Welcome to the Teijin Aramid Sustainability Report 2013. In a continuously changing environment, Teijin Aramid focuses on providing good quality products, delivered at affordable, competitive prices. To achieve this, and to remain successful, we need to be able to adjust to changing circumstances on a continuous basis. Our Sustainability Report 2013 also reflects this way of working. Rather than going into too much detail, we focus on the main issues of 2013, presented in a more personal and graphical way.

Of course, we hope that this way of presenting our results also appeals to you – our reader. It is vital that we maintain an ongoing dialogue with those around us. Only then can we know what they think about us, and where we can improve. We would therefore like to invite you to send us any feedback you may have on this report. Simply email your views, comments or observations to sustainability@teijinaramid.com and we will get back to you. Your feedback will be greatly valued.
How would you summarize the current vision and ambition of Teijin and Teijin Aramid?

It is Teijin’s long-term vision to provide new technology-driven solutions globally. As part of the Teijin Group, Teijin Aramid has also adopted this long-term vision. We want to be the best para-aramid company in the world and we will focus on the development of solution-based offers, with a strong emphasis on a good cost/performance ratio.

How does sustainability fit into this strategy and approach?

Our vision on sustainability has not changed from that of previous years: we have demonstrated that our products are both eco-efficient and cost-efficient. I am absolutely convinced that if we can show this clearly to the outside world, we will be able to develop our business significantly.

2013 saw the start of the internal KenZen Program. What is this program? And how does it differ from what has been done in previous years?

KenZen is derived from Japanese and means a healthy, strong company that is and remains competitive in a constantly changing world. Unlike previous years, this is an overarching program that is targeted at all locations combined. KenZen is about establishing a way of working within Teijin Aramid that is driven by continuous improvement.

Looking back, what do you think went well in 2013?

I am pleased to say that, after some difficult years, we have now started to grow again. However, due to increasing competition, our prices are under a lot of pressure. We made a good start with our new office in Shanghai, we set up an office in Russia, and our office in India is also developing well. Internally, the KenZen program is, of course, an important theme for all our people. We are really making progress here, and I am very happy with the commitment of all people involved.

In addition to our continuous improvement efforts, we paid a great deal of attention to safety. This was something we really needed to do, and I am pleased with the results so far, which I can best describe as a turnaround from a ‘reactive’ to a ‘proactive’ safety culture.

Finally, I would like to say something about our workforce. We had to take some painful measures in order to become an organization that can cope with changing market circumstances. One of the consequences was that we have had to reduce our workforce. Although this was painful, it was done in a respectful way, and I am satisfied about how it was accomplished.
What could have been done better?

We are still experiencing price pressure, and I am unhappy about the energy prices we have to pay compared to our American competitors. Internally, in spite of our enhanced attention to safety and the environment, I regret to say that we still had to deal with various incidents. This remains an area where we still need to improve!

What does this mean for 2014?

We will continue to do our utmost to make sure we can offer our customers the best possible price/performance ratio. Internally, we will still be focusing on implementing KenZen in 2014. We will involve our employees even more intensively in order to establish the way of working we have in mind. Also our focus on health and safety will continue.

Is there anything else you would like to share with the readers?

In the context of KenZen, we also considered our annual report. We are part of the Teijin Group, which publishes a yearly CSR report, that is entirely in conformity with the GRI guidelines. As Teijin Aramid, we want to communicate on our performance in an efficient way, connecting to the need of our specific audience. The result is what you are reading now, an overview of our 2013 highlights, presented in a clear and attractive way. I hope that this provides with good insight into our great organization and the developments we are going through. Happy reading!
KenZen – what is it?

KenZen is the Japanese name that has been assigned to the continuous improvement program within Teijin Aramid. In Japanese, it looks like this:

健全

Over the past 30 years, our organization has had to deal with many challenges. To cope with these developments, and to remain successful, we have continuously adjusted ourselves. For example, in the eighties, the emphasis was on making factories stable in terms of processes. In the nineties, we focused on developing new markets and applications. In the first decade of the 21st century, to meet market demands, we had to put in a huge amount of effort to expand production capacity. And now, a decade later, we are faced with the next challenge: to further develop Teijin Aramid as a leading player in aramid products worldwide. Today, we find ourselves in a continuously changing environment, in which there is no shortage of supply. We want to supply good quality products, delivered at an affordable, competitive price.

KenZen is Japanese for a healthy, strong company that is – and remains – competitive in a constantly changing world, and in which each individual and each part of the organization continuously works on improving the organization as a whole. It is a way of working that requires us to work smarter and to look differently. It is an overall program with the entire organization involved, from Manufacturing, Research & Development and Marketing & Sales to Staff Services. We start small, together creating a snowball effect that will keep ‘rolling’. Our challenge is to make valuable products for our customers at a competitive price, while guaranteeing quality, work safety and compliance with the regulations. This is not so much about working harder but working smarter; making better use of our possibilities and focusing on the needs of the customer, both internally and externally.

The KenZen Program

In 2013 the program started with the involvement of our management team and the gathering of data. The next step was to train so called change agents, local people who are the KenZen contacts within the organization. In 2013 we started with 12 change agents who were trained and put to work.

This is followed by introductory meetings for all employees: approximately 1,000 employees participated in these meetings, divided over 17 sessions at four locations (Emmen, Delfzijl, Arnhem and Wuppertal). This resulted in 170 dialogue folders, containing 687 tips and suggestions regarding improvement opportunities within the organization.

Based on these suggestions and the data collected, 12 projects were started up, so called wave 1 projects, involving 120 participants. The focus of these projects is on eliminating waste by more collaboration, and working in a more efficient and smarter way.

At the end of 2013, 150 managers were trained in the ideology and methodology of continuous improvement.

In 2014, the first 12 projects will be completed, a second round of projects – wave 2 – will follow, another 18 change agents will lined up and the employee training program will start, led by the line managers.
Putting KenZen into practice

Jeroen Stoffers (Senior Process Operator) and his manager Bouke de Beer (Operations Manager Process) have been successfully working together on improving a health and safety issue at their site using the KenZen methodology. Since September 2013, Bouke has been responsible for the site where Twaron Black is produced.

Could you briefly describe the issue that led to the KenZen improvement project?

B | When Twaron Black was first taken into production in 2012, it started off as a pilot. When the pilot turned out to be successful, we continued to further develop the product, but never really changed the installation. With production levels going up, however, our process operators, including Jeroen, soon found that they were running into upscaling issues.

J | Why it worked so well is that these changes were suggested by the teams themselves. I attended the day shifts for a week, and put up all suggestions I received from the teams on a large notice board with pictures. This made it very transparent what we do and how we do it, and where things are being improved, so the process operators could see what was happening. The process operators wanted to know what was going on, and the notice board helped us to communicate with them.

