? The vision of Erri-Comfort A/S is to improve the cow's well being by providing the best possible care and nutrition advice as well as functioning products for cow owners and milk producers. By merely increasing the cow's comfort studies has shown that the milk production increases by 10%. For this purpose, Erri-Comfort has designed and patented a revolutionary cow mattress filled with either recycled tyres (i.e. rubber granulate) or recycled PE (polyethylene) foam.

## **Waste tyres – large problem with limitless possibilities**

Used tyres are among the largest and most problematic sources of waste today, due to the large volume produced and its durability. In 2010 over 3,3 million ton of used tyres are generated in Europe according to the ETRMA (European Tyre & Rubber Manufacturer Association). In the U.S. the corresponding number was 300 million tyres, according to ISRI (Institute of Scrap Recycling Industries). This is approximately one tyre per person a year.

During the last 10-15 years countries world wide has begun to legislate to prevent misuse of landfills. The European Union has legislated on landfill to reduce the negative effect it has on the environment (the Landfill Directive 1999/31/EC).

Later on they also legislated more specifically upon using complete and shredded tyres as landfill (2000/53/EC). This naturally had a great impact on the tyre recycling industry in Europe, and the rest of the world, and many new opportunities have been created for tyre scrap.

Those same characteristics which make waste tyres such a large waste problem also make them one of the most re-used waste materials. As the rubber is very resilient, it can be reused in other products. The rubber granulate or powder which are the outcome of tyre recycling, have many attractive benefits such as flexibility, strength and combustibility. ➤



## Animal health in relation to production

By improving the cow's physical and physiological health and comfort, the risk of illness will decrease, and the general well being is increased. A cow starts to produce milk (lactation) when she has give birth to a calf, and continue to do so for about 10 months. Every day she produce about 25 litres of milk, and since the calf only need half of it, the rest available to use in consumer products like milk and cheese. Even though the milk production is a very complex process, it takes a fairly simple product to increase that production.

The vision of Erri-Comfort A/S is to improve the cow's general well being by advising the milk producer on the subject and supplying well functioning products. The founder and owner of Erri-Comfort, Jørn Erri, has been a veterinarian with focus on cattle for the last 25 years. He has been an active milk producer with a herd of 60 cows, for 13 years, and later also co-owner of ECCO Holstein. Since many years he has also become a consultant for some cattle herds.

The comfort of a cow is basically based upon having a clean, dry and comfortable soft bed. Approximately 500 litre of blood needs to circulate the cow's body in order to produce 1 litre of milk. It has been documented that if a cow that lie down blood circulation increase by 10%, compared to standing up. This means that if a cow lies down

more, it will produce more milk! Therefore the Erri-Comfort cow mattress was developed to best meet the cow's natural way of movement and its physical and physiological needs.

According to Jørn the product which is most popular, in regards of improving the cattle's health and preventing cattle illness, are the Erri-Comfort Cow Mattress filled with either rubber granulate or granulated PE (polyethylene) foam.

## Erri Comfort Cow Mattress

The Erri-Comfort Cow Mattresses bring the feeling of grazing grass in the fields into the barn. The floor of the cubicles feel more comfortable than the traditional concrete floor, and the time of rest for the cow is increased remarkably. When the cow step on the mattress and it is lowered about 3.6 cm, the mattress decrease the painful effects on her knees by approximately 84%, compared to standing on an ordinary floor. The flexibility in the mattress also makes it easier for the cows to lie down and to get up, and therefore the strain on the fore knees decreases. The blood flow through the udder increases and milk production goes up.

"Farmers, who have installed a small number of Erri-Comfort mattresses, say that the cows compete fiercely for the cubicles with Erri-Comfort mattresses in it" says Jørn.

"One farmer tells about the young cows, which after they had been milked, went directly to the mattresses without eating in order to secure a cubicle. Another farmer reports that the cows resting in the cubicles with the Erri-Comfort mattress get their tails stepped on by other cows that try and force themselves onto the comfortable mattress".



The cow mattress basically consists of two layers of polystyrene bags. The polystyrene bags consist of three material, packed cells containing rubber granulate or PE (polyethylene) foam, which are about 15-20 cm apart. When the two polystyrene bags are put on top of each other, they together constitute one entirety which is approximately 13 cm thick. For the comfort of the cow the mattress can be either dense or permeable.

## Cow Mattress including rubber granulate

The first type of cow mattress is filled with rubber granulate produced from waste tyres. One cubicle consists of 4 polystyrene bags á 30 kg of rubber granulate. For one cubicle of about 128 kg rubber granulate it takes approx. 210 kg waste tyre (since about 60 % of the tyre is rubber) – i.e. approximately 10 tyres.

The result of the cow mattresses containing rubber granulate has been well documented externally. "Research made by the magazine Bovilogisk Tidsskrift (June 2002) show that cows which use our granulate mattresses produce 3 kg more milk per day" says Jørn. "Since I have been a veterinarian for 25 years, I am not surprised. The physical and physiological well being effect performance with both humans and animals. Imaging that you would have to sleep on a cold concrete floor, and work the next day..."

