

The REMONDIS Group magazine

# REMONDIS AKTUELL

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AKTUELL

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## China's import ban – Europe's opportunity

How the European recycling economy  
can make a virtue out of a necessity

### Welcome in Denmark

REMONDIS takes over one of Denmark's  
leading recycling companies with M. Larsen

### TSR launches sustainability certificate

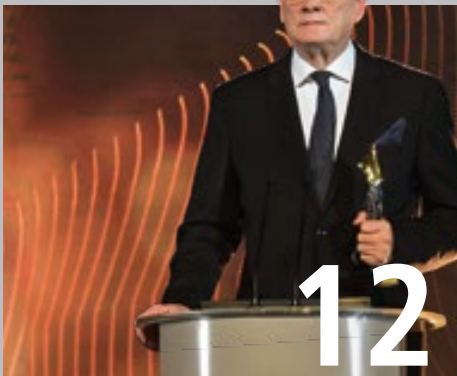
The metal recycler is offering partners and custo-  
mers an official seal of quality on their contribu-  
tion to environmental and climate protection

### German Sustainability Prize for bio fuel cells

The sewage treatment plant in Goslar  
is being turned into a pilot facility for  
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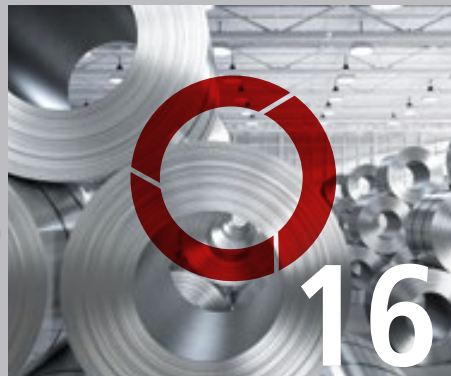
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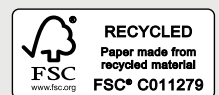
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Egbert Tölle, REMONDIS Board Member

**Dear Readers!**

When looking at the news over the last few months, one could gain the impression that we are witnessing the beginning of the end of global business. In addition to social stability, the aim and objective of any rational government policy must nevertheless be to secure and wherever possible augment the prosperity of citizens. Trade barriers and isolationism lead in the opposite direction. That is why the punitive tariffs or even the Brexit are not the best option. We do not need less globalisation, but rather more if together we are to meet the global challenges of the future. At least the compromise that has now been achieved between the EU and the United Kingdom would appear to offer a very promising temporary solution.

“Tomorrow starts today”, is a slogan at REMONDIS, and as a leader in water management and recycling, we and our roughly 32,000 staff members work day in day out so as to preserve the planet as a hospitable place with a high quality of life for coming generations. To this end, we need open borders and as few barriers as possible to business at the international level. REMONDIS is a global player. We provide solutions for our industrial and municipal customers transnationally and efficiently while leveraging considerable synergies. The services we offer are both rooted at the regional level and networked internationally and are unique in terms of their variety in the water management and recycling business. REMONDIS develops many different segments at the same time and ascribes to the principle of vertical integration. Our customers have access to a combined service portfolio ranging from the collection, treatment, recycling, recovery, transport, logistics and water management all the way to industrial services in the area of repair and maintenance. Our customers and partners profit from this, thereby making a contribution to environmental and climate protection.

Environmental protection and raw materials management are transnational. From this angle, one could see the Chinese ban on imports of dirty plastic waste, electronic waste, waste paper and additional waste fractions as a major opportunity. With its clear raw materials strategy, the Middle Kingdom is forcing the European recycling industry to change directions. To do this, Europe needs to redouble its own efforts, however. An eco-design directive for the recyclability of products should force all manufacturers to design their products in such a manner so that they can be 100% recycled at the end of their life cycle. The recycling industry should raise the quality of all recycled material to the primary level by means of greater investments in better sorting and recovery as well as innovative new processes. In this regard as well, REMONDIS has been underscoring its role as a leader in innovation with targeted investments. One very promising new strategy is to return plastic waste to its original chemical state, so-called chemical recycling. And last but not least, policy-makers should create a system of economic incentives to foster the use of recycled raw materials by industry. The best raw material is of no use if nobody is interested in buying it. Each and every municipality and city can serve as a good example in public tenders already now and prioritise the advantage to the climate instead of focusing only on the lowest price.

REMONDIS is at present leading the way by serving as a role model and investing in new plants and equipment.

We hope you enjoy reading the new edition of REMONDIS aktuell.

Yours truly,

Egbert Tölle

# CHINAS BAN ON IMPORTS

Europe's opportunity



## HOW THE EUROPEAN RECYCLING ECONOMY CAN MAKE A VIRTUE OUT OF A NECESSITY AND HOW REMONDIS IS LEADING THE WAY AS A ROLE MODEL

China has a clear strategy when it comes to raw materials. It is not just the fact that the country has been on a shopping spree for years in the newly industrialising and developing countries of Africa in order to secure direct access to raw material reserves there. Last year the Middle Kingdom announced that it was investing an incredible 900 million dollars for the construction of a new Silk Road. Already today, one branch of this modernised and as a result resurrected trade route ends in the freight rail station in Duisburg. The countries bordering on the new Silk Road are rejoicing over unexpected growth prospects. But it is also evident that the Silk Road is no one-way street. China is sending us its finished products and over the long or short run will be intent on bringing back supplies of raw materials to China. Neither the EU nor the USA have had any comparable strategy regarding raw materials thus far. There was considerable initial confusion, then, when the Chinese Ministry of Environment notified the World Trade Organisation on 18 July 2017 in letter WTO 17-3880 that it would be imposing a ban on imports of 24 types of waste to commence at the beginning of 2018.

Plastic waste and ground plastic material, unsorted waste paper with more than 0.5% impurities, metallic slag and ash, textiles and even electronic waste and PET bottles were placed on the list of undesirable materials. At a more abstract level, the question arose as to whether the Chinese dragon was sated or simply interested in better food, i.e. pure-grade raw materials. Whatever

the case may be, with this unprecedented move China has ratcheted up the political and economic pressure on Europe and other parts of the world to take action. But every crisis also harbours an opportunity. If the right steps are taken now, the crisis gripping the sale of plastic waste and other material can turn into a real boon for development of the European recycling industry.



The dragon wants raw materials, not waste



Germany has been exporting up to 750,000 tonnes of plastic waste every year to China, somewhat less than half of the total amount of material to be recycled that accrues in this country. By the same token, the quantities that are already pre-sorted by households from the “yellow bags” and “yellow bins” of the Dual System pose the least problem. Separating packaging material that has already been effectively pre-sorted using machines already at present produces virtually pure material flows, which German and European industry readily accept as raw materials. Primarily mixed plastics were exported in the form of ground material, finished granulate as raw material, which is produced in Germany from waste, PET bottles as pure raw material for the Chinese textile industry, foils and other plastics collected from commercial waste.

Thermal utilisation, which is still excessive, is to be significantly decreased under the new packaging law. At the same time, the material recovery rate applying at present, 36 per cent of plastic waste, is to be raised to 63 per cent by 2022. Parallel to this, the European Union is working on a new package for the closed-loop economy with the aim of significantly boosting material recycling quotas in the Member States. With regard to commercial waste as well, the new Commercial Waste Ordinance is having an increasing impact, forcing companies to keep waste separately for the purpose of achieving higher levels of raw-material recovery.

In this hopeful context, China has now imposed a ban on imports, striking one something like a rampaging “bull in a China shop”. The economy is booming, even exacerbating the problem, as more consumption also means more plastic waste. If China now accepts less plastic waste, this raises the question of where all the waste is to go to. The solution can only be to strengthen German and European recycling efforts in order to keep cleanly processed raw materials in a closed-loop production cycle. But for this to happen, there also need to be better incentives for customers, as the best raw materials are of no use if nobody buys them. Even German industry – which after all leads the world in the use of recycled material – only meets 14 per cent of its raw material requirements with recycling at present. Not bad, but there is considerable room for improvement. To turn China’s ban on imports into a win-win situation both for industry and the recycling economy, a concerted compendium of measures is required, with three essential thrusts.

### **The triad of the future: new specifications of an ecodesign, a high level of sorting quality, a system of economic incentives for recycle**

What must be done in order to equally satisfy the needs of the environment, consumers and industry? There are already good ideas and well-intended policy strategies. They only need to be resolutely extended, expanded and supported politically with clever incentives in order to turn the crisis into an opportunity along the lines of a three-sided win-win situation. It is with this in mind that REMONDIS is banking on a three-pronged initiative with the objective of forging a closed circle out of the linear approach characterising this field of business to date. The first prong targets product design:

#### **1. New specifications for ecodesign directives**

Present-day Ecodesign directives are largely limited to the energy efficiency of products. Household appliances and other consumer products are merely measured in terms of their energy efficiency and degree of utilisation. On top of this, aspects like emission limits, usability and requirements applying to product information for consumers are also taken into account. What has not played any role thus far is raw material efficiency.

To point the recycling economy in the right direction for the future, an ecodesign directive should therefore be expanded to include the aspect of raw material efficiency. In other words: All products have to be conceived already in the development and design phase so that at the end of the product life cycle as close to 100 per cent as possible of all of the raw material contained in it can be recovered and recycled.

To offer maximum transparency to consumers, the enclosed or printed product information should contain a recycling efficiency label in the future, analogous to the established colour bar diagram for energy efficiency. This allows one to quickly recognise how easily a product can be recycled and what percentage of the product is made out of raw materials that have already been recycled.



Individual initiatives are no longer enough. Concerted action involving policy-makers, the recycling industry and manufacturing is needed now

## 2. More investment in better sorting and recovery quality as well as research & development

REMONDIS is leading the way here once again and already now investing in new sorting and recycling plant and equipment, for example at Europe's largest centre for industrial recycling, Lippewerk in Lünen, where in addition to a new compost plant with biogas production there are also extruder lines for the granulation of plastic as well as for foil production from recycled foils in 2018. At the same time, REMONDIS is building one of its biggest and most efficient sorting facilities for recyclable material from the Dual System in Erfstadt, a suburb of Cologne.

Generally speaking, Germany and Europe have to invest more in optimal sorting and recycling in order to boost the quantity and quality of recovered raw materials. Only in this manner can recycled raw materials become an attractive alternative both in terms of price and quality for manufacturing while at the same time reducing pressure on the procurement of material.

The plastic industry and recycling experts largely agree, however, that existing processes alone will not suffice over the long haul. It is with this in mind that REMONDIS is banking on inter-industry cooperation in the development of new processes, above all in the area of plastic recycling, as the range of applications for the original raw material, naphtha or methane, is reduced significantly with each recycling process due to specific material properties. The silver bullet would for this reason be to separate plastic waste into its basic building blocks once again.

### A solution: chemical recycling

With so-called chemical recycling, all suitable plastic waste is broken down into reusable polymers, monomers or premium-grade fuels by means of a chemical process. At the same time, these are pure, primary-grade raw materials without any impurities or rejected material whatsoever. To do this, plastic waste has to be separated from residual waste and foreign substances and cleaned before being sorted into the respective type of plastic. In the ensuing transformation into powder form by means of cryomilling, the material is reduced to grain sizes ranging from several hundredths to a few tens of millimetres.

In the further course of the procedure, there are various technical options. At present, experts consider catalytic cracking to be the most promising method for chemical recycling in economic and ecological terms, however. Here, a suitable catalyser is used at moderate temperatures to produce a relatively narrow spectrum of hydrocarbons with relatively short chains. It is relatively easy to synthesise this raw material into a large number of new plastics. Nevertheless, research and development still face several challenges, for example with regard to suitable catalyst materials.