What are you looking to achieve in the long term?

B | For the longer term, we have set up a project group to examine a number of operations and unsafe situations, the experiences of the process operators, and how we could improve things. We use the KenZen A3 methodology and we also make use of the services of a KenZen change agent to guide us through the process. On the basis of certain criteria and weighting factors, the project group has come up with a number of scenarios, which have been presented as formal recommendations. The organization now needs to take it further.

Finally, how does this all fit in with the KenZen philosophy?

B | KenZen is all about eliminating waste. In our case it's about eliminating handling waste, such as transporting containers filled with acid over long distances. It also means listening to employees, giving employees responsibility, and making progress transparent.

How did you go about making the changes?

B | We were very much aware that setting up an entirely new installation would take a lot of time and would be too expensive to implement straight away. We therefore split it up into short-term and long-term actions. For the short-term objectives, I asked Jeroen to take the lead and make an inventory of all the things that the operators thought that needed improving. Jeroen then made sure that those changes were implemented as quickly as possible. For instance, they raised a Plexiglas screen around the container, and put a lid on it to prevent the hose from slipping out. In addition, instead of transporting the container, we can now move the mixing element, which resulted in much less handling of the container.

J | That’s right. I’ve been given a lot of freedom and responsibility in the decision-making process. This enabled me to solve the issues from the bottom up, involving the people on the work floor. All in all, this has been a great example of how KenZen works in practice, and I’m proud to have been able to make such a valuable contribution.
Health and safety are two key areas in our ambition and policy. Our vision in this respect has been included in our QHSE policy and complies with the policies of Teijin Ltd.

**Safety**
In 2013, we paid much attention to further improving safety. We want to be among the best in class in HSE performance, and we are aware that behavioral change throughout the company is required to achieve this. That's why we have initiated various discussions with a number of external parties in order to gain access to best-in-class standards, systems and operations, and accelerate our knowledge and expertise in this area. Among other things, this has led to the development of our Life Saving Rules and the development of an integrated process safety management program, which combines both technical and cultural aspects of safety. To measure our progress and development in this regard, we have been audited extensively by various bodies, both internally and externally.

**Health**
Besides paying attention to safety and the environment, we also focus on our employees' health. In 2013 we offered various programs that encouraged them to adopt healthy eating habits and an appropriate physical exercise regime – with good results!

**Life Saving Rules**
Following the example of the industry leaders, we have developed a set of Life Saving Rules, which will be implemented in 2014. These rules are geared to those activities within our company that form the biggest risks of serious injury. The rules remind us of the safety behaviors that protect us against dangerous situations. The Life Saving Rules in themselves are not new, but the uniformity and strict enforcement within the company are. Along with the Life Saving Rules, we have also introduced a Golden Principle: “Stop the work as soon as you see unsafe circumstances or behavior.” Everyone bears equal responsibility to act when it is no longer safe to carry out the work. That also means that you look after your colleagues and that you help each other to prevent accidents.

**Safety incidents**
Despite all our efforts, hazardous situations still occur and incidents happen from time to time. We greatly regret this, as we believe that any incident is one too many. We want our employees to arrive at work in good health and to go home again at the end of their daily work in good health.

We measure our safety performance on the basis of the following data:
- incidents leading to absence (Lost Time Injuries)
- incidents leading to temporary alternative work (Restricted Work Cases)
- incidents requiring only medical treatment (Medical Treatment Cases)

Using this information, we calculate the Total Recordable Rate (TRR), which is the total number of incidents (i.e., the total of Lost Time Injuries, Restricted Work Cases and Medical Treatment Cases) per million working hours.

The Teijin Group set itself a target for 2013 to maintain the Lost Time Injuries (LTI) frequency rate under 0.25 (i.e. the number of industrial accidents leading to absenteeism per million working hours).

During the year, the Teijin Group paid special attention to activities to prevent accidents caused by rotating equipment. Additionally Teijin Aramid focused on reduction of damage to health caused by exposure to chemicals.

In 2013, we recorded three LTIs, leading to an LTI frequency rate of 1.5. This means we do not meet the target of less than 0.25, and safety improvement activities will remain a key focus. We also recorded LTIs among the employees of our contractors and subcontractors. One contractor reported one LTI.
Edward Groen, our site manager in Delfzijl and John Oude Egberink, our site manager in Emmen are responsible for the safety and well-being of our employees, contractors and visitors at their location. We asked them about their views on safety and what they focused on in 2013.

What do health and safety mean to you?

**J** | In my view, health and safety is about a couple of things. First of all, personally, I don't want any accidents at my location. I find it important that people can go home safe and sound after having worked for us at our location. Safety is not a goal in itself but a precondition for people to be able to work here. And finally, health and safety are our 'license to operate' – they enable us as a company to produce yarns.

How does that work out in practice?

**J** | In Emmen, this can be translated into three areas:

1. **Technology**
   Every year, we make technological improvements to increase safety in our factories. For this purpose, we've formulated a number of key objectives. One of these is 'No yarn contact'. Operators should not come into contact with running yarn, or at least as little as possible. Another example is 'No leakages'. This means we actively search for all kinds of technical and technological solutions to prevent leaks. These programs not only address technological improvements but also involve training and instruction modules.

2. **Systems and management attention**
   In 2013, we focused strongly on the quality of work permits. This is mainly about the interaction between the people involved. They need to communicate about how the work is handed over and what they need to bear in mind in order to do a job safely. The work permit merely supports this process. It's not about completing a form, but rather about the communication around it.

**E** | I totally agree with that. When I think of health and safety, I want to provide a safe work environment. It's about being a good employer, for your own staff, for contractors and for visitors.

Would you say there's a personal drive behind it?

**E** | Definitely. In my previous job, I was on calamity duty when a young man got 1,000 liters of hot water spilled over him. I saw him leave with his skin literally coming off his arms – he was marked for life. And as the son of a process operator, I've also experienced the other side of the story. If you receive a phone call that something serious has happened and that there's a taxi on its way to pick you up and take you to a specialized burns hospital – that has an enormous impact. Safety is about people and the impact and consequences for a lifetime. That's why we work so hard on health and safety.

**J** | For me, there's also an important personal reason why I give safety a high priority. My father lost several fingers on one hand due to an accident with a machine. I've told this story many times during in house safety training courses, and I notice that, even after so many years, it still gets to me. It's clearly related to what we do here on site, and similar incidents can take place here. One thing I do know is that I don't want to see anything like that happen here.