There are advantages in using rubber granulate for mattresses. "The rubber granulate is durable, and is pretty much impossible to ware out. By using larger sizes in rubber granulate fluids can easily disappear through the mattress, and the cow is kept cooler if it is warm inside the barn, and warm if it is cold" says Jørn. "When walking into a room where the cows have cow mattresses you are

struck by the fact that is it incredibly quit, since one characteristic of rubber as a material is that it is sound absorbing. The absorbed sound in combination with happy cows results in a quit environment. My wife usually says that it is like walking into a church."

The Erri-Comfort cow mattress is the softest mattress on the market, and they remain soft. The first Erri-Comfort Mattresses containing rubber granulate were installed in 1993 and they are still functioning, and remain soft. The channel-stitched mattresses will last a lifetime, and just the top fabric cover has to be changes every 6-7 years.

## Environmental concerns – utilizing the resources

For a barn with 100 cows almost 15 ton of rubber granulate is used – i.e. approximately 1000 waste tyre. Even though the mattresses last forever an eventual disposal will be completely environmentally friendly. After use they are burned in an incineration plant, which is a highly suitable end-use since rubber has a great heating value.



Each year Erri-Comfort acquire about 1,000 ton recycled rubber granulate from waste tyre recyclers in e.g. Denmark and Holland. "The quality of the granulate is very important to us– it has to be as pure as possible. The larger the granulate the better, since it is more elastic and the fluids can pass down through the mattress" says Jørn. "Most of the tyre recyclers we acquire rubber granulate from use Eldan equipment. As a highly demanding customer of the rubber granulate it is urgent for us to know what we get. Eldan recycling equipment has a great reputation within the industry. When we purchase rubber granulate produced in their equipment we know that we get granulate which is 99,9% free from steel and textile. This is of utter importance to us since we want the filling to be distributed evenly and not to clot in the mattresses. The vulcanized rubber granulate has water resistant properties, therefore the water activity is kept at a low level, in order to hinder the bacteria from growing." Erri Comfort containing rubber granulate is today exported to Germany, Italy, Spain, Greece, Chile and the Scandinavian countries. >



*“...by acquiring Eldan equipment we knew that we would get great Danish quality in regards to both the machinery and service.”*

Jørn Erri, Founder of Erri-Comfort,

#### Cow Mattress including PE (polyethylene) foam

In 2006 Erri-Comfort decided to expand the production program to also include Cow Mattresses filled with PE (polyethylene) foam. Within the wind mill industry, PE foam is used to ensure a stable construction in the foundation of the wind turbines. Only desired forms are cut from the PE foam sheets. This means that the majority of the sheets, which is not used, is considered waste. Since PE foam has many features which are well suited for the environment in a cow stable, Erri-Comfort decided to downsize the waste PE foam into a suitable size for filling cow mattresses.

In 2006 a Fine Granulator (FG952) and a Tumble Back Feeder was acquired from Eldan Recycling. “We had heard good things about Eldan since we already at that time purchased rubber granulate for the cow mattresses. By acquiring Eldan equipment we knew that we would get great Danish quality in regards to both the machinery and service” says Jørn.

“The patented mattresses, filled with PE foam, have been a great success. We have not even started to market them, yet we send sold mattresses the same day they are produced” says Jørn. “I assume that it is since there has been more focus within the industry on the correlation between the health of the cow, and the amount of milk and calves they produce. If healthy animals give you a greater yield, then health become more important than before.”

#### Provide the cows with comfort, and they will pay with higher yield

It has been documented that content and healthy cows produce more milk. Research has also shown that cows which are rested and feel better are able to give birth to more calves, and undergo more lactations than the average. In Denmark the average number of lactations (and calvings) per cow is 2,5. By using the cow mattress the number increase to about 4 lactations (and calving’s). Happy cows will give you a higher yield!



In this picture:  
To the left without the cow mattress,  
to the right with the cow mattress

Erri-Comfort A/S  
(Danish Genetics A/S)

Skærbæk, Danmark

Erri-Comfort A/S was founded by veterinarians specialised in diseases of cattle. They aim at preventing diseases and improve production in dairy herds. They produce a great part of our products ourselves and they are able to optimize in accordance with the newest practical results.

Their objective is to obtain the best result for your herd by providing the best possible advice as well as well functioning products to the most acceptable prices.

# Turn your *huge mining tyres* into rubber granulate or powder

Being a veteran within the industry with more than 20 year experience from recycling of tyres, and having installed over 200 tyre recycling plants, we thought it might be time to find a solution to the largest tyre problem of them all – mining tyres! Eldan can now turn your huge waste mining tyres into reusable rubber granulate, powder and clean steel cord...