Chemical recycling of plastics has the potential to solve some of our most pressing environmental problems over the long term

## High recovery rates

In 2015, almost  **99%** of all plastic waste collected was recovered

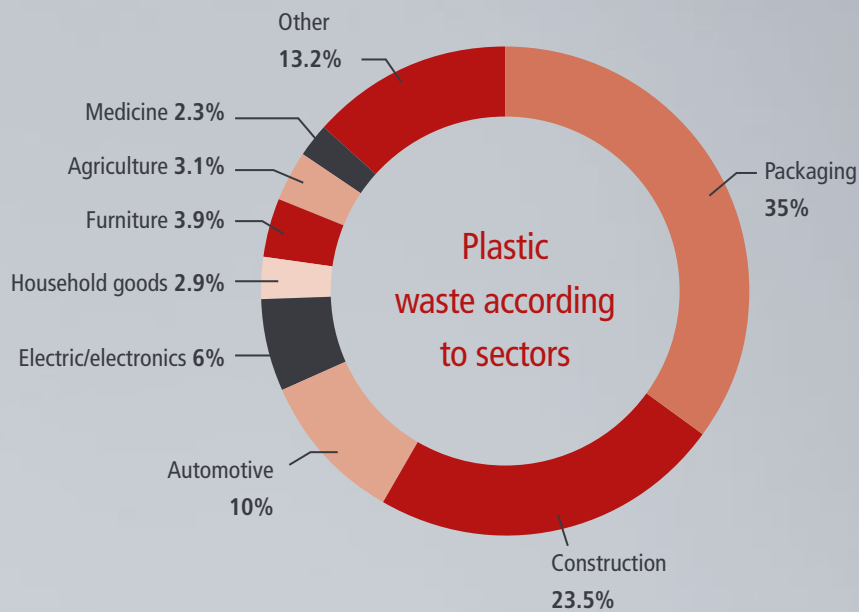
Of the 5.92 million tonnes of plastic waste, 2.74 million tonnes, or 46 per cent was used as raw materials

**2.74**  
million t



3.14 million tonnes or 53 per cent were converted into energy

**3.14**  
million t



Volatile raw material markets, requirements in connection with protection of the oceans and climate as well as increasingly scarce resources are making plastic waste an ever more important source of raw material. Expensive mechanical recycling with all its quality problems is at the same time running up against its limits. Over the medium term, chemical recycling will become the predominant form of recycling; REMONDIS is already actively involved in research and development of this technology at present.

### 3. System of incentives for industry

The best recycling material can only fulfil its purpose if there is a need for it in the market. At present, German industry merely covers 14 per cent of its needs for raw materials from recycling, most of it from metal scrap. There is thus considerable room for expansion here. REMONDIS is calling on policy-makers to launch a system of incentives to foster the use of significantly more recyclate in manufacturing. In addition to the ecological and social superiority of recycled materials, there are many reasons favouring this alternative. The use of more high-quality recyclate from the raw material source of domestic waste means less pressure on procurement and less dependency on volatile international raw material markets.

It remains the task of policy-makers to select specific steering and control instruments. Whatever course is set at the political level, one side-effect will be a strengthening of the European waste and recycling economy through efforts to promote recycling of raw materials. Already at present, this sector accounts for a quarter of a million jobs in Germany and is one of its biggest engines of growth. Ideally, raw materials would remain in Europe in the future and be kept in a continuous closed-loop cycle in primary quality. Human beings, the environment, the oceans, climate and the economy would all profit equally. In such a highly desirable trajectory, the public sector plays a key role. It has to lead the way in the areas of procurement and subsidies and assign preference to and foster the use of recycled raw materials.



This will not succeed without economic incentives for industry. Recycling materials must be promoted in a targeted manner



Europe's opportunity





After 38 years in top management:

# Reinhard Lohmann is leaving the RETHMANN Group

UPON REACHING RETIREMENT AGE, REINHARD LOHMANN HAS STEPPED DOWN FROM THE SUPERVISORY BOARDS OF THE RETHMANN GROUP AND ITS DIVISIONAL COMPANIES REMONDIS, RHENUS AND SARIA

In the RETHMANN Group, Reinhard Lohmann first held the post of commercial managing director, later going on to become CFO and then CEO. After leaving the board of management, he joined the supervisory board of the Group. He headed the supervisory boards of the three divisional companies SARIA, REMONDIS and Rhenus for many years as chairman.



Joined in responsibility in 2008: from left to right: Ludger Rethmann (CEO of REMONDIS), Reinhard Lohmann (CEO of the entire RETHMANN Group), Norbert Rethmann (Chairman of the Supervisory Board of the RETHMANN Group) and Klemens Rethmann (CEO of Rhenus)

Reinhard Lohmann at the outset of his career at RETHMANN. From left to right: Norbert Rethmann, Reinhard Lohmann and Dr. Hermann Niehues



A retrospective: One year after the appointment of Dr. Hermann Niehues in 1979, Reinhard Lohmann, another economist from the University of Münster, joined the company as commercial manager and later CFO and CEO of the Group. In comparison to present-day dimensions, the enterprise, with 288 staff members and revenue of DM 42 million, was much smaller at the end of the 1970s.

In the course of the later company history, a host of strategic decisions were made that laid the foundations for growth and success of the three divisional companies. In each of these weighty decisions, Reinhard Lohmann faced the task of ensuring that the financing strategy would be viable and administrative integration successful after the takeover.

At the farewell party, Norbert Rethmann, honorary chairman of the supervisory board and member of the supervisory board of the RETHMANN Group, also stated for the record: "Consisting of Dr. Hermann Niehues, Reinhard Lohmann and myself, a team of leaders coalesced in a field of highly creative and productive friction. The motivation was rooted in a philosophy of leadership that paid off again and again: delegating responsibility – including at the highest levels – in a trustworthy and challenging format and in this manner encouraging an entrepreneurial way of acting."

Reinhard Lohmann: "I have spent 38 wonderful years replete with wide-ranging experiences at this company. I would like to thank Mr. Rethmann and the family as well for allowing me to act so freely. This latitude and the possibility to change and shape things were of immeasurable value, and a real bonus in it all was that I was able to work with so many congenial persons. That was how it was at this company from the very beginning."

Since 1 January 2001, Dr. Hermann Niehues acting as CEO, Reinhard Lohmann in the capacity of CFO and Klemens and Ludger Rethmann serving as the additional members of the board of management have been at the helm of the company group. Hermann Niehues died on 7 September 2008 following a tragic horse-riding accident. Reinhard Lohmann succeeded him as CEO of the Rethmann GROUP on 1 October 2008. After leaving the board of management in 2015, Reinhard Lohmann remained with the Group, switching to the supervisory board.

In the words of Norbert Rethmann: "Mr. Lohmann, I would like to extend our thanks to you for your extraordinary work on behalf of the RETHMANN Group. You played a crucial role in this undertaking. Thanks to your entrepreneurial spirit and your acumen, not only in business administration, but also in terms of your interpersonal skills interacting with staff members, business partners and competitors, you have played a major role in shaping the history and corporate culture of the enterprise."



The members of the boards of management and supervisory boards of REMONDIS, Rhenus and SARIA at the farewell party in January 2018

# Velkommen til Danmark

WITH M. LARSEN, REMONDIS IS TAKING OVER ONE OF THE MARKET'S LEADING RECYCLING COMPANIES IN DENMARK

**REMONDIS®**  
WORKING FOR THE FUTURE



The region of Copenhagen is an important site and bridgehead to Scandinavia

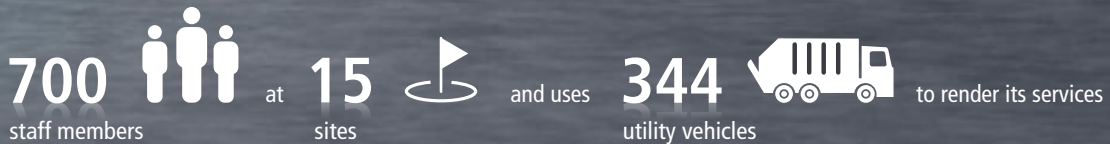
REMONDIS International acquired a majority stake in the company M. Larsen Vognmandsfirma A/S at the beginning of this year. REMONDIS already disposes over a broad network at sites in the fields of water management, the recycling economy and industrial services in Northern Europe. Also a family-owned company with a long, rich tradition from Germany, REMONDIS is the ideal partner for M. Larsen.

M. Larsen is one of the leading waste-economy enterprises in Denmark. The company was founded in 1947 as a family-run business in the field of waste recycling and is headquartered in Brøndby (Copenhagen). M. Larsen operates several sites on the islands of Zealand, Lolland and Falster as well as on the Jutland peninsula. The current owner, Claus Barslund, was looking for a strong partner with wide-ranging international experience in the field of recycling to foster the future strategic development of his enterprise. Mr. Barslund will be remaining with the company in the future as part of the management in order to ensure the continuity of M. Larsen's activities.

The acquisition offers REMONDIS the opportunity to strengthen its foothold in a country with a strong economy and very high standards in the area of the waste economy. REMONDIS has already been active in Denmark for many years in the field of metal recycling with its subsidiary TSR. The take-over provides REMONDIS the opportunity to further optimise the business model of M. Larsen, a highly reputed company in Denmark, and expand its market presence in Denmark and Scandinavia while strengthening a sustainable recycling industry. M. Larsen works both in the field of municipal waste removal as well as in the collection of commercial waste. In the field of municipal waste removal, M. Larsen offers services for a total of more than 1.3 million inhabitants. In the field of commercial waste collection, the company turns over around 100,000 tons of waste each year.



In Denmark M. Larsen employs a total of



Mr. Larsen employs almost 700 staff members at 15 sites in Denmark, using 344 commercial vehicles to render its services there. For the owner up until now, Claus Barslund, it is especially important that Mr. Larsen carries out its activities in the future as a family-run enterprise as well. As a result of the growing size and geographical expansion of M. Larsen's activities, he considers REMONDIS to be the right partner in order to meet challenges and effectively develop new business opportunities.

Hendrik Vonnegut, managing director of REMONDIS International, underscores the importance of Denmark to REMONDIS' business in Northern Europe. Mr. Vonnegut appreciates the high standards that M. Larsen sets in the area of the recycling economy and environmental protection. Mr. Larsen's notions of waste management and material recovery are very similar to those of REMONDIS already today. "With this acquisition, we have penetrated a market

**"With this acquisition, we have penetrated a market that is of enormous importance to our pan-European business strategy."**

Hendrik Vonnegut, REMONDIS International managing director

that is of enormous importance to our business strategy for Europe as a whole. We want to further expand our activities in the Scandinavian market with M. Larsen, and with our wide-ranging international experience also make a contribution to the further development of the already advanced level of the recycling economy all over Scandinavia."



Family tradition provides the common foundations



# Vektor for Norbert Rethmann

## EMPLOYERS' ASSOCIATION COMMENDS HONORARY CHAIRMAN FOR HIS COMMITMENT IN POLAND

At this year's presentation of the "Vektor" on 13 January 2018, the Polish Employers' Association commended twelve persons and institutions for their extraordinary achievements and enormous contributions to the Polish economy. The prize-winners also included Norbert Rethmann, honourable chairman of the supervisory board of the RETHMANN Group.

Poland is close to his heart. The company group now employs a total of 4,500 staff members at around 70 sites



The Vektor prize is awarded each year by the Employers' Association of the Republic of Poland, which with its 19,000 member enterprises and over five million employees is the biggest Polish business association.

At a festive ceremony held in Warsaw, Dr. Andrzej Malinowski, President of the Employers' Association, awarded the Vektor 2017 to twelve prize-winners – among them Norbert Rethmann, member and honorary chairman of the supervisory board of the RETHMANN Group, which is active in the Polish market with its divisional companies REMONDIS, Rhenus and SARIA.

Norbert Rethmann was pleased by the award, expressing his gratitude with these words: "We came to Poland in 1992 and were treated like friends and partners. Thanks to the work of many outstanding Polish employees, business activities have developed along a very positive trajectory: The company group with its divisional companies REMONDIS, Rhenus and SARIA employs a total of around 4,500 employees at approximately 70 Polish sites. Our group is active in many countries, but Poland and the people living in this beautiful country are especially close to my heart."



**"Our group is active in many countries, but Poland and the people living in this beautiful country are particularly close to my heart."**

Norbert Rethmann, member and honorary chairman of the supervisory board of the company group

Representatives of government, business, culture and the media gathered for the festive event. The honourable guest at this year's prize award was the Polish prime minister Mateusz Morawiecki, who was awarded the Super Vektor for the strategy of responsible economic development.

The Vektor is a recognition for extraordinary contributions to Polish business and aims at helping to create an environment conducive to business and innovation. Norbert Rethmann was commended for his many years of personal commitment to good relations between Poland and Germany and steady investment in the Polish market. Moreover, the commendation extends to his wide-ranging projects in the social and environmental area.