3. **Behavior**
   Besides giving general advice and training, we also focus closely on reporting unsafe situations. By reporting a potentially dangerous situation, what is known as the 'near miss card', incidents can be prevented and we can learn important lessons. In 2013 we registered more than 800 cards. In addition, we paid special attention to our Life Saving Rules.
In Delfzijl we started the Step Change Process Safety program in 2013. This program is built on 4 pillars:

1. **Commitment to process safety**
   When we heard that people from outside Teijin Aramid perceived us as ‘reactive’ this hit us quite hard, since we are actually paying a great deal of attention to safety. To discuss this external view with middle management, we set up a ‘hearts and minds culture ladder’ meeting. We now agree with the assessment and will work hard on becoming a proactive organization. We seem to have skipped the “calculative” step, which is about really following and complying with the system structure and work processes. We now have to go through this phase in order to develop further as an organization. In this context, it is important to realize that the ‘reactive’ assessment is not a value judgment on individuals, but a characterization of our activities in the field of safety.

2. **Understanding hazards and risks**
   For this purpose, we started a five-year program in which we thoroughly screen the entire factory in order to map out all safety risks and measures. In 2013 we focused mainly on work processes, education and training. In January 2014 we started the implementation.

3. **Managing risks**
   This part of the program is about managing risks, with established work processes as an important focal point. In 2013 we worked hard on improving the overriding procedure, fine-tuning the work permit and improving the work process with regard to the initial opening of installations in order to further reduce exposure to chemicals.

4. **Learning from experience**
   To be able to learn, we first need to know what we are doing wrong. We gain this insight through structural incident investigations and the ‘near miss’ cards that are used to report unsafe situations.

**To what extent is this different from previous years?**

We’ve been paying a lot of attention to safety at all our locations for many years. This hasn’t changed. What was particularly different in 2013, however, is that we made a real turnaround by carrying out a high-priority, thoroughly structured and integrated process safety program, involving the entire organization. This isn’t a one-year project, but a program that will continue through the coming years.

In Emmen, we also had several discussions on our safety culture. We’ve been incredibly active in the field of HSE – for years. To be labeled as ‘reactive’ felt wrong. But by looking at the examples of the various steps on the ladder, we realized that, in our development, we do tend to be on the reactive side, particularly when it comes to how to establish and monitor safety aspects. We genuinely want to become a proactive organization and are in the process of adjusting our multi-year safety plan to this end.

However, as far as making improvements is concerned, we not only look at our own way of working. We also learn a great deal by looking at others. For instance, each year we organize a Contractors Safety Day. On this day, we enter into discussions with our contractors to find out how they experience our way of working. They often have knowledge and experience that we can learn from. This is something we want to make more use of.

Finally, is there anything you’d like to add?

As a final remark, I’d like to add that safety is about awareness and behavior. A lot of unsafe situations come from behavior, particularly about doing things subconsciously, as if running on automatic pilot. This is what our safety interventions are mainly designed to do, such as carrying out last-minute risk analyses during a stop, precisely to switch off this automatic pilot.
Standards and audits

In order to comply to various laws and regulations and standards, all sites follow the procedures laid down in our Quality Health Safety and Environment (QHSE) management system. We are audited by various bodies, both internally and externally.

Certification

We are audited by external agencies on a regular basis in accordance with the required schedule of the various certifications to ensure that we continue to comply with all relevant certificates.

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<tr>
<th>Certification</th>
<th>Delfzijl</th>
<th>Emmen</th>
<th>Arnhem</th>
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<tr>
<td>ISO certification</td>
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<td>ISO 9001 (Quality) since 1993</td>
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<td>ISO 14001 (Environment) Since 1996</td>
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<tr>
<td>OHSAS 18001 (Health and Safety) since 2002</td>
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<tr>
<td>External audits 2013</td>
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<td>2 (ISO certification)</td>
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Laws and regulations | BRZO

Our production sites in Emmen and Delfzijl are subject to the Major Hazard Control Regulation (BRZO: Besluit Risico’s Zware Ongevallen 1999). Representatives of the Dutch authorities (the province, the Labor Inspectorate, and the regional fire department) visit both locations annually to carry out inspections.

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<th>External audit</th>
<th>Delfzijl</th>
<th>Emmen</th>
<th>Arnhem</th>
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<td>1</td>
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<tr>
<td>Observations</td>
<td>35 (February)</td>
<td>5 (May)</td>
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</tr>
<tr>
<td>Violations</td>
<td>10 (February)</td>
<td></td>
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In 2013, Delfzijl was visited twice by the BRZO inspectors. During the February inspection, 35 observations were made on several issues of the safety control system, and 10 violations were recorded. During the September inspection 5 observations were made and no violations were recorded. All the 10 violations were internally solved in the meantime, of which 7 officially confirmed by the authorities.

Laws and regulations | Environment

Measured from our base year, until 2012, we had never been penalized for non-compliance with legislation and regulations. However, at the beginning of 2013, we were given a penalty for non-compliance with the proper registration of a number of exposure limits. All documents now comply with the required levels of reporting.

We also report environmental incidents to the authorities. This relates to any “unusual incidents” that have or may have an effect on the environment. These incidents can vary from a false fire alarm to a chemical leakage.

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<th>Incidents</th>
<th>Delfzijl</th>
<th>Emmen</th>
<th>Arnhem</th>
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<tbody>
<tr>
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<td>3</td>
<td>1</td>
</tr>
<tr>
<td>Exceptional incidents</td>
<td>0</td>
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All environmental incidents were within the range of our regular operations, and no exceptional incidents occurred. We see every incident as one too many and we strive to minimize all incidents. Looking at our performance in 2013 the number of environmental incidents has been significantly reduced. This was mainly thanks to improvements in Delfzijl and Arnhem. We see this reduction as a result of our continuous efforts to improve our safety levels.
**Internal audits**
Apart from being subject to audits by official institutions, we also perform internal audits, whereby colleagues from other sites and departments examine our work processes from an auditor’s point of view. During 2013 a total of 15 qualified auditors performed 12 internal QHSE audits, corresponding to 20 days of auditing.

In the context of internal audits, we were also visited 6 times by our parent company, Teijin. These visits were partly initiated by the regular auditing process and partly as a result of Teijin’s stronger focus on safety and environmental targets.

**Convertors**
In addition to being assessed ourselves, we also assess external parties we work with – our convertors. These are parties who process our products further to fully comply with our customers’ needs. In 2013 we focused on our American and Italian convertors (4 in total), all with good results.

**External stakeholders**
And last, but certainly not least, customers, suppliers and other external stakeholders regularly send us a request for audits. This can be performed by means of a questionnaire or a visit to one of our locations. In 2013 all such audits were completed successfully.
The value of healthy employees

Teijin Aramid attaches great importance to having fit and healthy employees. In spring 2013, during the CLA negotiations, we discussed with the labour unions how to stimulate employees to actively work on their health and fitness.

Lifestyle program
After having studied the various options, we decided to offer three different kinds of lifestyle programs:

• Stok achter de deur ('The big stick')
• Actief aan de slag ('Get moving')
• Weer op gewicht ('Back to a healthy weight').