## A solution for a large problem

Eldan has a long history within recycling equipment for turning car and truck tyres into a reusable material of high quality. In 2011 Eldan was faced with a huge problem; recycling of mining tyres. "We were contacted by a new customer, who had been searching for a solution to process mining tyres for a long time. By combining our tough equipment and our long proven technology, we presented a solution to the customer. During the autumn of 2011 we did a very successful test run with their tyres in it" says Bjørn Laursen, product manager for tyre recycling at Eldan Recycling. "Since this first test run, word has spread, and we have received many quote requests from interested customers. We have once again managed to turn a huge waste problem into a cost beneficial business."

## The mining tyre system

The mining tyre recycling system can process mining tyres of typically 3-4 meter diameter and weight 4-6 tons per tyre, at a capacity of approximately 4-6 ton per production hour. The mining tyres are first handled and pre-cut by a heavy duty demolition shear into pieces which fit the in-feed of the Eldan Super Chopper

(SC2109T), which is especially designed to process voluminous and tough waste. In the Super Chopper, the big pieces of mining tyre are processed into tyre shreds, and free steel wire is liberated and removed from the shreds by a powerful Overband Magnet. The tyre shreds are then further processed in the standard Eldan granulation and separation plant. Depending on your specific requirements a high quality rubber granulate and clean steel wire can be produced.

Since the special mining tyre recycling system is combined with the standard Eldan tyre recycling systems, the output can like in regular tyre recycling be decided according to the customer's specific

needs upon output granulate size and quality.

The quality on the output rubber is today very high - up to 99,9% free of liberated steel and textile in the standard plants. By adding a quality upgrading system it is possible to produce "black gold" - which is rubber powder up to 99,99% free of liberated steel and textile, and 100% free of metals, glass and stones. If desired the liberated steel wire can be further cleaned into a steel fraction which is 99% free from foreign material, as textile and rubber. It has a heavy weight density of +700 kg/m<sup>3</sup>.



## Knowing your equipment

Universal Recycling Company is a true family owned scrap dealer. Their main business is to buy scrap metal and waste, including aluminium, cable (lead, jelly and copper) and electronic waste (WEEE), and then sell the reclaimed and refined output material. The company has however taken their recycling facility a step further. Instead of using the standard recycling solutions which Eldan Recycling offer, they have created their own recycling system consisting of single Eldan machines and systems. Depending on the type of input, the material is transported between suitable machines, to get the desired output. The same machines and equipment can therefore be used for processing different types of material.

*"The first piece of equipment we purchased from Eldan was a cable stripper. The machine and I basically started to work at the company at the same time, and still today the both of us are still running better than ever."*



Charlie Hughes, Founder Universal Recycling Co.

#### Generations in the scrap industry

The foundation to what today is Universal Recycling Company was set over 70 years ago. In the early 1900's, Charles Arthur Hughe was involved in trading scrap on a part time basis. At the end of Second World War his son, Charlie Hughes , became fully involved in the industry by founding the company and started to process and recycle rags. The recycling of rags and some steel scrap, formed the foundation of Universal Recycling. Over the past 70 years, much has happened at Universal Recycling. The company has left the rag industry, and focused on metal trading and recycling. Today the main business is to process aluminium, copper cable (lead covered, steel armoured as well as jelly filled) and electronic waste. The company is still family owned and managed, currently employing three generations of Hughes.

Charlie Hughes has worked at the company since it was founded. At that time he was 16. Currently, at the age of 83, he is still active within the company but has turned over the everyday tasks to two of his children; John Hughes and Lisa Pickering. Lisa is head of accounts, and focuses on the financial issues of the company, while John is managing director and handles the commercial parts of the company. John's son, James Hughes, also work within the company, mainly buying and selling material, but also handle shipping at his father's side.

Lisa's son, Charles Pickering, is responsible for buying material and the company marketing.

#### From soft to hard cash

In the middle of the 1970's Universal Recycling caught attention to the rising piles of waste cable, and the continuously increasing metal prices. The business potential within this field made them investigate the market for equipment which could turn this pile of waste into valuable material.

Through Morrison Marshall & Hill Ltd (today known as MMH Recycling Systems Ltd.), who specialise in providing new and used recycling equipment to customers worldwide, Universal Recycling got in contact with Eldan Recycling equipment. In 1974 they purchased their first cable stripper (M3) from Eldan (then entitled Laursens Maskinfabrik) for their facility in Doncaster. "The first piece of equipment we purchased from Eldan was a cable stripper. The machine and I basically started to work at the company at the same time, and still today the both of us are still running better than ever. Little did we know back then that the acquiring of that machine would be the beginning of a long mutual relationship" says John. ➤