REMONDIS, Rhenus and SARIA employ a total of

**4,500**  at around **70**  sites in Poland

# TSR launches seal of quality for sustainable action

## SUSTAINABILITY CERTIFICATE OFFERS CUSTOMERS AND SUPPLIERS A REAL COMPETITIVE EDGE

Enterprises that can officially demonstrate that they make an active contribution to environmental and climate protection enjoy a competitive advantage already today. With the new sustainability certificate issued by Metallrecycler TSR itself, the company is making its customers more aware of efficient use of raw materials already now. The certificate is unique with regard to specialisation in ferrous scrap and non-ferrous metals.



For further information on this, see [tsr.eu](https://tsr.eu)

The topic of sustainability is omnipresent in the metal-working industry as well: reserves of primary raw materials like iron ore are not unlimited, social standards in the countries producing these raw materials are frequently difficult to assess and processing of materials goes hand in hand with high energy consumption and carbon dioxide output. Recycling raw materials offers a wise alternative. "The conscientious use of resources plays a key role in the entire sector. The fact that we are now able to certify the sustainability of each of our customers clearly sets us off from our competitors," emphasises Olaf Pusch, head of Key Account Management at TSR. He considers the seal developed by the shareholder REMONDIS to be an especially good tool with which to secure the supply of valuable raw materials like metals and iron. Thanks to specialisation in 17 types of non-ferrous metals and iron scrap, the TSR sustainability certificate is unique in the market.

### Sustainability: a competitive advantage

Recycling produces immeasurable positive effects on the environment and the climate. To determine this precisely, TSR uses a calculation tool based on scientific findings that was jointly developed with the independent Fraunhofer Institute for the Environment, Safety and Energy Technology – referred to as UMSICHT for short. It shows the savings on primary raw materials as well as energy and carbon dioxide tailored to individual companies. Every step in the cycle, such as transport, preliminary treatment and recycling, is taken into account in the overall equation.

With its sustainability certificate, TSR offers its customers a competitive advantage in their own business activities. "They receive a seal of quality with which they cultivate a positive image in the market and make themselves especially attractive for regular and potential new customers," Olaf Pusch remarks.



Sample certificate: Every customer of TSR can now order a sustainability certificate showing the positive impact on the environment in concrete figures. These are issued using the basis of a calculation method developed by ATZ/Fraunhofer Institute



**10 tons**

of recycled aluminium =  
8.1 tons less primary raw materials  
61.8 tons less carbon dioxide  
334.3 MWh less energy



# REMONDIS wins bid for recycling village in Great Britain

## MUNICIPAL CONTRACT FOR SOUTH TYNESIDE STARTING UP WITH LOTS OF EXCITEMENT AND EXCELLENT PREPARATION

The operation and management of the recycling village in Middlefields, South Shields, on the east coast of Great Britain, was put out to tender as far back as the beginning of last year by the South Tyneside Council. After submitting its bid, REMONDIS JBT Ltd was awarded the contract to manage the site from December 2017 to March 2020. Four staff members at the site and two drivers will be responsible for the service and recycling at the site in the future.

Andrew Whittaker, Commercial Manager of the area, stressed that "the recycling village is very important to the local community. Within the framework of the competitive procedure that was carried out, we selected REMONDIS JBT as the best bidder in terms of price and performance and I am really looking forward to working together with the company."

Together with a strong regional player, REMONDIS took over a recycling operator located in Bedlington, JBT Waste Services Ltd, in November of last year. Steve Patterson, CEO of REMONDIS JBT Ltd, commented on the move as follows: "REMONDIS is very experienced in the provision of municipal services in many countries. We are very pleased that we have this possibility to offer these services to the people of South Tyneside." REMONDIS JBT's task is to manage the site, assist the workers there and support the public in recycling efforts. Furthermore, REMONDIS will be rendering numerous logistical services involving transport of the sorted materials to recycling plants or using them at the right place.

**"REMONDIS is very experienced in providing municipal services in many countries.**

**We are very pleased that we are able to offer this possibility to people in South Tyneside."**

Steve Patterson, CEO of REMONDIS JBT Ltd

Patterson adds: "The site has a state-of-the-art plant, which was awarded a design prize in 2007. It recycles a high percentage of inputs. We are determined to push forward to new heights while at the same time offering an excellent customer service."



# The journey around the closed-loop cycle

BDE AND THE ALUMINIUM ECONOMY JOINTLY PRESENT THE "CLOSED-LOOP ECONOMY" SYSTEM AT IFAT

A special area with a joint exhibit by the BDE and the Munich trade fair is being devoted to the industrial closed-loop cycle for aluminium at this year's IFAT. A number of hand-picked enterprises will be presenting their services here, together illustrating the entire closed-loop cycle of aluminium with this example.



The material flow of aluminium is particularly well suited to illustrating the urgent need for, and benefits of, recovered raw materials:

These companies are presenting the closed-loop cycle in the handling of aluminium:



1. Aluminium is one of the most important light building materials there is, and the second most important metal in use. Primary production is particularly intensive in environmental, energy and economic terms. In recycling, with an energy savings of approximately 95 per cent, this material can be produced relatively inexpensively.

1. TRIMET Aluminium SE, one of Europe's biggest aluminium producers, is presenting its role and position in the closed-loop aluminium cycle.

2. Aluminium can be recycled endlessly. As a "recent" raw material, there is not yet enough aluminium in circulation to be able to cover demand with recycled material, however.

2. The "beverage can forum", with the three manufacturers Ball, Brown and Ardagh, is presenting one of the most modern branches of aluminium processing at present.

3. Demand for aluminium has doubled in the last 20 years.

3. When beverage cans are brought to the can deposit machine, they are first handled as waste and go into REMONDIS Recycling GmbH's complex deposit clearing system. The company furthermore demonstrates how the material flow can be recovered in a homogeneous manner.

4. TSR Recycling GmbH & Co. KG assumes the task of reprocessing products containing aluminium at the end of their product life cycle.

5. A|U|F is an association of companies that organises the closed-loop cycle of material for aluminium parts in windows, doors and facades used in building construction.

In addition, the German Institute for Materials Testing and Research (Bundesanstalt für Materialprüfung und -forschung – BAM) supports the closed-loop cycle for material with its background knowledge.

With a virtual reality film, visitors at the special space in Hall B 4 are taken on an amazing voyage around the closed-loop cycle of aluminium

# Soft water – hard facts

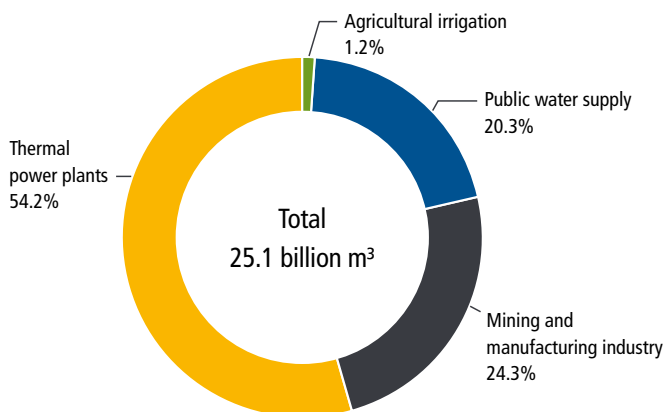
**ONLY ONE-FIFTH OF WATER USED TO SUPPLY THE POPULACE –  
PRIVATE PARTNER FOR THE BEST DRINKING WATER QUALITY**

When the question is asked as to who should be in charge of drinking water in Germany, in the public realm and especially among representatives of municipal interests it is posited in an almost knee-jerk manner that drinking water must not be put in private hands. After asserting this, participants in discussion forums and public servants in public offices throughout Germany then like to refresh themselves with a big chug of mineral water – drinking water that is only produced by private mineral springs. Paradoxically enough, emotive truths are at times more salient than hard facts. High time to check the real facts. We did a little research at the Federal Statistics Office. The result might be a bit surprising.

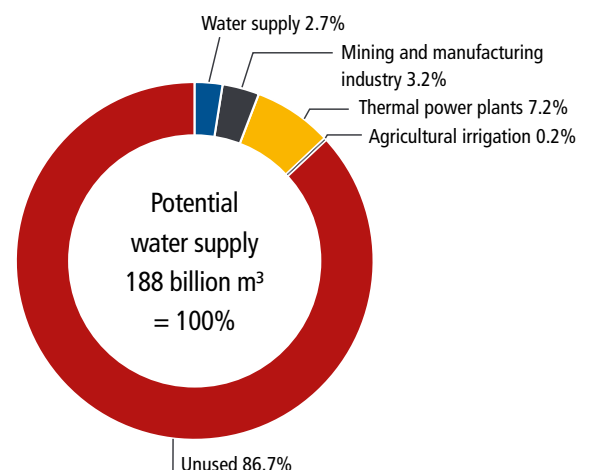
25 billion cubic metres of drinking water were produced per year on average over the last few years in Germany. What is interesting about it all is that the public water supply, i.e. the actual drinking water supply, only accounts for 20.3% of this. The overwhelming share goes to power plants for cooling, for mining and manufacturing as industrial water. With regard to the potential water available, which is estimated at 188 billion cubic metres in Germany, a maximum of 2.7% is used for the public water supply. This would appear to refute the arguments repeatedly forwarded like some sort of mantra by large portions of the political arena as well as some sections of public opinion asserting that 100% of the water supply should be in state hands.

Of course, no private enterprise can own water, as water is an elemental foodstuff that has to be available to everyone without restriction and hence belongs to everyone. But especially in developing and newly industrialising countries, it has been evident for decades how the water supply of human beings and their health suffer when government water monopolies do not apply enough capital in order to keep the supply infrastructure abreast of the state of the art in technology. Municipal partners as well as the citizens of this country can thus relax. It is not about ownership of water, but about the construction, operation and maintenance of the best possible infrastructure. Private water management is the ideal partner for this and to ensure that in the end everyone using the water tap at home and at work profits from competition for the best services and the most attractive price.

**Water production by public water management, mining and manufacturing industry, thermal power plants and agriculture in 2013**



**Water supply and water usage 2013**



Source: Federal Statistics Office



# Lippewerk to go

YOU CAN NOW ALSO VISIT THE FLAGSHIP OF THE REMONDIS GROUP ONLINE

**REMONDIS®**

WORKING FOR THE FUTURE

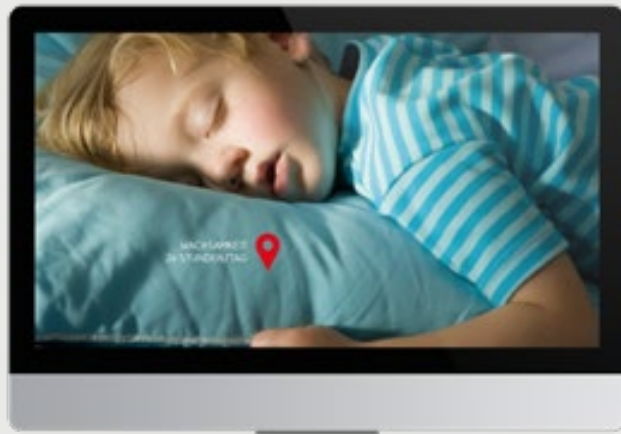
REMONDIS has already welcomed numerous visitors personally at the Lippewerk in Lünen. With a large number of recycling facilities for various types of waste, some of it very special, it is not only the biggest centre for industrial recycling in Europe, but also at the same time a real factory for climate protection and safeguarding raw materials. 488,000 tons of CO<sub>2</sub> alone could be saved each year through the recycling activities carried out here. Almost 500,000 tons of recycled material are sent back into the industrial production cycle from here.

That makes the 230-hectar site truly worth seeing, as in times of climate change the topic of climate protection is more important than ever. And against the backdrop of a surging global population, the safeguarding and recovery of raw materials is an elementary task.