Each program has a clear link with Teijin Aramid’s wish to increase its employees’ sustainable employability. In collaboration with the organization MyDailyLifestyle, Teijin Aramid employees can benefit from the personal support of a dietician and/or sports coach, and work on achieving a healthier lifestyle by improving both their diet and their exercising pattern.

Periodic Medical Examination
The figures below show the current health related absences and the reasons of reporting ill. They correspond with the normal variation.

All programs started in 2013. The first two programs (Stok achter de deur, Actief aan de slag) were successfully implemented at the end of 2013. The third module (weer op gewicht) lasted longer and ended in the spring of 2014. Given the high demand, new programs have started in April 2014.

In 2014, Teijin Aramid will organize a Periodic Medical Examination (PME- NL: PAGO) at all of its locations. We want our employees to become aware of their fitness and health situation in order to promote sustainable employability. The PME also provides them with knowledge and advice to work in a healthy way.
The lifestyle program – personal stories

In order to support its employees in a healthy lifestyle, Teijin has started a lifestyle program with three main programs: Stok achter de deur (‘The big stick’), Actief aan de slag (‘Get moving’) and Weer op gewicht (‘Back to a healthy weight’). All programs aim to improve participants’ diets and eating habits. And we have seen some great results! Below several participants share their personal stories.

Martijn Joosten
R&D Analytical Chemistry

I participated in ‘Actief aan de slag’ and lost about 12kg, mainly because I took up mountain biking and cycling to work, and I’m now more careful about what I eat. I no longer cook and eat half a packet of pasta or rice, but weigh out exactly 100 grams. I’m much fitter now and physically I feel a lot better, too.

Erik Derksen
Section head pilot plant

I participated in the ‘Weer op je gewicht’ program. I lost 6kg and it didn’t require too much effort on my part. Taking stock of what I eat during the day was quite confronting. A bit of chocolate, a biscuit, it all adds up. I now eat more regularly and more consciously. There are still days that I eat something less healthy, but that’s okay, really. I feel fit and can recommend it to anyone who’d like to lose a couple of kilos.

Jos Zentveld
Mechanical Operator, Emmen

The ‘Stok achter de deur’ program also worked very well for me. I went from 132kg to 117kg! The excellent tips for drastically changing my diet and exercise routine were actually quite easy to carry out and maintain. I now feel much better than before. I can really recommend the program to anyone who’s still in doubt.

Martin Vernout
QHSE coordinator

My goal was to get my BMI back to the norm, which meant losing 10kg. And that didn’t take any effort at all. Plus, the well-known yo-yo effect didn’t happen. The support given by the lifestyle program was very practical. You become very aware of your diet and exercising patterns. And all with your boss’s help – great!

Riekus Raven
Project Engineer

I followed the 24-week ‘Stok achter de deur’ program and lost 28kg. Hurrah! My original purpose was to change my diet and eating patterns permanently. The amazing thing is that if you tackle a number of ‘bad habits’, the results follow automatically. The practical tips given in the lifestyle program are very helpful.

Bob ten Berge
ICT specialist

OK, your stories have convinced me. I’m joining. The program of my choice: ‘Weer op je gewicht’.
Customer focus

Sustainable value creation

The world in which we operate is constantly changing. We aim to be the best para-aramid company in the world and we believe that sustainable value creation and cost awareness are critical success factors. This means making products that match our customers’ needs as efficiently as possible, while ensuring that they meet the required performance level of our customers. To achieve and maintain this position, we will continue to proactively initiate collaboration with our partners in the chain whenever we see the opportunity.

In this context, we have examined our internal Marketing & Sales work processes. What can we improve to make sure we meet our customers’ needs even better and serve them to the best of our abilities? We focus on giving our customers the attention they deserve. Customer segmentation enables us to better align our products and services to the needs of the various market segments.

- Automotive
- Oil and Gas
- Protection and Defense
- Telecom

Together with our customers, we are working on deploying our materials in the required application more efficiently by optimally attuning the product to the customer’s wishes. Sometimes this means improving our product’s performance by an extra 5 or 10%; at other times, we aim for an optimum cost/performance ratio in order to arrive at the solution that is not only effective, but also maximally efficient.

Customer Benefit Model

We also believe that a sustainable approach will contribute to lower costs and add value to our products, and subsequently to those of our customers. They want to know which financial and sustainability-related benefits the use of Twaron offers in a specific application. Teijin Aramid has focused on this issue for many years now by using the Eco Efficiency methodology. The idea behind this methodology has now been translated into a concrete model: the Customer Benefit Model (CBM).

Together with the user or end-user, we can use the CBM to calculate the effect of applying aramid, both in terms of costs (savings in euros) and with regard to the environment (reduced impact on the environment). In 2013 our CBM reached maturity. Together with TÜV Rheinland LGA Products GmbH, we started preparations for submitting the CBM for certification. This official certification will give us a model that is internationally recognized and which, in collaboration with our customers, we can apply to all relevant Twaron applications.
An example – working together

On the 36th floor of a skyscraper in Shanghai you will find Teijin Aramid’s highest laboratory: the Technical Center Asia (TCA). This laboratory opened its doors in April 2013 with the aim of strengthening our relationship with our local customers.

Finding the best solutions together
The laboratory started off successfully and now plays a major role in supporting the market in the field of sampling and technical collaboration with customers. It also serves as the first point of contact in the event of complaints. In principle, the TCA works for all application areas.

A good example is the collaboration with one of our Chinese convertors, who is also a customer. Convertors process our products further to ensure the optimum fit for our customers’ needs, carrying out after-treatment, such as twisting and weaving. The Chinese convertor had a complaint about the quality of the yarn they received. Its strength was less than expected, given the specifications. Teijin Aramid invited this customer to the laboratory to work with us on the issue. Together, tests were carried out that demonstrated that there was in fact no problem with the yarn but the seemingly lower strength was related to the procedure of the test method. This not only helped to solve the problem, but also provided the convertor with valuable new knowledge about measurement techniques.

This way of working illustrates our ambition to always find the optimum solution together with our convertors, customers and even our customers’ customers.
In recognition of the importance of this development, a consortium has been formed with Canadian mines, the Department of Natural Resources from the Government of Canada, a US rope manufacturer, a consultancy company and Teijin Aramid as fiber supplier and synthetic fiber renowned world expert.

This consortium has developed case studies comparing steel wire ropes with synthetic Twaron ropes for different situations. For very deep mines an extra underground hoisting station (multiple lift) is often necessary. With synthetic hoisting cables containing Twaron fibers, this underground station is no longer needed, and a single lift operation suffices. For mines this results in tremendous Capex savings.