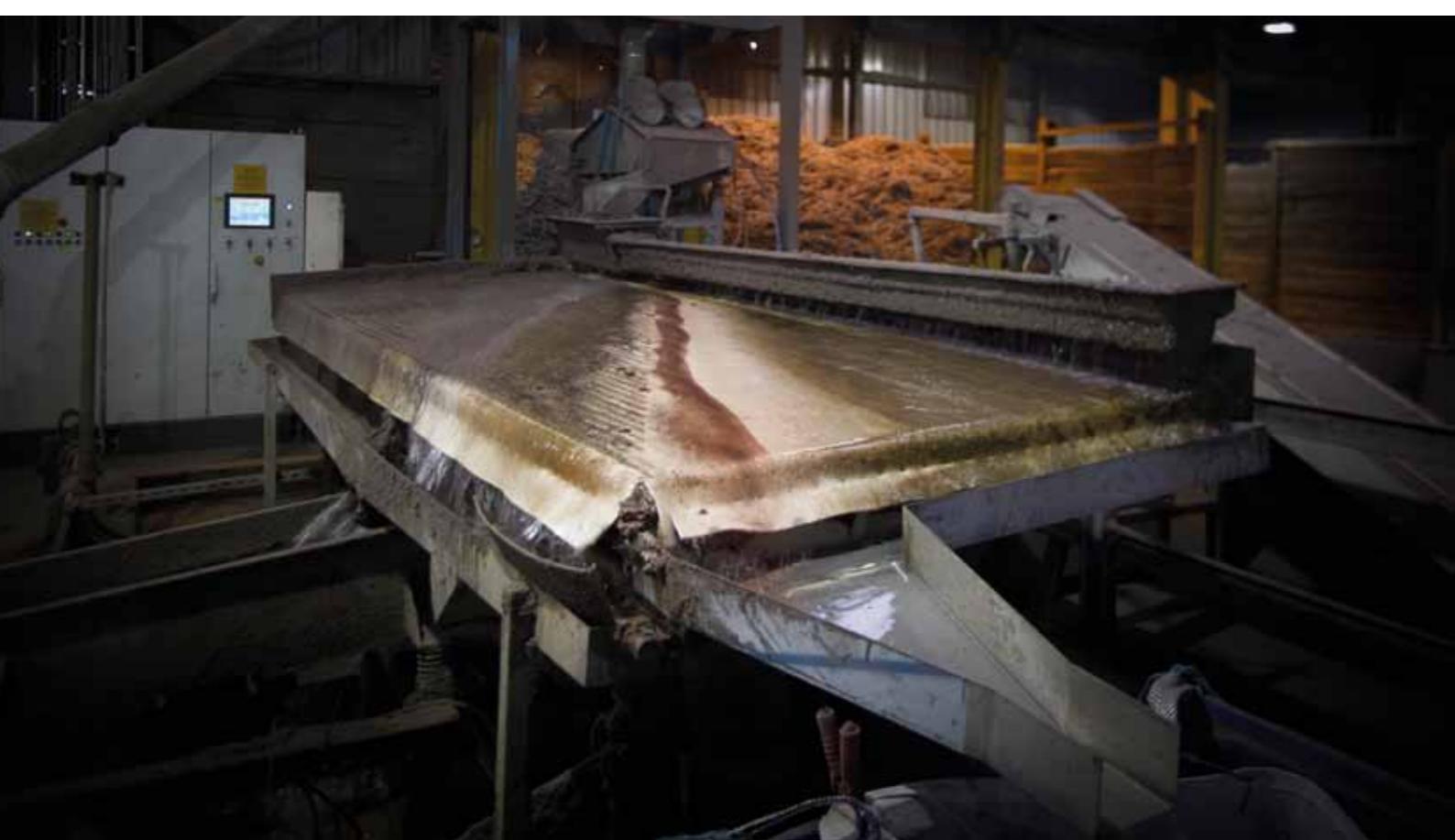
Over the years the company has expanded, locations have been changed, and most of the equipment has been added little by little. Today Universal Recycling Co. has for example the following equipment from Eldan;

- 5 pcs of Cable Strippers (M3)
- 3 pcs of Cable Strippers (M6)
- 2 pcs of ACSR (aluminium conductor steel reinforced) cable shear (M16)
- 1 pcs of Overband Magnet (DM1850))
- 1 pcs of Rasper (R800)
- 1 pcs of Rasper (R1200/R800)
- 2 pcs of Heavy Rasper (HR162)
- 1 pcs of Ring Shredder (S1500)
- 2 pcs of Super Chopper (SC1412)
- 1 pcs of Super Chopper-II (SC2118-II)
- 1 pcs of Pre-Granulator (PG1200-3)
- 1 pcs of Fine Granulator (FG1504)
- 1 pcs of Jelly/Greasy Cable Recycling Plant
- 1 pcs of Cable Granulation Line (including Silo (type V4 and SMV), Heavy Granulator (HG209), Fine Granulator (FG1504), Separation Table (C26) and Classifier (PC15))
- 1 pcs of WEEE Granulation Line (including three pcs of Silo (type V4 and SMV), Heavy Granulator (HG209), Overband Magnet (DM1850), two pcs of Heavy Granulator (HG129), Separation Table (C26) and Classifier (PC15T))