REMONDIS  
LIPPEWERK

remondis-lippe-plant.com

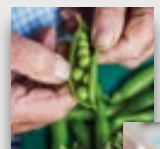
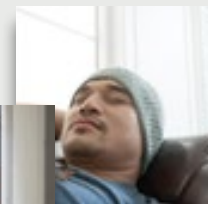
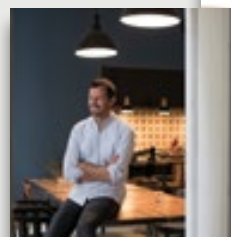
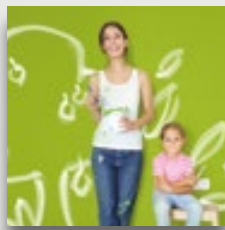




The new Lippewerk website shows virtual visitors how each of them are connected with the Lippewerk's recycling processes in their own private lives. The path from organic waste to compost or also from a worn-out refrigerator to a new, beautifully designed espresso machine are examples of points of tangency between everyday life and the activities performed in Lünen. Each station at the plant demonstrates that the system of the closed-loop economy can work in an

ideal manner. Whether it be businesses or private individuals, anyone who has seen Lippewerk knows that they can make a personal contribution – as early on as when they separate their waste properly.

Click online now to visit the various stations of the Lippewerk, find out how you can benefit personally from recycling and find inspiration in the diverse and varied world of recycling.





# Lithium-ion batteries: highlights and lowlights

RETRON OFFERS HIGHEST LEVEL OF SAFETY IN HANDLING THE HAZARDOUS GOOD



From e-bikes to cars all the way to automated vacuum cleaners, lithium-ion batteries can be found in countless electrified products today. While a new version is usually not hazardous, contact with only slightly defective batteries can possibly be fatal. Even manufacturers hesitate when it comes to transporting their defective, discarded products. With RETRON, REMONDIS is providing a solution for an acute problem linked to electrification while at the same time assuring a high level of safety.

In addition to the range of e-vehicles or charging properties, the transport and disposal of Li batteries often constitutes a challenge to these energy sources offering hope for the future – a challenge that is often overlooked. Especially the handling of damaged Li batteries can easily pose a risk to the persons involved. Not only do they have a significantly greater potential to heat up – in contrast to other sources of danger they can also spontaneously ignite when subject to vibrations, for example during transport. At the same time, highly caustic and toxic gases may be emitted – in the past this has often captured media attention. Not infrequently, cars and mobile phones ignited.

Lawmakers reacted swiftly, imposing strict requirements that have resulted in a highly complex myriad of laws and administration. It poses problems especially for small and medium-scale enterprises in packaging and transporting defective Li batteries properly and safely. It furthermore translates into a major financial burden in ensuring proper packaging and safe and secure transport.



RETRON containers are also well-suited for the storage of new goods. Many manufacturers of appliance appreciate it as a safe alternative to warehouse shelves



“We have already made a major contribution to preparation for an increasingly electrified product world as a company in the guise of RETRON.”

Christian Kürpick, Projektleiter RETRON



REMONDIS has therefore assigned RETRON with the task of providing these enterprises with a simple and safe transport and storage system. The RETRON system consists of two components. RETRON containers made of steel are able to withstand an interior temperature of 1,000°C, and this for a lengthy period of time. Its outer wall only heats up to a maximum of 100°C in extreme cases as well. Exhaust gas and filter systems can be hooked up directly to the container through an integrated valve. The controlled discharge of gases in the event of a battery fire prevents the container from suddenly breaking open under the increased pressure. In the inside of the container, the heat-insulating RETRON bag made out of a special textile ensures that when transporting several batteries no chain reaction is triggered. In contrast to all other transport systems for Li batteries, RETRON therefore works without any inert bulk materials whatsoever. That makes the packaging of Li batteries considerably simpler, safer and absolutely dust-free for all users.

“Only cooperation between all the actors in the value-creation chain can limit the risks associated with Li batteries. With RETRON, our company working in the field of recycling has already made a useful contribution to preparation for the increasingly electrified product world. We are hence optimistic that additional progress can be made in the future as well,” says Christian Kürpick, who heads the RETRON project.

In addition to the container system, RETRON in addition also makes it possible to securely transport Li batteries safely with specially equipped vehicles and trained personnel. There is thus nothing to prevent RETRON partners from returning Li batteries to the closed-loop material system.

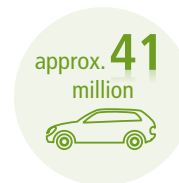
RETRON makes the transport of defective Li batteries safe, simple and practical all at once



Li batteries will have to be transported and recycled in Europe alone by 2020



40 per cent of the costs of a car are already accounted for by the battery – prices for cobalt and lithium are soaring. If the battery breaks down, it means a bigger loss than in the case of engine damage



It is estimated that there will be approximately 41 million battery-operated cars on the world's roads in 2050

# Fact check

## ALLEGED DOMINANCE OF THE MARKET BY PRIVATE PROVIDERS WITH RESIDUAL WASTE – TRUE OR FALSE?

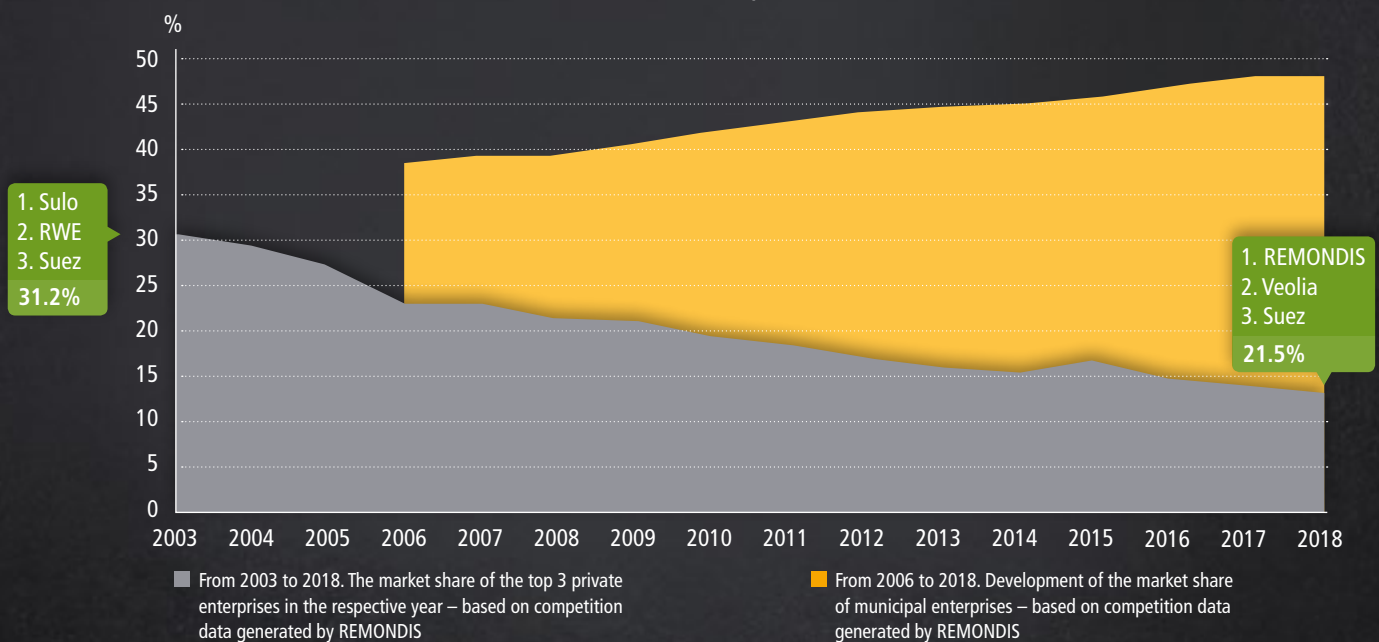
The spectre of alleged dominance of private recycling companies in the collection of household residual waste surfaces time and again in the minds of municipal decision-makers. A perceived concentration of private enterprises in the market is repeatedly alleged in municipal associations and the media, causing not only politicians on the left of the political spectrum at the federal and municipal levels to call for more responsibility to be assigned to the municipal level. High time for an objective view of the actual market situation. REMONDIS checked the facts.

Municipal enterprises possess almost 50 per cent of the total market for collection of residual waste

A direct comparison of market shares held by the three biggest private enterprises with those held by municipal competitors reveals a clear trend in the favour of municipal enterprises.

Thus, the market share of municipal companies over the period 2006 to 2018 has risen from 38.7 to 48.5 per cent. Analogously to this, the market share of the three large companies dropped by 9.7 per cent.

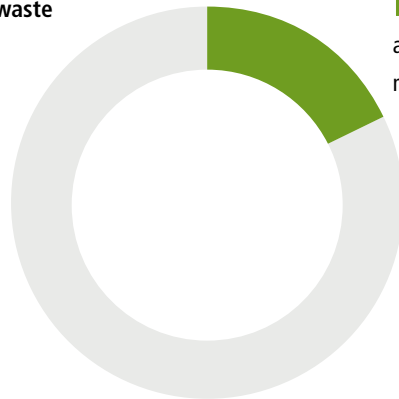
Collection of residual waste from households in Germany



TRUE OR FALSE?

Of the waste disposal enterprises responsible for collecting waste in major cities,

**82%**  
municipal enterprises



**18%**  
are private enterprises or municipal-private cooperative ventures



Municipal special-purpose associations circumvent tenders, thereby further undermining fair competition

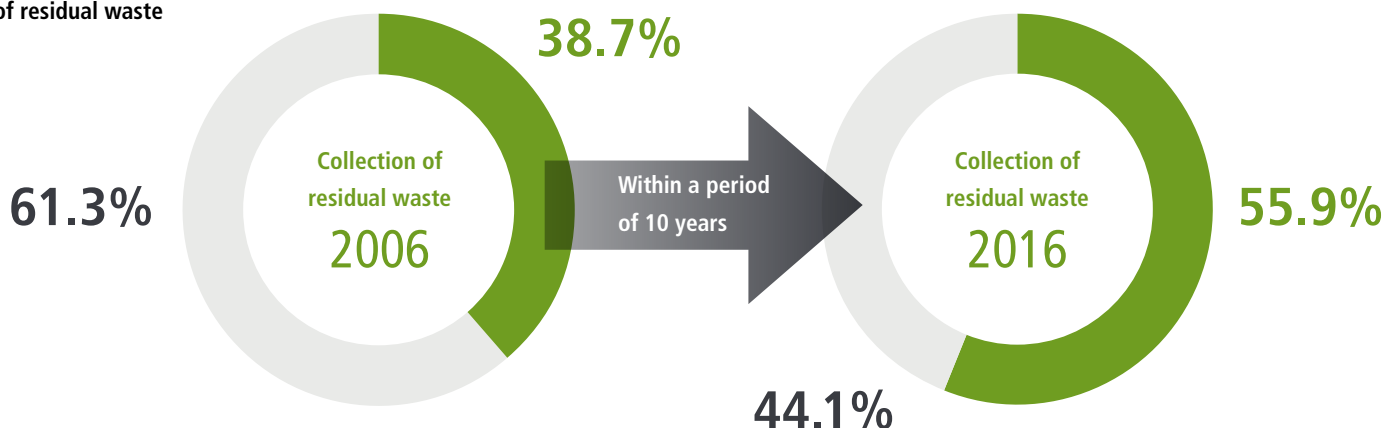
In the debate, in part public, between municipal associations and private enterprises, the accusation of cherry-picking by private enterprises can be frequently heard, with it being alleged that these companies secure supposedly lucrative districts of cities, while municipal enterprises are left to attend to the remaining higher-cost ones. Here as well, a glance at the market produces a completely different picture:

25.5 million of the approximately 81 million inhabitants of Germany live in 80 major cities. Private collection and recycling companies only engage in the collection of residual waste in 17 of these major cities. Just for starters, collection takes place within the framework of public-private partnerships (referred to as KOPKO for short) in 15 of these cities, i.e. once again with municipalities holding a majority share. In 63 major cities, municipalities attend to the collection of residual waste completely on their own without any private involvement at all – incidentally including without having to charge any value-added tax for such if they are a public agency. In view of these figures, the accusation of cherry-picking appears unwarranted indeed.

Interestingly enough, regular market analyses assign public-private partnerships (KOPKO) completely to the private sphere beginning with a 20 per cent stake being held by the private enterprise, even though municipal partners have larger stakes in the joint ventures. Even then, the share of municipalities is still a sizeable 47.3 per cent. The rest is split up among all the various private enterprises, of which even the three biggest ones do not even come close to achieving a comparable market dominance.