Using the Customer Benefit Model, the Agnico Eagle Gold mine calculated the following case studies, showing the value of Twaron ropes:

To develop and explore this new technology further and to fund test facilities, the consortium is now seeking financial support from other industry partners who are interested in participating in the next phase of the mine hoisting rope project, which will take place in 2014.
Interview with Dr. Willem Vaessen

In November 2013, Deloitte, in cooperation with TNO and VNCI, organized a conference for and by the chemical industry. The central themes were the impact of the US shale gas revolution and the potential of Advanced Materials Systems for the chemical industry.

Teijin Aramid made a substantive contribution to the conference with its presentation entitled ‘Twaron as advanced material to enable growth, innovation and sustainable solutions’.

Could you briefly tell us about the Chemical Conference’s main goal?

This was a conference with and for the chemical industry. Each year, we publish a new industry study and tackle an important theme to have a good discussion about it. In November, we addressed two themes. The first was the impact of US shale gas on the Dutch industry. This was a ‘defensive’ discussion about the back-end of chemical value chain aimed directly at the subject of operational efficiency due to high costs of energy and feedstocks. The second theme was about Advanced Materials Systems – a front-end discussion – addressing innovation and growth.

“In my view, the chemical industry faces a pressing managerial dilemma: Do you commit scarce resources to improvements in operational efficiencies to cut costs or innovation to drive growth. Striking the right balance determines your company’s future.”

Why had you invited Teijin Aramid to give a presentation at the conference?

Teijin’s presentation fit in very well with the second theme since it focused on sustainability from a novel business perspective. It was very interesting to see how Teijin Aramid approaches its customers and the market in the context of sustainability, and how it positions its products, such as Twaron. From the presentation and subsequent discussion, it was obvious that Teijin Aramid has incorporated the expertise of its “Sustainability Department” into its mainstream marketing and sales activities. Clear examples showed how, in collaboration with other partners in the value chain, the intrinsic sustainability of Twaron as part of an Advanced Material System brings a range financial benefits, incl. for example savings in energy and maintenance costs. This goes beyond LCAs (Life Cycle Analysis). The enabling financial model gives customers and customers ‘customers’ clear insight into Teijin’s business proposition. In our experience, most customers are not immediately prepared to pay a premium for sustainability as such, unless it leads to transparent benefits. Together with its customers, Teijin Aramid quite simply calculates the financial returns on using Twaron. I don’t know of any other company that can show this so consistently. It’s a best practice, but not yet a common practice – which is why we wanted to show this.

How does this fit in with your vision regarding the use of Advanced Materials Systems?

Our view with regard to the importance of Advanced Materials Systems is that the following four elements need to fuse to create value for chemical companies:

1 Megatrends (e.g., mobility, aging population and urbanization) – Which unmet needs do the megatrends create in the different end markets?

2 Advanced materials – What kinds of materials and their properties do we have in our portfolio?
3 Process technology – How can we shape, convert, combine and/or apply these materials to provide the right functionality?

4 Eco-systems – What are the right strategic partnerships to enable these developments?

Teijin Aramid is well-positioned in this regard as it has a portfolio of good partnerships, clients, interesting materials and a solid understanding of the end markets. The right technology may not always be present, but I think that by finding the right partners for the right technology, rapid progress can be made. This may, of course, take place outside the company, but if I look at Teijin's portfolio and position as a whole, with end market applications such as medical devices on the one hand and advanced materials on the other, I see many opportunities for innovation here, too.

Finally, is there anything else you would like to share with our readers?

The Chemical Conference 2013 focused on two important aspects that chemical companies need to balance in order to survive: (1) a solid cost position and (2) attention to innovation enabling growth. Although this creates tension, it helps to build a sustainable future. By deploying knowledge in the right way, there is a bright future for the Dutch chemical sector.
Key figures

Within Teijin Aramid, we measure our performance in all areas: people, planet and profit. The following overview is a summary of the main indicators: Teijin Aramid at a glance and our global presence. The underlying pages give more insight into our environmental performance. More detailed information figures relating to our people can be found in the health and safety pages.

<table>
<thead>
<tr>
<th>Teijin Aramid at a glance</th>
<th>F 2011</th>
<th>F 2012</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Profit</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Net turnover of Teijin Ltd.</td>
<td>€ 5,084 mln</td>
<td>€ 6,963 mln</td>
</tr>
<tr>
<td>Net turnover of Advanced Fibers and Composites Teijin Ltd.</td>
<td>€ 1,130 mln</td>
<td>€ 1,038 mln</td>
</tr>
<tr>
<td>HSE investments (% of total investments)</td>
<td>17.3%</td>
<td>15.6%</td>
</tr>
<tr>
<td><strong>People (as at December 31)</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>FTE (ex. Global sales offices)</td>
<td>1,245</td>
<td>1,312</td>
</tr>
<tr>
<td>Headcount</td>
<td>1,360</td>
<td>1,379</td>
</tr>
<tr>
<td>Third-party contracts (FTE)</td>
<td>93</td>
<td>156</td>
</tr>
<tr>
<td>Shift service</td>
<td>46.9%</td>
<td>43.9%</td>
</tr>
<tr>
<td>Female</td>
<td>13.1%</td>
<td>13.7%</td>
</tr>
<tr>
<td>Part-time workers total</td>
<td>12.0%</td>
<td>12.8%</td>
</tr>
<tr>
<td>Health-related absences</td>
<td>4.6%</td>
<td>4.2%</td>
</tr>
<tr>
<td>LTB (Teijin Aramid)</td>
<td>3</td>
<td>2</td>
</tr>
<tr>
<td>LTI frequency rate</td>
<td>15</td>
<td>10</td>
</tr>
<tr>
<td>Total recordable</td>
<td>25</td>
<td>30</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th><strong>Planet</strong></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>Energy Efficiency Index (compared to 2005)</td>
<td></td>
</tr>
<tr>
<td>Index Delfzijl</td>
<td>103</td>
</tr>
<tr>
<td>Index Emmen</td>
<td>88</td>
</tr>
<tr>
<td>Index Arnhem</td>
<td>92</td>
</tr>
<tr>
<td>Greenhouse gas emissions (CO2)</td>
<td>21,487 tons</td>
</tr>
<tr>
<td>Water consumption index (compared to 2005)</td>
<td></td>
</tr>
<tr>
<td>Index Delfzijl</td>
<td>121</td>
</tr>
<tr>
<td>Index Emmen</td>
<td>79</td>
</tr>
<tr>
<td>Index Arnhem</td>
<td>89</td>
</tr>
<tr>
<td>Number of environmental incidents</td>
<td>19</td>
</tr>
</tbody>
</table>

1) In 2012, all overseas subsidiaries of Teijin Ltd., including Teijin Aramid BV, transferred to the fiscal reporting period of Teijin Ltd., which runs from April 1 to March 31. The financial figures refer to the fiscal year 6a, April 1, 2013 - March 31, 2014.
2) The people and planet figures represent the calendar year 2013 (6a, Jan 1, 2013 to Dec 31, 2013).
3) Corrected value.
Teijin Aramid’s global presence

- USA: 27
- South America: 9
- France: 2
- Spain: 2
- Italy: 1
- Germany: 65
- Netherlands: 1245
- Asia: 19

Global sales offices

tiejinaramid.com The power of Aramid
Energy

Energy is a strategic topic for us. The manufacturing of our products consumes a lot of energy and we pay a lot of attention to reduce our energy consumption. This to reduce our impact on the environment and to save costs.