The majority of the equipment has been purchased as single machines, and not as standard plants which is usually the case with Eldan customers. The facilities which Universal Recycling has built up are better described as flexible recycling systems than regular recycling lines. The machines and granulation lines are used as separate units, and they are used for all different types of material received. The characteristics of the material (hardness, quantity etc.) decide which machines are used in order to produce the desired output size and quality. "This way of using the equipment makes us very versatile to the customers, and the plant is very flexible. The basic equipment is the Super Chopper-II and the Ring Shredder, and then the material merely goes on through the equipment depending on the material" says Charles. "We know that we have a unique concept here, but for us this is the natural way of using the equipment. It is all about getting to know the equipment, and what it can do for you."

After more than 70 years within the recycling industry it would be interesting to know what the largest change within the industry has been. One would imagine it would be being to recycle more kinds of materials, or being able to separate them more thoroughly, but the answer is not that obvious. Charlie has an immediate answer: "The women are the largest change within the industry! When we got into the industry, much of the work in recycling was heavy manual labour. Since then there has been so much development in the equipment aiding this process, that the work is not as heavy today. The factory and lorry work is today pretty much as open for women as for men." ➤





*"...you would never buy a Ferrari and not do service on it regularly. We have some of the Eldan equipment which has been up and running for 20-25 up to 35 years, and it still looks good and works well."*

John Hughes, Co-Owner/Manager,  
Universal Recycling Co.



of computers and other electronic equipment legally and fittingly. The electronic waste is downsized and separated into its core components (metallic, plastic and ferrous) utilising the air and water separation plants. The output material is then further processed at the facility.

One of the main goals for Universal Recycling is to maximize reclamation, and at the same time making minimal impact on the environment. They achieve this by effectively recovering all plastic and ferrous metals.

#### **Processing cable, aluminium and electronic waste**

Within cable recycling Universal Recycling sell and process all types of aluminium, copper and lead covered cables into high quality granulated products such as PVC and copper granules. The cable stripping equipment is able to produce high quality copper wire mainly from lead covered copper cables. The stripping machines separate the copper, plastic, and paper coverings so that the lead can be sent out to clients at the highest quality. Universal Recycling can also recycle jelly/greasy cables.

The company moreover buys and sells aluminium scrap in any form and quantity. At the two recycling facilities they are able to process larger quantities of aluminium scrap for both UK and international markets.

Since computer recycling is regulated by the Data Protection Act 1998 WEEE (Waste Electrical Electronic Equipment) directive to ensure secure disposal of sensitive information, as well as by the WEEE directive to ensure environmental efficiency, there are many regulations which have to be fulfilled in order to be a licenced computer recycler. Universal Recycling recycle all types

**Listen, learn, develop, listen, customise...**  
The relationship between Eldan and Universal Recycling is build upon sincerity and service. "We have a great relationship with Eldan and our primary contact, Jan Kjær. Eldan listens, learns, develops and customises according to our needs and wants. We know that Jan would never make a promise that he can not keep, and this makes us feel safe with the company" says John.

Having been in business with each other for more than 35 years, the feedback which Eldan can receive from Universal Recycling in regards to the equipment and service is

of utter importance. "The Super Chopper-II is our favourite machine, and we have renamed it "Charlie's Chopper". It was actually developed by Eldan together with Universal Recycling" says Charlie. "I remember seeing a first prototype of it, which basically consisted of two regular Super Choppers put together. When we test ran it the first time, my immediate response was *We buy it*. It has been running like clockwork since."

Charlie and John are thorough in pointing out that they do regular maintenance on the equipment. "A break down on the equipment is expensive for us since we run it 12 or 24 hours a day. Great and reliable service from our business partners is therefore of utter importance. We need to know that service personnel or spare parts basically are already on its way if production stops" says John. "I mean, you would never buy a Ferrari and not do service on it regularly. We have some of the Eldan equipment which has been up and running for 20-25 up to 35 years, and it still looks good and run well."

"Since Universal Recycling can run the different materials parallel, it is basically possible to run all of the equipment at the same time. You can not find Eldan machines working harder anywhere else" says Jan Kjær, product manager at Eldan Recycling. "It is impressive to watch!"

The Jelly Cable Recycling Plant was also developed by Eldan together with Universal Recycling. Charlie and the former managing director and owner of Eldan, Steen Laursen, developed it together at the previous Universal Recycling facility in Newcastle. "If we found things on the plant which could be improved, we told Eldan and they made modifications accordingly" says John.

Today Universal Recycling has at least 22 machines and 2 additional plants from Eldan. "Since they basically have all of our equipment; Cable Strippers, Raspers, Super Choppers, Granulators, Separation Tables etc. – we often use them as a reference plant. It is also particularly interesting to show our customers a different way of processing material. Not merely putting it into the line at one end, and getting the separated material in the other. Depending on the material, they use the equipment needed to get the best end result" says Jan.