In closing, one can pose the somewhat heretical question as to why assessments of the market from an anti-trust perspective generally ignore by far the biggest market actors – municipalities – completely. Like many other private enterprises, REMONDIS adheres to the slogan of ‘may the better one win’, pleading along these lines for objectivity and fairness in any analysis of the market and to uphold and preserve the principle of public tenders. Municipal enterprises should also take part in these tenders – subject to the same competitive conditions. Only in this manner can an optimum price be obtained – in the interest of those who pay the fees for these services.

**“Re-municipalisation” in collection of residual waste**





# From the region

TWO EXAMPLES SHOW HOW REGIONAL ADMINISTRATION EAST SUPPORTS ITS BUSINESS PARTNERS IN THE VICINITY

In the search for a suitable regional partner in waste management, REMONDIS in its capacity as a globally operating enterprise does not necessarily strike some decision-makers as the first and most obvious selection. Every one of the six REMONDIS regional enterprises is confronted with this bias on a regular basis. But they prove that the opposite is the case day in, day out. Personal and regionally affiliated partnerships with numerous enterprises and municipalities for many long years are an achievement of networked colleagues with deep local roots in the region.

REMONDIS regional administration east is a pioneer when it comes to excellent business neighbours. It has been operating a public-private partnership with county Sömmerda for more than 16 years, for instance: USD – Umweltdienst Sömmerda GmbH. USD is at present assigned virtually all public services of the county. County commissioner Harald Hennig is glad he continues to have USD as a partner at his side, as he relates in an interview.



## Why is UDS the ideal partner in order to render public services in County Sömmerda?

**Harald Hennig:** We have been profiting for many years from the many years' experience and know-how of UDS. In addition to the fact that we have a reliable, committed partner in waste disposal, it also helps make us a business success. Within the framework of the pan-European tender, the company was able to submit the most competitive bid. This is not least due to the good infrastructure that USD can make use of.

"Thanks to USD, we can offer citizens professional waste management and will at the same time also meet efficiency and quality requirements."

Harald Hennig, Landrat Sömmerda

## How do you assess cooperation with UDS to date?

**Harald Hennig:** Thanks to UDS, we can offer citizens professional waste management and at the same time also meet efficiency and quality requirements. On top of this, UDS secures jobs for some people from this county.

## Is there a sustainability strategy in County Sömmerda with regard to climate protection and a secure supply of raw materials?

**Harald Hennig:** It is our officially declared aim and objective to reduce quantities of waste permanently and recycle it in the most effective manner.

## What would you desire for the future be?

**Harald Hennig:** Regular exchange between UDS and the Waste Economy Office are crucial to optimum cooperation. Problems that crop up can be addressed quickly through close official channels in order to come up with speedy solutions. This is also to remain a key element of the partnership in the future as well. Flexibility and close relations with customers are also to be preserved and upheld.



Whoever allows themselves to be deceived by the picture painted in the media of REMONDIS going out willy nilly on a shopping spree will be confronted with a much different picture here. Bernd Lang, who recently divested his family-owned company to Regional Company East, looked very carefully for a buyer for his company, as he relates.

**The name Lang stands for a successful family-owned company. What led you to sell it and why did you decide in favour of REMONDIS?**

**Bernd Lang:** Given the fact that our goal was to find a successor for our family-owned company, we were looking around for a company that meshed nicely with our structure and values. We furthermore attached importance to our employees being offered a secure future after we left. At the end of the sales process, the crucial factor for us was the feeling of having found a good partner in the guise of REMONDIS.

**What prospects do you believe that your company has in the REMONDIS Group?**

**Bernd Lang:** Future prospects are now in the hands of the new management.

**“ At the end of the sales process, the crucial factor was the feeling of having found a fair partner in the guise of REMONDIS. ”**

Bernd Lang, previous owner of Entsorgungsdienste Lang GmbH in Mühlau

We hope that investments will continue to be made in the expansion of the site. Moreover, we hope that the company will gain efficiency and become a more potent player with REMONDIS and rise to become market leader in the region.

**What company strategy would be ideal in the future in your opinion?**

**Bernd Lang:** The future strategy of the company is now in others' hands. We are looking forward to the impetus for development of the company now coming from another source and to preserve close ties with the people.

Bernd  
Lang



# RECYCLING

# 4.0

## New paths in recycling and logistics

THE TRANSFORMATION INTO INDUSTRY 4.0 IS ALSO CHANGING THE MATERIAL LANDSCAPE –  
ALL THE WAY TO RECYCLING ECONOMY 4.0

Modern procedures and digital processes of Industry 4.0 are having a wide-ranging impact on the recycling economy. This includes companies in the recycling industry having to intensively address significantly altered material flows and a considerably greater diversity of materials. The branch is increasingly using innovative methods and technologies to tackle the tasks facing it, which have become broader and more demanding.



# ECONOMY

From conception and development to manufacture, use and maintenance all the way to recycling: Entire value-creation chains can be optimised and complete product lifetime cycles supported with the smart, digitally networked systems of Industry 4.0. New production technologies at the same time make possible greater miniaturisation of the materials used. On top of this, ever more heterogeneous combinations from a large number of different materials are coming about. In the area of material separation, conventional recycling processes are increasingly running up against the borders of that which is technologically and economically possible. For the field of practice, this means: Together with Industry 4.0, a Recycling Economy 4.0 has to be developed, including smart recycling.

## Ensuring recyclability of products

The development of electromobility is one example of increasing material diversity and complexity. Here, materials for the construction of light electronic vehicles are being reinforced with fibreglass and carbon fibres to strengthen their structure. This is resulting in new composite materials which, after being produced along classic lines, will also need additional special processing. The situation is similar with wind energy and solar facilities, where there are still a host of unanswered questions surrounding what suitable recovery would look like.

With regard to the fundamental changes that industrial production technologies are undergoing, recycling is called upon to react to the rapid pace of change with flexible processing procedures. The task in all this will first be to adapt to changing quantities of input. Secondly, however, the raw materials recovered through recycling must meet the requirements of customers. The task here is to attain higher levels of separating precision in the sorting of material in the value-creation chain. Modern sensor-based sorting processes offer promising strategies making possible rapid, reliable material recognition. A dialogue early on with manufacturing industry is also indispensable. This will not only help find answers to questions surrounding later processing of raw materials, but at the same time make crucial contributions to the development of products that can be easily recycled.

## Environmentally friendly transport with gas and electric drive

In the field of logistics as well, solutions pointing in the right direction for the future need to be found for a Recycling Economy 4.0. This also includes the use of commercial vehicles that are environmentally friendly and that are operated with natural gas, biogas or battery. These offer alternatives to conventional diesel vehicles and are a convincing technological response to the stricter requirements applying to inner city traffic. Thus, beginning in the middle of this year, REMONDIS will be launching six high-tech, gas-driven collection vehicles in North Rhine-Westphalia. They will run on biogas and make it possible to collect material at virtually climate-neutral levels. Additional advantages of these environmentally friendly vehicles are their very low levels of emissions and quiet, efficient operation.

One objective of Industry 4.0 is to integrate customers and business partners more tightly into business and value-creation processes

## Electrical commercial vehicles supported by robots

Parallel to this, REMONDIS is also engaged in the field of e-mobility. The Bremerhaven disposal company BEG, the vehicle manufacturer FAUN Umwelttechnik and the German Research Centre for Artificial Intelligence are working together on a collection vehicle that has a completely electrical drive. Dubbed "BEAR – Battery-Electric Waste Disposal with Robot Support", the project is being supported by the Federal Ministry of the Environment. A prototype of the vehicle can be seen at IFAT 2018. Directly following the trade fair, BEG will be testing the trial vehicle in real-life operations for at least twelve months. The goal is a battery life of at least eight individual years and virtually autonomous charging properties through the use of robots. Findings gained in the project are later to be adopted with electrically driven commercial vehicles in other sectors as well.

The term Industry 4.0 was coined in 2011 for a German high-tech project and now stands internationally for the fourth industrial revolution

# Partnership with responsibility

SCHÜCO AND REMONDIS ARE WORKING TOGETHER TO ATTAIN HIGHER RECYCLING QUOTAS

## SCHÜCO

Today, economic success is based increasingly on business responsibility as well. Headquartered in Bielefeld, the Schüco Group shows how this can work. The reputed manufacturer of windows, doors and facade systems would like to make a contribution to the preservation of natural resources in the future for the sake of upcoming generations. Important strategies in this are at the same time recycling and the protection of resources – two fields in which REMONDIS is providing support on a sustained basis.

Innovation, partnership, excellence and responsibility are the key factors in Schüco's success in the market

It is taken for granted that anyone who outfits their home with new building elements will attend to design, comfort, security and safety. In addition, criteria relating to sustainability are playing an increasing role. After all, one wants to have a feeling that one has made a responsible decision that does not undermine climate and environmental protection. For many customers, products from the Schüco brand are the first choice in this context. The sophisticated window, door and facade systems of the Bielefeld enterprise are used by millions of people throughout the world and meet the most stringent demands.

### Products in accordance with the cradle-to-cradle principle

Schüco is among the technology and service leaders in the sector and is at the same time considered to be a pioneer in sustainability. Whether it be aluminium, plastic or steel: All products are designed to be long-life, recyclable, save on resources and protect the climate. Several Schüco product systems are already C2C-certified. They are thus in line with the cradle-to-cradle (C2C) principle, according to which products are developed in such a manner so that their materials can be returned to the closed-loop cycle completely and without losing any quality as materials.





Schüco's head offices in Bielefeld. The company employs 4,750 staff members and operates in more than 80 countries

### Optimisations for more recycling

With regard to environmental management, Schüco pursues lofty aims while striving for continuous improvement. REMONDIS has at the same time been an important partner since the beginning of the year. Regional Enterprise West renders services for the entire Schüco Group on behalf of Schüco International KG. Four product sites in Germany are involved along with all the materials that accumulate there – from scrap metal to hazardous waste, whereby in addition to the operative handling the focus is above all on joint optimisation.

### Solid foundations to tackle any and all assignments

For Schüco, the arguments in favour of a partnership with REMONDIS were above all the high level of recycling competence as well as the fact that the company can also process hazardous materials. In addition, it all had to be executed from a central point, as Schüco is interested in creating new structures: environmental tasks that have been performed at different sites in the past are now to be carried out at the head offices of the company. In terms of operative implementation, on the other hand, the key factor was spatial proximity. REMONDIS was able to excel in this regard with its tightly meshed network of sites: right from the outset, three of the Schüco plants involved were at a location where REMONDIS also has a branch office. A fourth site is only located a few kilometres from a REMONDIS operation. On top of this, both Schüco and REMONDIS are members of the AUF initiative, an internal system in the construction industry for the return of aluminium scrap.

### Input for the Sustainability Report

In the service package, REMONDIS is also assuming numerous tasks in the fields of documentation, reporting and monitoring. The collections of data that are being produced in this context can also make a contribution to Schüco's Sustainability Report. The report, which is issued on a regular basis, draws up a balance sheet on the company's commitment to sustainability and is compiled on the basis of the particularly exacting international guidelines of the Global Reporting Initiative (GRI).

### Cooperation has proven its effectiveness

The new activities that have been commenced are intensifying a partnership that has already been in existence for some time. Thus REMONDIS already developed a concept with suggestions for optimisation for Schüco's internal waste-economy operations two years ago. Moreover, the two enterprises have been working together for around ten years in the field of aluminate. Here REMONDIS takes on sodium hydroxide with aluminium, utilising a complex recycling process to make premium-grade ALUMIN® out of it – a versatile brand product that is used in municipal and industrial sewage treatment.



360 degree sustainability: Schüco covers the entire life-cycle of a construction project with its activities



# On a special mission in Russia

**BUCHEN IS FLYING HIGH IN A MISSION TO CLEAN A LARGE TANK ON THE SIBERIAN COAST – A TASK THAT WILL TAKE SEVERAL MONTHS**



Climatic conditions like in the Arctic, enormous distances and a large tank equipped with extra-long, particularly stable liner tubes: In this contract in Russia, BUCHEN is demonstrating that it is possible to perform professional work under the most adverse conditions.