Energy Efficiency Plans (EEP’s)

In the Netherlands, we participate in the MJA-3 ‘Meerjaren-plannen’ (multi-year plans) at all our locations. The MJA-3 plans are long-term agreements between the government and companies on the effective and efficient use of energy. The objective is to realize an average of 2% energy savings every year.

The implementation of these agreements has been defined in Energy Efficiency Plans (EEPs). Each location develops its own EEP, describing the planned actions and expected results. In 2013, we registered our new EEP for 2013-2016 with Agentschap NL and the Dutch authorities. During this four-year period, we aim to realize at least 8% energy savings by improving the energy efficiency of our processes in our plants and our research facility. These efficiency improvements will be achieved by optimizing our production processes and several dedicated improvement projects.

On top of this, we plan to achieve 7.5% energy efficiency savings in the value chain due to the use of Twaron. In this context, new chain measures have been included in the EEP for 2013-2016. For example, by using lightweight Twaron in conveyor belts, energy use is significantly reduced, and by replacing steel gas cylinders by Twaron-reinforced gas cylinders, cylinders can be created that are much lighter and require less maintenance. As co-developer and promoter of these new solutions in the chain, Teijin Aramid can account for 50% of the energy savings along the value chain.

Our plans lead to a total energy reduction of more than 15% (compared to 2011). In 2013, an examination of process and chain efficiency showed that we are on track to achieve the planned savings in four years’ time.
Our energy performance in 2013

We indicate our energy performance by means the Energy Efficiency Index (EEI) per location. The EEI shows our energy consumption in relation to the volumes manufactured per site, compared to our reference year 2005.

In line with our energy reduction plans, the EEI in Delfzijl and Emmen improved accordingly. In Arnhem, we operated our pilot plant only on half the capacity explaining the sharper drop of the Arnhem EEI.

Energy efficiency index

![Graph showing energy efficiency index for Delfzijl, Emmen, and Arnhem from 2005 to 2013.](image-url)
Carbon footprint

Expressing the eco-footprint of our products is an important part of our marketing strategy. By means of eco efficiency analyses and our Customer Benefit Model, we can calculate the ecological and financial contribution by using Twaron in a specific application. Besides adopting this application and chain oriented approach, we also look at our own carbon footprint: our CO$_2$ emission per ton PPTA produced.

We have been reporting our carbon footprint since 2010. We have not defined specific targets to reduce our footprint yet.

Our calculation is based on scopes 1, 2 and a part of 3 of the Greenhouse Gas Protocol. This is the international standard to account for greenhouse gas emissions. For the calculation of the footprint we make use of the database of the carbon footprinting tool of the University of Manchester.

Carbon footprint 2013

<table>
<thead>
<tr>
<th>Chain</th>
<th>(%) year 2012 between brackets</th>
</tr>
</thead>
<tbody>
<tr>
<td>Raw materials + Transport raw materials + Production + Production waste and waste water treatment + Transport end product</td>
<td></td>
</tr>
<tr>
<td><strong>Raw materials</strong></td>
<td><strong>24.6% (23.9%)</strong></td>
</tr>
<tr>
<td><strong>Transport raw materials</strong></td>
<td><strong>0.3% (0.7%)</strong></td>
</tr>
<tr>
<td><strong>Production</strong></td>
<td><strong>60.8% (62.1%)</strong></td>
</tr>
<tr>
<td><strong>Production waste and waste water treatment</strong></td>
<td><strong>9.5% (10.4%)</strong></td>
</tr>
<tr>
<td><strong>Transport end product</strong></td>
<td><strong>4.8% (2.8%)</strong></td>
</tr>
</tbody>
</table>

Production

- **Polymerization**
  - Delfzijl: 49.7% (46.9%)
- **Spinning**
  - Emmen: 37.9% (41.2%)
- **Post-process**
  - Emmen: 7.9% (7.5%)
- **Pulp**
  - Arnhem: 2.4% (2.7%)
- **Research & Development**
  - 2.1% (1.7%)

Our total carbon footprint in 2013 was approx. 21.4 tons CO$_2$ per ton PPTA produced. This is within the variation of the calculation and therefore comparable to our footprint of last year (21.9 tons CO$_2$ per ton PPTA produced).

Looking at the data however, we see a relatively strong increase in the contribution with regard to transportation of the end product. This is caused by an increase in air freight as a result of decreased stock volumes. Airfreight is only a fraction of our total transport, but has a major impact on the carbon footprint (85%) of the transport of our end products. We will use this information to start an internal discussion on our air freight levels vs stock levels.
**Water consumption**

We indicate our water consumption by means of the water consumption index per location. This is the water consumption per ton production, compared to our reference year 2005.

In Delfzijl the index increased compared to 2012, due to the fact that, in one specific part of our operation, we changed over from condensate to demineralized water. This is done to minimize the risk of corrosion and thereby increase the levels of safety.

**Water consumption index per ton product**

![Graph showing water consumption index per ton product]

Index compared to 2005

<table>
<thead>
<tr>
<th>Year</th>
<th>Index Delfzijl</th>
<th>Index Emmen</th>
<th>Index Arnhem</th>
</tr>
</thead>
<tbody>
<tr>
<td>2005</td>
<td>160</td>
<td>70</td>
<td>80</td>
</tr>
<tr>
<td>2006</td>
<td>150</td>
<td>70</td>
<td>80</td>
</tr>
<tr>
<td>2007</td>
<td>140</td>
<td>70</td>
<td>80</td>
</tr>
<tr>
<td>2008</td>
<td>130</td>
<td>70</td>
<td>80</td>
</tr>
<tr>
<td>2009</td>
<td>120</td>
<td>70</td>
<td>80</td>
</tr>
<tr>
<td>2010</td>
<td>110</td>
<td>70</td>
<td>80</td>
</tr>
<tr>
<td>2011</td>
<td>100</td>
<td>70</td>
<td>80</td>
</tr>
<tr>
<td>2012</td>
<td>90</td>
<td>70</td>
<td>80</td>
</tr>
<tr>
<td>2013</td>
<td>80</td>
<td>70</td>
<td>80</td>
</tr>
</tbody>
</table>

Year
Air emissions

In our production processes, it is inevitable that we also produce some by-products that we need to discharge. In order to minimize and control our emissions to the air, we have various installations in place such as filters, carbon beds, and scrubbers.