### Practice makes perfect

Today Universal Recycling process approximately 6,500 ton scrap per month. The main business is cable processing, which accounts for approximately 850 ton of scrap cable weekly. 400 ton of the weekly processed material is aluminium and the rest, approximately 350 ton weekly is WEEE. The cable and WEEE granulation parts of the plant are run 24 hours a day, 5 days a week. The shredding

and chopping part of the plant is due to a higher capacity merely run 12 hours a day, 5 days a week. They have two locations, in Yorkshire and Lancashire, which are used as both scrap yards and recycling facilities. Each month the material turnover is approximately 7,000 ton.

The competition for collecting cable, aluminium and WEEE scrap in the UK is very intense. "In contrast to the few large recyclers which are common in for example Germany, there are many smaller recyclers in the UK, which all take a small piece of the large recycling cake. I think a main reason for this is that UK and Ireland are islands, and therefore it is not as easy to trade large quantities of material with the main land Europe" says John. "Since the amount of material to recycle is limited, companies might be hesitant to make a large investment which a high capacity recycling plant means."



Being able to put such a large facility together, as Universal Recycling has, requires a large investment. This has been possible due to the company making sure that the profit is reinvested. All profit gained through the company has been reinvested in the recycling facilities or properties. The investments have paid off, and even though the competition is tough, it is going very well for Universal Recycling. At the moment they have 20 Universal Recycling trucks circulating over 300 pick-up points and customers across the UK. "By investing in Eldan equipment, we have through the years built up an efficient facility which enables us to process larger quantities of scrap metal" says John. "By running an efficient plant, with minimum treatment charges, we can offer highly competitive prices within the industry for scrap non-ferrous and ferrous metals of any type and quantity. We currently operate two scrap metal recycling sites which are both fully licensed. We regularly pick-up scrap from merchants and electronic manufacturers and have a standing contract with British Telecom. The output material is sold to UK, Europe and Far East." >



Lisa Pickering

By combining passion with experience they have been successful in reducing the amount of waste sent to waste treatment (i.e. landfill). "We have tried to minimize the waste we send to waste treatment – i.e. landfill. Both my mother and I are very interested in horses and riding, and through that passion, and the right connections, we discovered that the previously discarded waste from the jelly cable plant could actually be used as artificial ground for horses at arenas. Mixed with wax it becomes a product which is outstanding for that purpose, and superior to others on the market" says James. "We also use plastic from the cables and the PVC bi-products as moulding for traffic cones. By merely combining our passion and curiosity, we have succeeded in lowering the amount sent to waste treatment to approximately 1% of the incoming waste. We save money on the material which we do not have to pay to get rid off, and earn money on the products which we do sell!"

James certainly knows what he is talking about, as he has represented England at international level several times in show jumping events. The equestrian surfaces are designed to help prevent freezing in cold weather and are suitable to mix with sand for application in both indoor and outdoor arenas and gallops. The company supply this material to many of the largest equestrian surface specialists in the UK, as well as to the public on a large scale.

### Community, experience and passion...

The secret behind a successful company is the people who set it up. "We believe that it should be fun to come to work. It is a family business, and even though most of the staff are not related by blood, we still want to have that warm family feeling when coming to work" says Charlie. "You can say that community, experience and passion are the foundations of Universal Recycling."

Lisa Davey has been working as an Account Manager for the past 5 years and really enjoys coming to work. "It is a really great feeling coming to work knowing that the people who you meet there are not only your colleagues, but also your friends. This feeling of community also actually pays off. During the years I have been working here, the company has grown a lot. I think that the size of the company has doubled during that time!"

"In regards to purchasing material, we have become more aggressive in order to get the material we want. At the moment electronic waste is the most important recycling area for us. Cable recycling is however an easier area, with a good return on investment. We also get more aluminium now than previously" says James. "We are very versatile in which material we can accept."

### Universal Recycling Company

**Employees:** 150 people (of which 8 people in office)

**Founded:** 1945

**Located:** Lancashire and Yorkshire

Universal Recycling Company trade ferrous (steel) and non-ferrous (copper, aluminium, lead, nickel, brass, bronze, stainless steel and catalytic converters) metals including recycling of aluminium (including aluminium profiles), electronic waste (WEEE) and cable (lead, jelly and copper).

Customers include e.g. Scrap Metal Merchants and Cable and White-Goods Manufacturers

Universal Recycling Company has a permit to process 70,000 ton WEEE a year.



## Eldan's experience - saved the investment

Treadcraft Limited is a Canada based tyre processor focusing on turning medium truck tyres into all-black crumb rubber and scrap steel material. When the company was founded in 2007, they got into a troublesome start when acquiring equipment, from an unnamed manufacturer which did not deliver what had been agreed.