Impressive dimensions: These large tanks on the Sea of Japan each have a nominal volume of 112,000 cubic meters

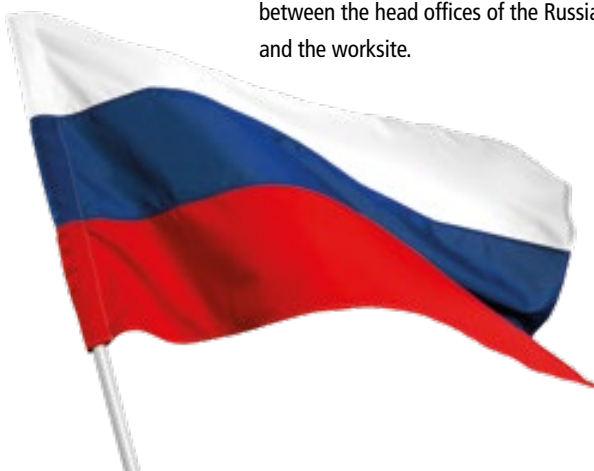
**BUCHEN works with closed, automated cleaning systems that are in line with international market requirements**

Far off in eastern Siberia, directly on the Sea of Japan, lies the Russian town of De-Kastri. Fewer than 4,000 live here, but the region is an important economic hub. The nearby export harbour is one of the biggest oil terminals in the Far East. The entire oil production of the Sachalin-I Consortium, one of Russia's biggest crude oil and natural gas exploitation projects, is transhipped at the site.

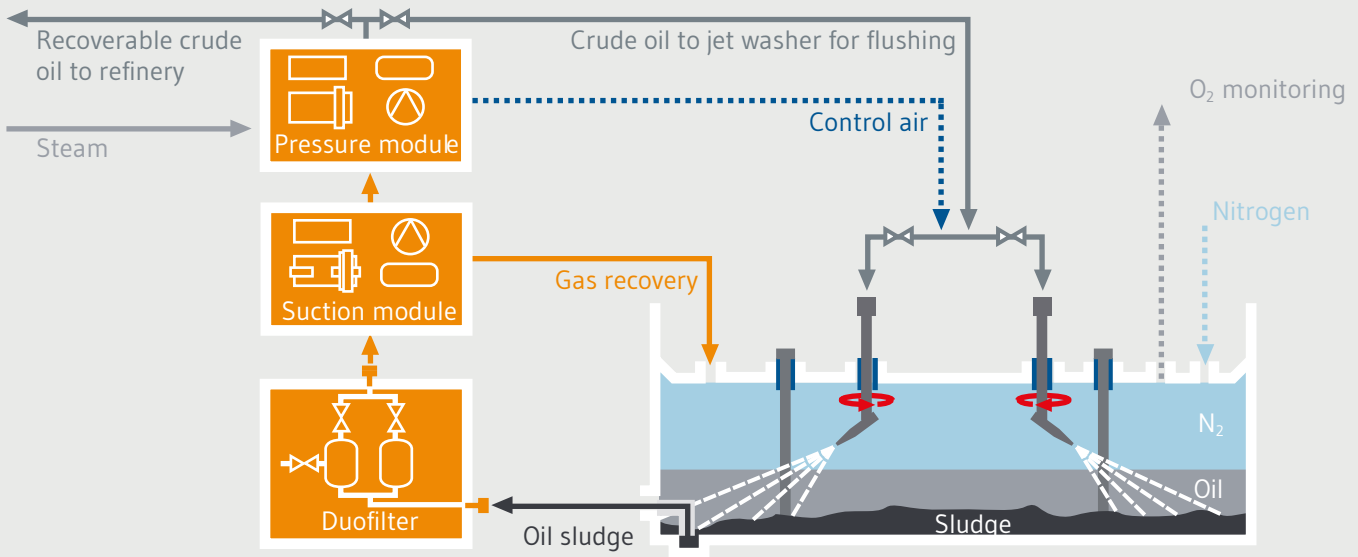
The terminal has two large tanks measuring 100 meters in diameter respectively and a nominal volume of 112,000 cubic metres each. One of the two crude oil tanks had to recently be emptied for inspection and welding work that needed to be performed, in which residual sludge was to be removed and the tank carefully cleaned – a job for BUCHEN. After all, the company is also highly reputed in Russia for its professional large-tank-cleaning services in line with the most stringent standards – even under difficult conditions.

## Crossing the country with the equipment

Challenges in the De-Kastri job especially relate to its isolated location. Ljudmila Ochotnikova, managing director of the Russian subsidiary BUCHEN Industrial Services OOO, headquartered in Ufa, comments as follows: "The vast expanses of the country require forward-looking supply logistics. If there are any breakdowns or bottlenecks, spare parts and additional human resources cannot be found right around the corner. One has to get used to that." This is precisely what the tank-cleaning professionals have done, transporting a reserve unit to De-Kastri to back up the first-line equipment. All in all, technical equipment ranged from the jet-washer system to nitrogen generators and pressurised pumps all the way to a repair workshop for dust masks. A distance of 7,600 kilometres lies between the head offices of the Russian BUCHEN subsidiary and the worksite.



## Diagram of the jet washer system



### Different conditions, the same standards

Specific conditions in the country that BUCHEN is confronted with in its various jobs may differ, but with regard to occupational health and safety as well as environmental standards there are no differences. "Our processes, our methods, our know-how, technical and safety training for staff – all these things are just as important in Russia as they are in Europe," according to Ljudmila Ochotnikova.

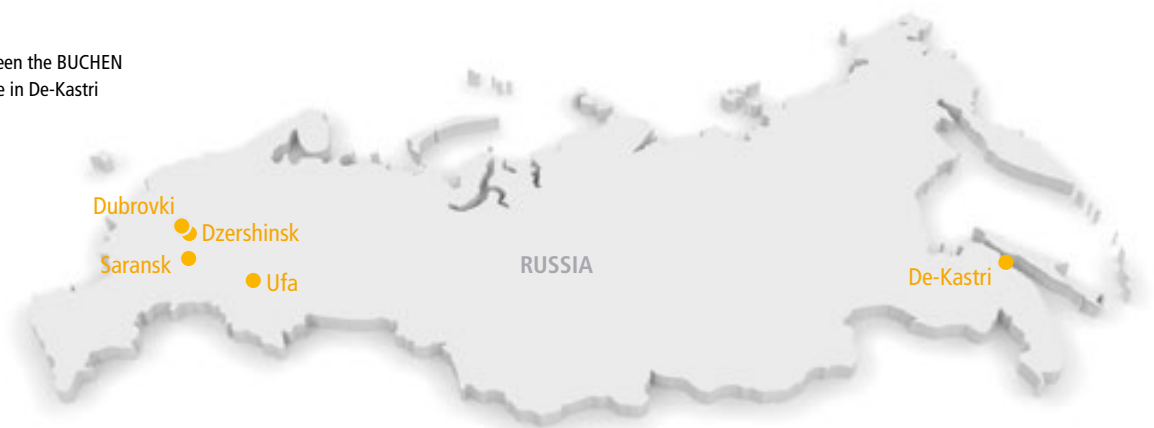
Regardless of the conditions under which BUCHEN works, the advantages for customers are the same everywhere in the world: thanks to realistic, reliable time scheduling, production can be resumed quickly. De-Kastri as well will thus be able to recommence operations quickly, efficiently and successfully.

### Special cutting unit: an individually tailored solution

The job in De-Kastri, lasting several months, was carefully planned and carefully prepared by BUCHEN specialists. This also involved the development of method standards, which specify all phases of work and the technology and equipment to be used in advance. This also required design and production of a special cutting unit for the pipes lining the tank roof supports. The unusually long, stable pipes had to be shortened in the course of the work in order to be able to bring the jet-washer system's flushing and rotation nozzles inside the tank. The workflow plan for the removal of the tank roof supports and the strategy for cutting the liner pipes were developed by BUCHEN in close collaboration with Exxon Neftegas, the operator of the facility. According to Ljudmila Ochotnikova: "The professional approach, our efficient cleaning process and the successful completion of the work on schedule showed that we were the right partner. We have been able to gain another reference project with De-Kastri."

When cleaning large tanks, BUCHEN uses jet washer systems that can be transported in an optimum manner thanks to their modular structure

7,500 kilometres lie between the BUCHEN sites in Ufa and the jobsite in De-Kastri



# This pays off

EFFICIENT INDUSTRIAL INSULATION OFFERS BUSINESS ENTERPRISES ENVIRONMENTAL AND ECONOMIC ADVANTAGES



XERVON is expanding possibilities for optimising energy use by industrial plants by means of energy audits based on the TIPCHECK standard. One particular plus factor is at the same time data and facts relating to financial aspects. These reveal in very precise terms what the company can save, demonstrating how quickly investment in a more efficient insulation can pay for itself.



49 mega tonnes of CO<sub>2</sub> could be saved in Germany every year through better insulation in the industrial sector

Companies have been turning their attention to energy efficiency for some time now. Nevertheless, there is still a vast potential for savings – especially with regard to the insulation of plant and equipment, which in many cases has not been upgraded for decades. At the same time, it is worthwhile doing something especially in this area. According to studies, better industrial insulation could save 620 peta joule per year in Germany – as much energy as is used by ten thousand households. With respect to climate protection, 49 megatons of CO<sub>2</sub> could be avoided – a scale comparable to the exhaust produced by eight million cars.

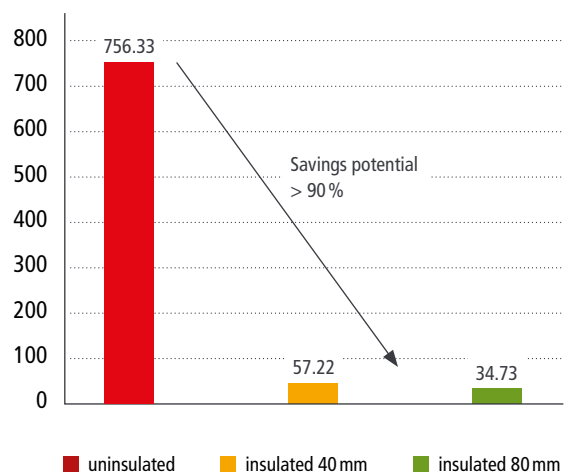
## Energy savings of over 90 per cent possible

In its capacity as specialist in industrial insulation, XERVON develops sophisticated solutions to minimise losses of heat, which makes it possible for business enterprises to reduce their total plant costs in a sustainable manner. In the case of insulation systems that are not yet designed to maximise energy efficiency, an energy-savings potential of up to 90 per cent can be achieved with XERVON. The significant cost savings that are linked to this ensure that such investments will pay for themselves in a brief period of time, frequently even in the space of a few months.

## Example from the field of practice: Advantages that speak for themselves

A chemicals company introduces a medium at a temperature of 100 degrees Celsius into a pipeline with a nominal width of DN 150. The average mean annual atmospheric temperature according to weather data at the site is 11.2 degrees C. at a wind speed of 1.00 m/s. With these parameters, efficient insulation reduces heat-loss costs to the company by more than 90 per cent (diagram 2). With a DIN 150 pipeline, cost are reduced from EUR 265 per meter and year to EUR 20 or 12, depending on the thickness of the layer of insulation. Investment in better insulation thus pays for itself in a period of a few months. It is difficult to find a more profitable investment.

Loss of heat per metre of pipe (h/m)



**TIPCHECK –**

**Technical Insulation Performance Check**

The TIPCHECK audit, which is specialised in technical insulation systems, corresponds to energy audit standards EN 16247 and ISO 50002. It was developed by the European Industrial Insulation Foundation (Eiif). The primary objective of the non-profit Eiif is to reduce CO<sub>2</sub> emissions of industrial plants and systems by means of sustainable insulation.

**Energy audit clears the air**

In addition to advice, conception and installation, XERVON has also been performing energy audits based on the TIPCHECK standard since the beginning of February 2018. Specially trained, certified staff members determine the exact weak points and energy leakages in the technical insulation systems. The latest in thermal imaging technology is used to identify heat leaks. In combination with drones, XERVON uses thermography even for inaccessible areas, for example the roofs of tank systems.

In addition to the analysis, the savings potential to be expected is estimated in the TIPCHECK energy audit and suggestions for action that can be implemented immediately are developed. This also includes concrete calculations of the energy and cost savings that can be realised as well as the individual period of amortisation for the investment. From the perspective of the industry, these data and facts offer a reliable foundation for decision-making. Around 75 per cent of companies that have had the audit performed are already using its recommendations or are planning to do so in the near future, for instance the next time there is a system shutdown.