This results in the following air emissions, all well within our permit levels.

<table>
<thead>
<tr>
<th>Component (in kg)</th>
<th>Location</th>
<th>2011</th>
<th>2012</th>
<th>2013</th>
</tr>
</thead>
<tbody>
<tr>
<td>Particulates (&lt;10 mm)</td>
<td>Delfzijl</td>
<td>11 *)</td>
<td>13</td>
<td>4</td>
</tr>
<tr>
<td>Tetrachloromethane</td>
<td>Delfzijl</td>
<td>145</td>
<td>301</td>
<td>81</td>
</tr>
<tr>
<td>Aniline</td>
<td>Delfzijl</td>
<td>23</td>
<td>26</td>
<td>21</td>
</tr>
<tr>
<td>Dichloromethane</td>
<td>Delfzijl</td>
<td>1,609</td>
<td>1,051</td>
<td>1,839</td>
</tr>
<tr>
<td>Polymer</td>
<td>Arnhem</td>
<td>1,401</td>
<td>1,000</td>
<td>480</td>
</tr>
<tr>
<td>Finish (tons)</td>
<td>Delfzijl</td>
<td>873</td>
<td>1,135</td>
<td>1,139</td>
</tr>
<tr>
<td>Freon 22</td>
<td>Emmen</td>
<td>6</td>
<td>5</td>
<td>5</td>
</tr>
<tr>
<td>Pulp dust</td>
<td>Emmen</td>
<td>398</td>
<td>180</td>
<td>240</td>
</tr>
<tr>
<td>Carbon dioxide (tons)</td>
<td>Arnhem</td>
<td>17</td>
<td>15</td>
<td>8</td>
</tr>
<tr>
<td></td>
<td>Delfzijl</td>
<td>20,306</td>
<td>15,210</td>
<td>16,051</td>
</tr>
<tr>
<td></td>
<td>Emmen</td>
<td>4,655</td>
<td>3,738</td>
<td>3,658</td>
</tr>
<tr>
<td></td>
<td>Arnhem</td>
<td>1,021</td>
<td>744</td>
<td>668</td>
</tr>
<tr>
<td>Nitrogen oxide (tons)</td>
<td>Delfzijl</td>
<td>12</td>
<td>11</td>
<td>11</td>
</tr>
<tr>
<td></td>
<td>Emmen</td>
<td>2</td>
<td>2</td>
<td>2</td>
</tr>
<tr>
<td></td>
<td>Arnhem</td>
<td>1</td>
<td>1</td>
<td>1</td>
</tr>
</tbody>
</table>

*) corrected values
Tetra
When manufacturing TDC in Delfzijl, one of the building blocks of our aramid polymer, we use tetrachloromethane (tetra). Even though the process is basically designed to emit no significant quantities of tetra, there are always small emissions including emissions caused by “diffuse” sources. We have optimized these levels which normally vary between 75 and 150kg/yr.

Aniline
Aniline is one of the building blocks for the production of PPD. During production, excess gas is vented out. These vent gases are cleaned by means of coal beds, but some residue remains in the gas. In 2013, emissions of aniline were at our regular level.

Dichloromethane (DCM)
In Delfzijl an incident occurred in our recovery plant, causing a local discharge of 1,000 kg of DCM. The incident was thoroughly examined and the root cause was a defect pump seal. This particular pump was replaced by an improved design i.e. a magnetic pump.

In Arnhem, DCM is used in the pilot plant. The operational capacity of the pilot plant was reduced during the year, resulting in reduced levels.

CO$_2$ and NOx
The carbon dioxide emission is the CO$_2$ that we emit directly at our sites. These data therefore differs from the data we report in the carbon footprint.

In Delfzijl the CO$_2$ emissions are caused by the burning of natural gas and the burning of our incinerator vent gasses. The emissions slightly increased (6%) compared to 2012. We have changed some operational steps in the recovery plant, resulting in an increase of the CO$_2$ emission, but a decrease of our steam consumption. The total balance made it worthwhile to implement these changes.

In Emmen, the absolute emission of CO$_2$ and NOx is proportional to the natural gas consumption of the recycling installations for sulfuric acid, where water has to be evaporated to re-concentrate the sulfuric acid. When expressed per ton of product produced, the variation in CO$_2$ and NOx emissions as compared to 2012 is considered to be within the range of normal variation.

In Arnhem, the CO$_2$ and NOx emissions are caused by the natural gas used to dry the pulp. Emissions in 2013 were comparable to the previous years.
Emissions to water

In our production processes, it is inevitable that we also produce some by-products that we need to discharge. In order to minimize and control our emissions to water we have various installations in place such as filters, separators, carbon beds, and strippers. Furthermore, at all our production locations, the production water is cleaned in (biological) purification plants prior to discharge.

This results in the following discharge of various substances into the water. All levels are well within our permission levels.

<table>
<thead>
<tr>
<th>Emissions to water</th>
<th>Location</th>
<th>2011</th>
<th>2012</th>
<th>2013</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Component (in tons)</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Chemical Oxygen Demand</td>
<td>Delfzijl</td>
<td>88.4</td>
<td>33 *)</td>
<td>23.1</td>
</tr>
<tr>
<td>(COD)</td>
<td>Emmen</td>
<td>0.4</td>
<td>0.9</td>
<td>0.3</td>
</tr>
<tr>
<td></td>
<td>Arnhem</td>
<td>80</td>
<td>85</td>
<td>23</td>
</tr>
<tr>
<td>Total Nitrogen</td>
<td>Delfzijl</td>
<td>6.6</td>
<td>4.4*)</td>
<td>5.3</td>
</tr>
<tr>
<td></td>
<td>Arnhem</td>
<td>3.6</td>
<td>3.8</td>
<td>1.1</td>
</tr>
<tr>
<td>N-methylpyrrolidone</td>
<td>Delfzijl</td>
<td>1.7</td>
<td>1.1</td>
<td>1.0</td>
</tr>
<tr>
<td></td>
<td>Arnhem</td>
<td>25.7</td>
<td>27.3</td>
<td>7.6</td>
</tr>
<tr>
<td>Sulfate</td>
<td>Emmen</td>
<td>227</td>
<td>179</td>
<td>180</td>
</tr>
<tr>
<td></td>
<td>Arnhem</td>
<td>75</td>
<td>76</td>
<td>67</td>
</tr>
<tr>
<td>Dichloromethane (kg)</td>
<td>Arnhem</td>
<td>99</td>
<td>70</td>
<td>20</td>
</tr>
</tbody>
</table>

*) corrected values

Chemical Oxygen Demand (COD) and total nitrogen

In Delfzijl, more attention was paid to the optimization of the polymerization solvent recovery processes. This has resulted in a significant reduction of the COD values discharged into the Zeehaven Kanaal in 2012. This reduction continued in 2013. In Arnhem, the reduction of COD values is the direct result of the reduced capacity of the pilot plant.