However, after advice and some additional equipment from Eldan, Treadcraft Ltd. is now processing better than initially was promised. ➤

### Looking for superior equipment

Seeing great potential within the tyre recycling industry, Treadcraft Limited, Dunnville, Ontario, was founded in 2007 from a small group of local partners. Their business unfortunately got off to a slower start than expected. "We initially had purchased a processing line which when finally delivered to us was not capable of doing the job as advertised" says Terry Gilmore, President of Treadcraft Ltd. "We were not the first company to have problems with this unscrupulous equipment manufacturer which I will not name."

Stressed to start production, Treadcraft Ltd had to face delayed equipment which did not fulfil expectations in regards to production capacities and quality. "We were fortunate enough to be introduced to John Crowley from Eldan Inc. not long after we had spent many months struggling to get the initial equipment up and running" says Terry. "While we did have some very limited success with it, John could see that it was a dead-end road for us. John had the courage to sit down with us and tell us what we did not want to hear, that our investment was going to be a failure. He also was able to provide us with some solutions which have worked out fabulously for us."



### Finding a marvellous solution

By listening to Treadcraft Ltd., and realizing what their problems were, Eldan was able to find the most suitable solutions. "Unfortunately Treadcraft is not the only company which has become the victim of unscrupulous players in the industry" says John Crowley, sales manager at Eldan Inc. "We recommend anyone who is about to invest in a recycling facility to visit references plants, and talk to actual customers directly. It is a large investment, and it is vital that you are sure that you get what you have paid for." Instead of closing down production Terry was determined to prove the investment not to be in vain. He had learned from previous mistakes, and reviewed the Eldan solution scrupulously.

In 2009 the company added to its tyre recycling facility, by acquiring an Eldan Multi Purpose Rasper (MPR120) with multiple sized screens. With this machine, they would be able to process the pre-chopped medium truck tyres at approx. 4 ton per production hour producing 20 mm tyre chips.

"In October of 2009 we took delivery of a MPR 120 Rasper to add to our existing equipment. This machine turned our failing line into something productive and our throughput increased dramatically" comments Terry. "The machine is very easy to work on and cost effective to operate. We did some research on other types of machinery and finally settled on Eldan Inc for our new equipment. We didn't stop here."



### Trusting proven technology

Within one year Treadcraft Ltd. also purchased an Eldan Fine Granulator (FG952) equipped with multiple sized screens. The Fine Granulator would process the debeaded truck tyres coming from the Multi Purpose Rasper – at the time approx. 4-8 mm rubber granulate free of steel and textile. The production capacity would be approx. 900 kg input per production hour based on an average output size of 0-2.5 mm.

Three years after founding the company the production was finally able to process at the initially intended capacity. "In October of 2010 we took delivery of a FG952 Fine Granulator and pneumatic transfer system. We replaced our 2 existing inefficient grinders with this machine and incorporated it into our line" says Terry. "Everything meshed perfectly and we were finally able to achieve maximum throughput for our machinery."

### Proven processing technology

In the beginning of 2012, Treadcraft Ltd. decided to add another Fine Granulator (FG952) that would operate under the same conditions as the one purchased in 2010. By doing this, the facility will increase production and offer more flexibility to their customers. "Last month we placed another order with Eldan, Inc. for an additional FG952 Fine

Granulator to give our line maximum versatility so that we can supply a wide variety of crumb rubber grades all in one pass; rather than re-running some material as we occasionally do now. Since we already have a FG952 the synergies with the additional machine will work well with our parts and maintenance program" says Terry.

"We have had a lot of success with your MPR120 Rasper and FG952 Granulator. The ease of safely and efficiently maintaining this equipment keeps our downtime to a minimum, and the customer service we've received has been outstanding" says Lance Bolduc, Treadcraft Ltd., General Manager. "Testimony to such service from Eldan reminds me of when we experienced a situation that damaged all the fly knives and knife holders in our MPR120 Rasper. Thinking the worst, that we would be down for days/weeks, only to find out that really wasn't the case. That morning, we were able to easily get in touch with Rick Bowman (Eldan Inc., Parts Manager), we then learned all parts were in stock and ready for immediate delivery. With our plant being so close to the Eldan Inc. warehouse, we had the Rasper ready for production the same day".

Eldan has been active in North America for more than 30 years. During this time, much valuable experience has been gained, which customers benefit from buying equipment from the company. "There is a large difference in customer requests within the recycling industry comparing Europe and North America. In Europe it is all about trading with complete systems, while it is more common to deal with single machines in North America. Therefore we are used to looking at equipment from other manufacturers to see what our Eldan equipment can offer in that setting" says John. "You can almost say that Eldan is the best kept secret within the recycling industry in U.S. Currently eleven of the twelve of the largest tyre recyclers in U.S. are using Eldan recycling equipment!"