**A partner in implementation**

In implementation, XERVON offers all services from one source. The most economical insulation thicknesses are selected on the basis of the insulation concept and specified in terms of the respective requirements. The enterprise produces the components required in its own workshops or directly at the site and includes the installation. In some situations, optimisation of insulation at industrial plants also receives financial support: The Federal Office of Economics and Export Controls (Bundesamt für Wirtschaft und Ausfuhrkontrolle – BAFA) supports measures aimed at boosting energy efficiency by means of highly efficient thermal and cold insulation with subsidies amounting to EUR 150,000.



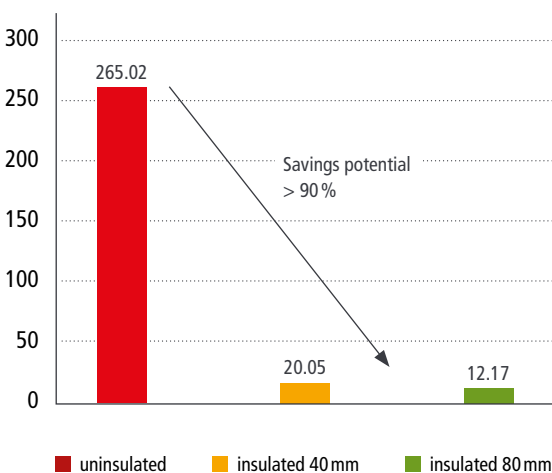
Inefficient insulation not only causes energy to be lost. It also reduces the efficiency levels of the plant, increasing the temperature drop on lines, accelerating the cooling of warehouse containers and reducing the efficiency of the plant as a whole



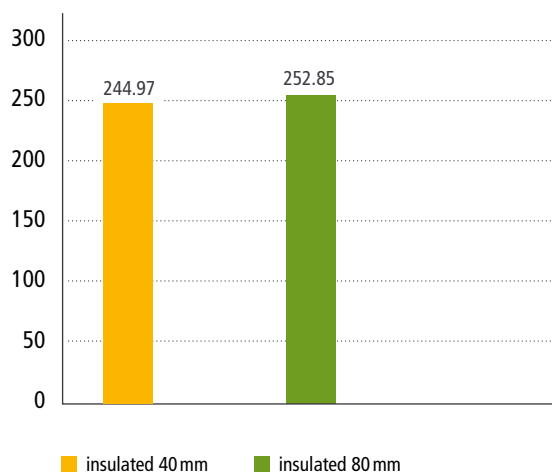
**It pays off in a very brief period of time**

As a result of the considerable savings, investment in 40 mm insulation pays for itself within a period of 3 months

**Loss of heat per metre of pipe in Euros**



**Savings potential for insulated pipes in Euros per meter**





# Top class tried and proven

## XERVON APPRENTICE WINS THE GERMAN CHAMPIONSHIP OF INDUSTRY INSULATORS

**XERVON**®

WORKING FOR THE FUTURE

Top-class training to safeguard the future: This helps companies acquire the junior talent that they need, while newcomers are offered a chance to start a career in the occupation. The example of David Jelusic, who has learned the occupation of industrial insulator at XERVON, shows how greatly both sides profit. If top performers are needed, then well-insulated areas of plants and facilities save customers money and ease the strain on the environment caused by unnecessary waste of energy – making a valuable contribution to climate protection.

Well insulated areas of the plant save on energy and costs – so the demand for professional insulation is commensurately high

It is Tuesday, 7 November 2017, day two of the German Industry Insulators Championship. Six young men are working with tremendous concentration at training frames simulating pipelines at chemicals plants at the training centre of the building industry in Hamm. On the previous day, the contenders for the championship equipped the pipes with different types of insulating material in accordance with their own strategy. Now they are wrapping the insulation with a cladding made out of rolled sheet metal custom-cut to fit it like a glove.

Only the year's best performances on final examinations for all German chamber districts are admitted to the championship. David Jelusic, XERVON staff members and best-in-class in the Dortmund guild trade chamber, is representing the region of

North Rhine-Westphalia. A jury assesses the chamber's candidates in the afternoon. The result is final by early evening: David Jelusic scored the most points. He was the 2017 German Industry Insulators Champion and has qualified for the European Championship to take place in May 2018.

Along with David Jelusic, his trainer Detlef Kurtzusch is also pleased. At the XERVON site in Bottrop, he leads trainees through the apprenticeship years with a lot of commitment and know-how. At present 24 insulators-to-be are being trained there along with ten painters and varnishers. Later they will work in their occupations hand in hand, with painters and varnishers preparing the facility before being clad by the insulators.

This is what a winner looks like: David Jelusic, German Champion Industrial Insulator, and his trainer, Detlef Kurtzusch



Six years ago, Detlef Kurtzusch took over at the helm of the training department, restructuring it step by step. Successfully, too, it would appear, as is substantiated not only by the title of champion, but also by the good results on the examination turned in by the other trainees. "There is a big demand for good industrial insulators. We can counteract bottlenecks in human resources with our own training program," he explains.

This year the training program for insulators is being expanded once again by around 30 per cent. The training structures created in Bottrop are in addition being adopted at the XERVON sites in Hamburg and Grossenkneten. The paramount objective: Trainees are to be trained in such a manner so that they can later be assigned tasks as highly specialised skilled workers at a central point. Just like David Jelusic, who is at present assigned by XERVON directly to a customer plant, where he heads his own team.

XERVON is hiring 114 new trainees in 16 occupational fields this year. For more details see [remondis-karriere.de](https://remondis-karriere.de)

### Three Questions for Detlef Kurtzusch

#### Are you proud that your team has produced the German Industrial Insulator Champion?

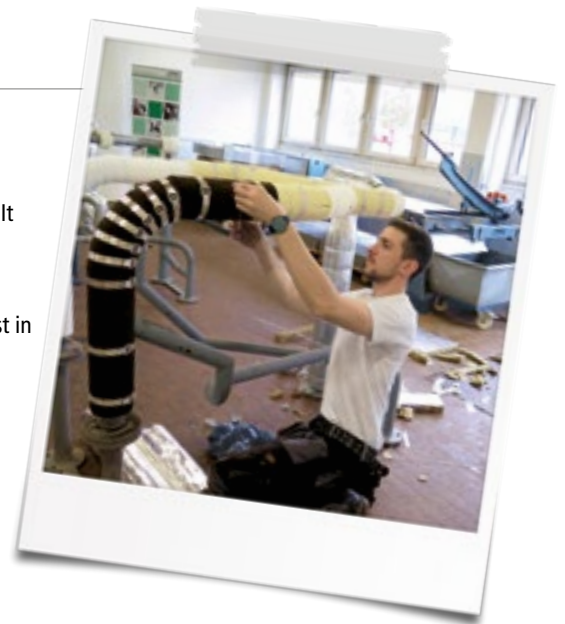
Of that you can rest assured! It is not so easy to win this highly coveted title. The crucial factor is what the trainee has to offer, but also what is attained in the training program and how engaged the trainees are in putting what they learn into practice.

#### What do you attach particular value to in training?

Teaching people to be independent and team-building. Both foster motivation, encourage professionalism and are in line with what really counts later in the field of practice.

#### What is the calling card of training at XERVON?

The basic attitude of our enterprise. It is not allowed for trainees to be treated like cheap labour. Instead, we emphasise a willingness to invest in training in order to gain highly specialised skilled labour so as to be ready to face future challenges.



### Three Questions for David Jelusic

#### How does it feel to win the title of champion?

The training was important to me over the entire three years. It is difficult to put into words how happy I was about winning the title. It was a fantastic vote of confidence when the members of the jury were so satisfied with my performance in the competition.

#### Why did you decide on the profession of industrial insulator?

Because I like to make things. Another aspect is also that you are always being confronted with new things, however. For example industrial plant and equipment on a scale that you never dreamed of.

#### What made you decide to start your career at XERVON?

A recommendation – namely the timely advice to undergo training at XERVON because the company makes a true commitment to its trainees. My expectations have been fulfilled!



In the championship competition, the deciding factors were well-founded knowledge, but also technical understanding, practical skills, creativity and decision-making abilities

# Sewage treatment plant is being turned into a power plant

GOSLAR: SUSTAINABILITY PRIZE-WINNER MAKING ELECTRICAL POWER OUT OF SEWAGE SLUDGE WITH ENZYMATIC BIOFUEL CELL



The basin of the pilot facility holds a total volume of **5m<sup>3</sup>**



A look at the equipment – container in the pilot facility in which the biological fuel cell is set up

**Researchers at Clausthal University of Applied Science were recently awarded the German Sustainability Prize for a biofuel cell that is able to transform sewage into regenerative energy. The prize-winning project on sustainable treatment of sewage is cooperating inter alia with REMONDIS Aqua’s subsidiary EURAWASSER in Goslar.**

In the project, the team surrounding the coordinator, Professor Michael Sievers, has been successful in producing electrical power directly from sewage in a sewage-treatment plant. At the heart of the project is an enzymatic biofuel cell, which thanks to researchers is able to produce electrical power and hydrogen without taking the usual circuitous routes via the digestion process. Because especially sewage-treatment plants are one of the biggest municipal consumers of electricity, the project offers a host of advantages for a sustainable future. With the aid of fuel cells, energy-intensive sewage plants could thus be turned into a municipal power plant in the future.

The sector has been aware that sewage is rich in valuable substances for some time. It nevertheless took three years in all to make this project a success. Another strategy that has been developed and established in actual practice for years is the process of sludge digestion: the production of gas and energy by means of a cogeneration plant. Municipal sewage-treatment plants can in this way already help compensate for the fluctuating power production associated with the energy transition already now. The Clausthal researchers will be testing their prize-winning project on an expanded scale in Goslar before they are able to put it on the market.

One of its kind in Germany, the pilot plant in the research project from Clausthal is being tested at the REMONDIS subsidiary EURAWASSER in Goslar

One of a kind in Germany, the pilot plant in the research project from Clausthal is being tested at the REMONDIS subsidiary EURAWASSER in Goslar. As Professor Sievers notes, the only plant of this type in the world is being operated here on a semi-industrial production scale, cleaning sewage water and producing electricity at the same time. Similar to fuel cells for cars, these fuel cells also transform chemical into electrical energy. The difference is that here bacteria are responsible for the metamorphose and the fuel comes from the sewage-treatment plant. The basin in the pilot plant has a total volume of 5 cubic metres. The electrical power that is produced can be stored in batteries especially designed for this purpose.







# Lausitz company patents Barbara

LWG RECEIVES INDUSTRIAL PROPERTY RIGHTS FOR PROCESS TO NEUTRALISE ACIDIC MINING LAKES

**BRAIN**, a one hundred per cent-owned subsidiary of **LWG Lausitzer Wasser GmbH & Co. KG**, recently received a patent for a system aimed at efficiently improving the water quality of acidic bodies of water that has been in use for many years. It reduces harmful chemical reactions, thereby improving the water quality of acidic mining lakes considerably.



The underlying cause of acidic lakes is aeration of geological containment areas like those that come about through the extraction of lignite coal in surface mines. Oxygen has an oxidising impact on the iron minerals pyrite and marcasite stored there, which after the flooding of containment zones react with the water. This brings about a chemical compound that is poorly soluble, appearing as a brown precipitate in the water and resulting in an extremely low pH value for the lake water. If it goes untreated, mining lakes cannot be used without restriction – either for agriculture or for recreational purposes.

To change this, **LWG**, a subsidiary of **REMONDIS Agua**, has been collaborating with the clean-up company **NSG** since as far back as 2009 and 2010 in the development of a technological process that introduces chemical additives to acidic bodies of water in the form of so-called conditioning substances.

What is special about this method compared to other ones is that a process and a facility have been developed that are placed underneath a boat. As a result of the immediate mixing of the limestone with the lake water, the process that takes place under water is significantly more efficient than treatment above the surface.

The treatment ship **Barbara**, which was planned and built especially for the project, was put into operation for testing purposes as far back as 2012. It has been in operation on Lake Schlabendorf since the summer of 2013, since then introducing approximately 45,000 tons of lime product. This has significantly improved the water quality, moving the pH value permanently into the neutral area.