N-methylpyrrolidone

We use NMP as solvent in the polymerization of aramid. In this process we separate aramid and NMP. We purify and reuse NMP for the next round of polymerization.

In Delfzijl we operated at our normal variation levels. In Arnhem, the pilot plant is responsible for the majority of the NMP emissions and the reduction of the NMP emission levels is the direct result of the reduced capacity of the pilot plant.

Dichloromethane (DCM)

DCM is used as an extracting agent in recovering NMP from waste water or effluent from the polymer washing. Due to the fact that the pilot plant has reduced its capacity, total emissions have dropped.
Waste and recycling

In the manufacturing of our products, we aim to recycle as much as possible within the process. For example, we recycle the solvents we use rather than using large quantities once and then discharging them.

However, in spite of these closed loops, all our plants still produce non-usable waste. At all our locations this waste is either offered for recycling or sent to incinerators. Our factory in Delfzijl is the only one of our plants that also discharges part of its non-usable waste.

### Index discharged and incinerated waste

<table>
<thead>
<tr>
<th>Year</th>
<th>Index discharged</th>
<th>Index incinerated</th>
</tr>
</thead>
<tbody>
<tr>
<td>2005</td>
<td>585 ton</td>
<td></td>
</tr>
<tr>
<td>2006</td>
<td></td>
<td></td>
</tr>
<tr>
<td>2007</td>
<td></td>
<td></td>
</tr>
<tr>
<td>2008</td>
<td></td>
<td></td>
</tr>
<tr>
<td>2009</td>
<td></td>
<td></td>
</tr>
<tr>
<td>2010</td>
<td></td>
<td></td>
</tr>
<tr>
<td>2011</td>
<td></td>
<td>4,250 ton</td>
</tr>
<tr>
<td>2012</td>
<td></td>
<td></td>
</tr>
<tr>
<td>2013</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
Both the total amount of waste offered for discharge and the amount of incinerated waste was reduced by 6% compared to 2012. In Emmen material for incineration is discharged in batches. This causes annual fluctuations. In 2012 a large batch of specific waste was offered for incineration, in 2013 the stored volumes increased and will be offered for incineration in 2014.

### Recycling materials

![Graph showing recycling materials from 2005 to 2013](image)

- **Index Delfzijl**
- **Index Emmen**
- **Index Arnhem**
- **Total recycled materials**

*Index compared to 2005*
Recycling used aramids

Recycling is an important focal area for Teijin Aramid. For more than 20 years, in our production processes we have been recycling our solvents. We also try to maximize the recycling of our waste. And since 2004, we have been investing in the development of an infrastructure for the collection and recycling of used aramid. We now have six sorting centers all over the world, supplying us with re-usable aramid material coming from a variety of sources.

In line with our plans to increase our recycling possibilities, we have centralized the processing and recycling of used aramid at our new facility in Emmen, where we started production in 2013. We also still recycle material at our facility in Arnhem. By using recycled pulp types, we are able to offer good solutions with a substantially lower carbon footprint than if we were using products made from virgin materials.

In 2013, we collected a total of 770 tons of used aramid and processed this into Twaron Eco advanced pulp types.
About this report

Accountability
This online Sustainability Report covers the entire international organization of Teijin Aramid. Its purpose is to inform our stakeholders – who include our parent company Teijin Ltd, employees, customers, suppliers, those who live and work near our sites, local businesses, governments, non-governmental organizations (NGOs), trade unions, trade associations and banks – about the highlights of what we are doing in the framework of sustainability.

This report combines all elements of CSR: people, planet and profit. Regarding our financial data, it is good to bear in mind that our financial year in 2013 was not based on the calendar year, but ran from April 1, 2012 to March 31, 2013. This follows the reporting practice of Teijin Ltd. Consequently, any financial figures mentioned in the Report reflect this period. All other data and information, however, relate to the calendar year 2013. The report has been published on May 28, 2014.

Over the past few years, we have closely monitored the suitability of our report itself. One of the metrics we use in assessing our performance is the annual Transparency Benchmark of the Dutch Ministry of Economic Affairs, Agriculture & Innovation. This Transparency Benchmark assesses reporting on policies and activities in the field of Corporate Social Responsibility (CSR). Our 2012 Report was well received, and we remain in a steady 4th place in our industry, and overall we rank 77th in a field of 460 companies rated.

The topics covered in the report have been selected on the basis of feedback given to us by our readers. We carried out an online survey, interviewed several readers and talked about the matters that are currently of most interest to them. This information was supplemented by an internal evaluation of the highlights of 2013. This has led to the selection of four themes: our internal process of change, health and safety, our customer focus and our HSE performance. The report describes our new strategy and how we apply it in all parts of the chain. In addition, it provides information about how we operate, working together with others, and taking responsibility for our role in the chain. We have also chosen a more personal approach, by means of various interviews and stakeholder experiences in connection with the themes.

Naturally, in compiling our report, we have also taken into account the requirements that Teijin Ltd stipulates for sustainability reports, and we describe the ways in which we interacted with our parent company in 2013.

Online reporting
For sustainability reasons, we only publish the report online, and do not produce a print version. Other than in previous years, we have integrated the report into our website. This enables us to focus on the most relevant subjects to report on, while all other information (e.g., about our company, our processes, etc.) can be found in other locations on our website. Feedback on last year’s report was positive with regard to the online publication.

Guidelines and verification
In the previous 10 years, we used the Global Reporting Initiative (GRI) as a reference and guideline. Our parent company, Teijin Ltd, also reports in accordance with the GRI. We are part of the Teijin Group and refer to this report as our umbrella. However, the Teijin report does not always meet the needs of our own stakeholders, which is why we decided not to follow the GRI requirements in this year’s report, but instead to focus on the information most appreciated by our stakeholder.

The International Financial Reporting Standards (IFRS) and J-SOX (the Japanese version of the US Sarbanes-Oxley Act) have been applied to our financial reports. Our QHSE management systems and our HR information system provided the non-financial data. All data is measured and reported locally according to our quality measurement system and where applicable, summarized centrally. We have used the year 2005 as the baseline year when reporting on developments over the past years.

The 2013 Teijin Group CSR report is verified by KPMG. The Teijin Aramid Report is not verified externally. All articles and data presented have been checked thoroughly by internal readers and approved by the management team. Their quality, we believe, is adequately guaranteed through this internal monitoring and control.