### Grateful customer with a bright future in sight

One main reason why Eldan has become so successful worldwide is a close mutual relationship with the customers. Keeping the customer happy and satisfied has always been the main focus. "Treadcraft is very grateful for all ➤



*"...we were finally able to achieve maximum throughput for our machinery."*

Terry Gilmore, President, Treadcraft Ltd.

the support we have been given by John Crowley and his staff here in North America, and also to the Eldan President and staff in Denmark who I have had the privilege of meeting on several occasions" comments Terry. "We are deeply grateful to Eldan Inc. for steering us through some very difficult period in our brief history."

The future is looking very bright for Treadcraft Ltd. and Terry comments; "We look forward with optimism for a long and mutually beneficial relationship between our two companies going forward. I have the highest level of respect for all the management and staff at Eldan Inc. and highly recommend them if you are looking for a successful partner in the recycling business."

### Treadcraft Limited

Dunnville, Ontario, Canada

**Founded:** 2007.

**Employees:** 10 people full time

Treadcraft processes exclusively medium truck tires into all-black crumb rubber and scrap steel material.

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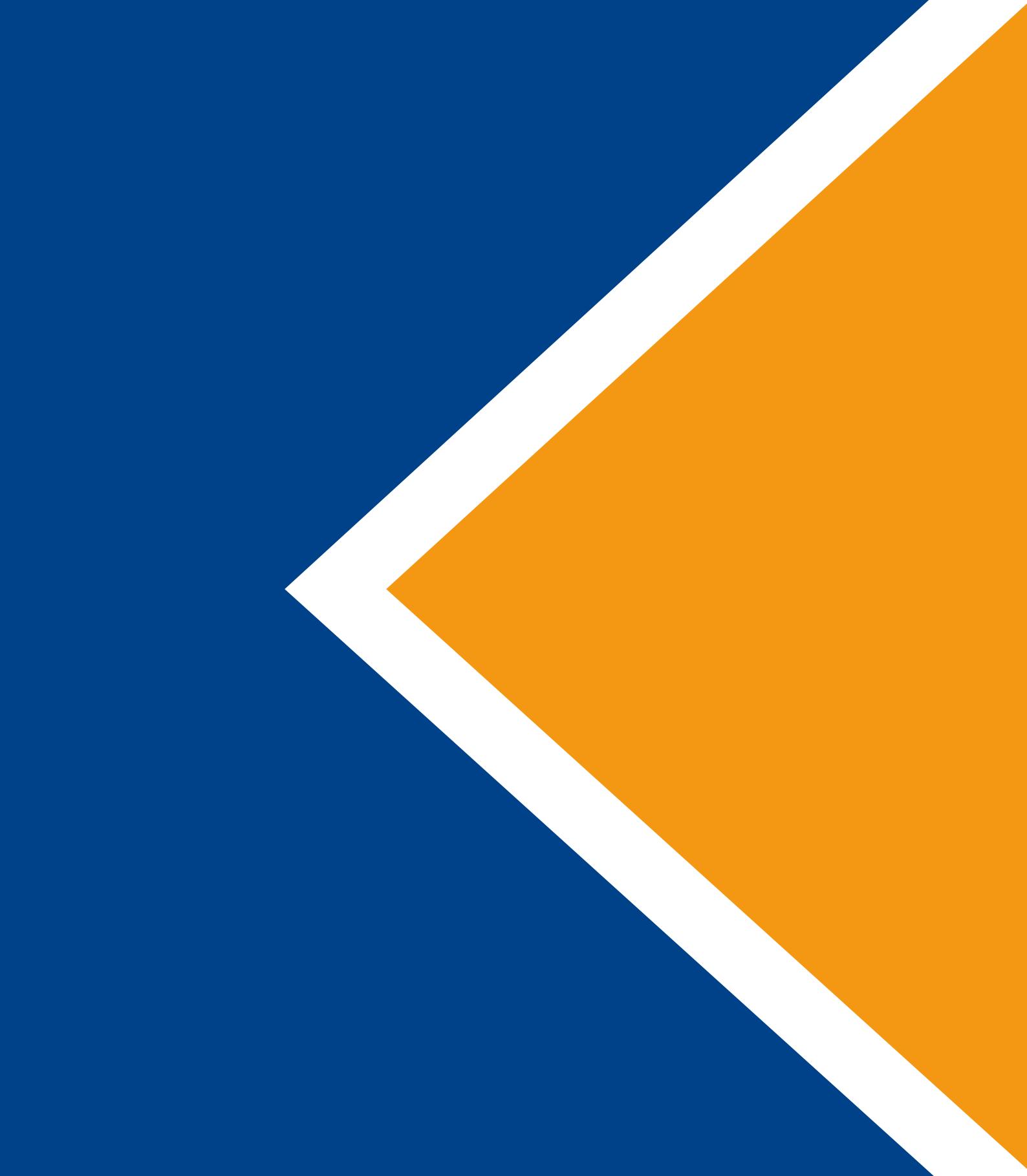
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