At the end of last year, a patent on the use of this technology was officially registered at the Patent and Trademark Office. The patent holders and hence also official users of this in-lake liming technology are the company **BRAIN**, a one hundred per cent-owned subsidiary of **LWG**, **LMBV Lausitzer und Mitteldeutsche Bergbau-Verwaltungsgesellschaft mbH** and **eta AG**.

## 45,000 tons

The liming ship **Barbara** has already introduced 45,000 tons of lime product to reduce chemical reactions in Lake Schlabendorf



# Flowing art

## REMONDIS AQUA IS SUPPORTING ARTISTS AT FOUR EXHIBITION SITES

Together with artists organised in Kunst-Wasser-Werk Schwerin e.V., REMONDIS Aqua is staging a travelling exhibition on the topic of water. Its exhibition, "Artefakt VI", began its tour in Schwerin in September of last year, then moving into the Turbinensaal in Cottbus, after that continuing on to the REMONDIS head office in Lünen, and ending the tour in Goslar in February.

In their exhibition, artists organised in Kunst-Wasser-Werk Schwerin e.V. analyse the topic of water in a creative manner. This makes the exhibition a multi-experiential event. Graphic works, ranging from sculptures all the way to photographs of various striking works, await visitors. With the support of REMONDIS Aqua, persons interested in art can visit the exhibition at four sites one after the other.

The artists selected their home city of Schwerin for the first stage in the travelling exhibition. The rooms at Schwerin Municipal Utility provided the exhibition space there. In Cottbus, the exhibition was shown within the framework of the 2018 REMONDIS Forum. The works of art were displayed in the Turbine Room in the old power station, which has been restored to its original state. Afterwards, the artists exhibited their works in the head office of the REMONDIS Group in Lünen, which is listed as a national monument. The grand opening was accompanied by a family festival at REMONDIS Aqua and a tour of Lippewerk.

"Standing Waves" by Ms. Mechthild Breme



Sculpture by Mechthild Breme showing Dr. Oliver Junk, Lord Mayor of the City of Goslar, her art work, entitled "Standing Waves"

In Goslar, tangible support was provided by the Rammelsberg World Heritage site. To the tremendous delight of artists and visitors, it was possible to exhibit the art works in the unique atmosphere of the Barite Room of the World Cultural Heritage site. The exhibition was officially opened by Goslar's Lord Mayor, Dr. Oliver Junk, and the Managing Director of the Rammelsberg Erzbergwerk World Cultural Heritage, Gerhard Lenz.



Gerhard Lenz M.A., Managing Director of Weltkulturerbe Erzbergwerk Rammelsberg Goslar GmbH and Director of the UNESCO World Heritage Foundation in the Harz Mountains, delivering the opening address

"This exhibition is at first glance unusual for the mining area. But, he adds immediately, mining would scarcely have been possible on such a scale without water. Continuing on the tour, he points out that "water was the energy source. Without technology based on it, the history of Goslar would have been completely different."

**"Water was an energy source. Without the technology accompanying it, the history of Goslar would have been completely different."**

Gerhard Lenz, Geschäftsführer Weltkulturerbe Erzbergwerk Rammelsberg



## REMONDIS operating another seven years in Coesfeld

The business enterprises of County Coesfeld and the municipality of Lüdinghausen have jointly awarded REMONDIS Münsterland GmbH the contract for the collection of household waste. The new seven-year agreement, which involves the collection of residual waste, organic waste, waste paper and the collection of garden waste and bulky waste in the entire county, commences in 2019.

County Commissioner Dr. Schulze Pellengahr is particularly pleased by the successful collaboration between all the cities and municipalities in County Coesfeld: "As a result of increasingly complex structures and statutory requirements, inter-community cooperation is taking on ever more economic importance, as citizens rightly also expect inexpensive disposal of their waste," according to Dr. Schulze Pellengahr.

The roughly 60 employees at the REMONDIS branch in Coesfeld and Lünen were also pleased about the contract. Vehicles for the collection will come from here. In past years, REMONDIS made considerable investments in the Coesfeld site in order to further optimise services and the strategy of the county.



Ellen Trudwig (Municipality of Lüdinghausen), mayor Richard Borgmann (Municipality of Lüdinghausen), county commissioner Dr. Christian Schulze Pellengahr, Norbert Rethmann (honorary chairman of the supervisory board of REMONDIS), Dr. Johannes-Gerhard Foppe (County Coesfeld), county director Joachim L. Gilbeau (chairman of the supervisory board County Coesfeld public enterprises) and (sitting from left to right): Peter Brunsbach, Stefan Schäfer (both on the management of REMONDIS Münsterland) and Stefan Bölte (managing director County Coesfeld public enterprises) at the signing of the agreement

## First Global Recycling Day

**"Every year humanity consumes billions of tonnes of valuable raw materials, often destroying them irretrievably. This has to change."**

Ranjit Baxi, president of the Bureau of International Recycling (BIR)

He broached it at an international conference held in Dubai in 2015. His motivation for the initiative: "Every year humanity uses billions of tons of valuable raw materials, often destroying them irretrievably. This has to change." He wants to improve global trade in recycled material by raising people's awareness, firmly establish recycling as part of education worldwide and improve research and support initiatives that work for more recycling.



Intended to remind people of the importance of recycling as a source of raw materials, Global Recycling Day took place for the first time on 18 March this year. Ranjit Baxi, president of the Bureau of International Recycling (BIR), came up with the idea of a Recycling Day.

BDE President Peter Kurth praises Global Recycling Day: "It is only through international cooperation that we have a chance to get a grip on waste-disposal problems like pollution of the seas with plastic waste. For German enterprises, our Global Recycling Day is a good opportunity to be able to lend a hand in finding international solutions with their tremendous know-how."



## Containers as a security measure at Mardi Gras parade

The Düsseldorf site was involved in developing the security concept in the municipal territory of Düsseldorf in connection with the Mardi Gras parade for the second time in a row. Various strategy meetings were held months before the actual event with the municipality, police and fire department.

Every section that was to be secured was discussed in detail and the security concept planned on a timeline. A total of 16 staff members and 8 vehicles of REMONDIS were in operation on parade day. 30 containers filled with construction debris as well as several vehicles were used as mobile roadblocks.



were used at the Mardi Gras parade



## Bachelor thesis on GMVA receives the Uniper Environment Prize

The development of a logistics strategy for bunker management and delivery planning at the Oberhausen Community Waste Incineration Plant (Gemeinschafts-Müll-Verbrennungsanlage – GMVA) was the topic of a bachelor exam thesis by Dennis Ebbers. For this work he received not only the top mark, but also the Environment Prize of the waste-disposal company UNIPER. Ebbers, who received a degree in economic engineering and facility management from the Westphalian University of Applied Science in Gelsenkirchen, examined technical and structural aspects along with important factors relating to human resource management and planning.

GMVA profited from the assistance it provided for the project, as Ebbers analysed organisational optimisation in the area of delivery. Following his studies, he was able to smoothly switch to the position of head of the waste-disposal centre of the Opel works in Bochum. This promoted the young graduate to a position of responsibility managing 30 workers.



GMVA managing director Michaela Schröder congratulates Dennis Ebbers on the prize awards at the final ceremony at Westphalian University of Applied Science in Gelsenkirchen



**"I am now able to implement and refine everything that I learned at the GMVA."**

Dennis Ebbers, prize-winning industrial engineer



# Lisa loads light packaging

A WOMAN WHO CAN HOLD HER OWN

Women on waste-disposal vehicles? "Why not? There is no reason for it, only biases that have long since been shown to be unfounded," says Dieter Opara, REMONDIS branch manager in Hanover. He hired the first female driver for a collection lorry in Lower Saxony in 2015, followed by the first loader in northern Germany in 2016. With this first in Germany, the company has gained excellent experience. Lisa Niechciol (22) working as loader has not infrequently been accompanied by citizens gazing on in disbelief.

Rainer Fredermann (CDU), delegate to the Landtag for Langenhagen, and Lisa Niechciol collecting light packaging

In rain or shine, when the self-assured young lady is collecting yellow bags on nimble feet and a spring in her step together with her male colleagues in surrounding municipalities in the region of Hanover, car-drivers gaze on with a smile on their face, reports Matthias Rütz (34), who has been riding on the running board for a year now. People perceive a bit more consciously the work performed by the seasoned team. Lisa is performing valuable pioneering work, as many women still hesitate when it comes to practical work in the world of the recycling economy. By the same token, there is scarcely any profession in which everyday work and the desire for more environmental and climate protection can harmonise with one another so well. "I think it's great to be able to work outside in the fresh air," says this almost delicate woman, who can hold her own.

Lisa works quickly and reliably, something which is not always to be taken for granted with male colleagues. She did not have any fear of contact with the recycling economy right from the start. Her boyfriend, who also works in the sector, gave her the idea to hire on at REMONDIS. Lisa had undergone occupational training as a saleswoman. She does not

want to go back to that profession. As loader, Lisa walks up to 20 kilometres per day, gathering between three and seven tons of light packaging in yellow bags. Every year the branch collects up to 1,600 tonnes of waste that can be sorted. This is a crucial basis for the recycling economy. The loader can proudly note in her curriculum vitae that she contributes to climate protection by saving considerable quantities of CO<sub>2</sub> and resources. "And I don't have to go to a fitness club after work," says Lisa, striding off again to snatch five bags at a time and tossing them energetically into the vehicle. Every toss makes a concrete contribution to more sustainability.

She goes about her job, street by street, routinely answering queries by passers-by as to whether the work is not difficult for a woman or not, saying "no, it's fun," thereby generating confusion at times, but sometimes encouraging respect. Rainer Fredermann (CDU), a member of the State Parliament, has also voiced his admiration. The delegate to the Lower Saxony Landtag from Langenhagen electoral district slipped into the role of loader for one day last summer, collecting yellow bags together with Lisa. "As a delegate to the regional parliament, I have been a member of the Waste Committee for the Hanover region for many years and help shape the future of waste policy. It helps to know what you are talking about," says Fredermann, adding: "I think it is great to have a woman as loader!"



REMONDIS supports the women's quota and is pleased about every female applicant. In addition to professional drivers and loaders, interested women will find a lot of information on interesting professions and training programs in the recycling economy at [remondis-karriere.de/startseite](https://remondis-karriere.de/startseite)



# > Impressions



◀ Finally, young skilled workers! Matthias Fesser, Denise Knorr and Marco Petras (from left to right) sign their employment agreements with shortly after their approval (photograph: SpreePR, Petsch)

Wino von Wangenheim, Prof. Dr. Martin Faulstich, Ludger Rethmann, Herwart Wilms, Bernd Fleschenberg, Wilhelm Bies, Andreas Bankamp, Lars Nehrling and Patrick Gütschow (from left to right) are pleased to be able to meet with NRW Minister of Economics Prof. Dr. Andreas Pinkwart (4th from left)



◀ At the ribbon-cutting ceremony for the new recycling centre in Foshan: Jürgen Feiler, CEO REMONDIS China, Adele Jin, president GrandBlue Foshan, Thomas Bretkopf, member of the board of management at REMONDIS SE, Lünen, Martin Fleischer, Consul General for the Federal Republic of Germany in Guangzhou, Hanquan Cai, vice district mayor Foshan-Nanhai, Quancai Liang, head of the subsidiary of Foshan-Nanhai district, Dr. Zhao, managing director of REMONDIS China (from right to left)

Visit at REMONDIS Su ve Atik Su management: Ahmet Ates and Jens Meier-Klodt at the chairman of the board of management of the ISKI Istanbul authority for water and sewage, Fatih Turan (middle)

Stephanie Kirstgen (on the left) receives the Oswald Schulze Prize for her Master thesis at the 51st Essen Conference for Water Management. Katrin Brenner congratulates her on behalf of REMONDIS (photograph: Ruhrverband)





# It should be possible for people to separate those things that link them together

Lighter, more stable, more versatile – industry is increasingly banking on lightweight design and construction. Which is a good thing in principle. But sometimes carbon-reinforced plastics (CRP) are used as well. Composite materials like these cannot be recycled because their elements cannot be separated again. This is where we can only obtain help from ecodesign guidelines, which address the recycling issue already at the stage of product development.

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