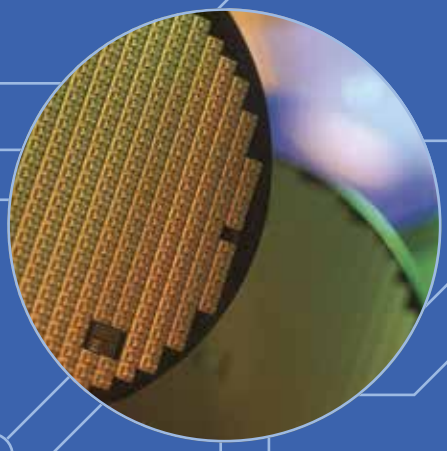
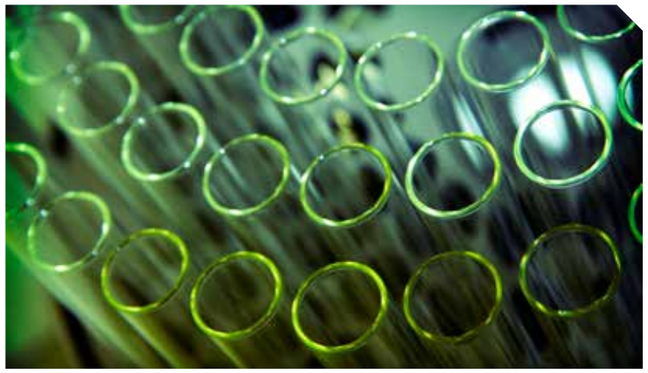
2015 CSR REPORT

JSR Micro
MATERIALS INNOVATION
JSR



/about this report



This is JSR Micro NV's first Corporate Social Responsibility (CSR) report [G4-17] **To us, CSR means taking responsibility for a broad range of impacts - beyond merely the financial - and being accountable to our shareholders, as well as to all stakeholder groups.**

Our CSR report covers the period from **1 April 2013 to 31 March 2015**. We have prepared the report **in accordance with the 'core' option of the Global Reporting Initiative (GRI) G4 guidelines**. In subsequent years, our intention is to report on a biennial basis. The GRI content index can be found on our website[1].

Fiscal years versus calendar years
As a part of the JSR Corporation, the head office of which is located in Japan, we report to our parent company in relation to fiscal years (FY) that run from 1 April to 31 March. However, as we are located in Belgium, we are required to report to the Belgian authorities in calendar years (CY). Wherever possible, we have presented data in regard to FY. Where this is not the case, we have clearly stated so.

Assurance
We did not obtain external assurance in the production of this report. However, most of the data contained in this report was tracked in our management systems that are audited by independent third parties.

Feedback
Suggestions or questions about this report or about our CSR program? Please do not hesitate to contact us. We welcome your feedback:
Contact: Katleen Gorissen
E-mail: CSR@jsrmicro.be

/contents

01 **About this report**
02 Introduction by the president
03 **About us**
03 Company Profile
05 Exploring CSR
07 We walk our talk
11 **About our impact**
11 Materials innovation: our core business
13 Our products: driven by innovation
17 The imperative of excellent quality
18 Risk management and business continuity planning
19 Employees: the key to our success
21 Providing a safe and healthy workplace
25 Taking responsibility for a healthy planet
28 Proactive compliance
29 Extending responsibility into our supply chains
32 CSR: more clearly than ever

[1] The GRI content index is located on our website: www.jsrmicro.be/docs/Material_Topics_and_Boundaries.pdf and www.jsrmicro.be/docs/GRI_Content_Index.pdf.
In this report we abbreviate JSR Micro NV to JSR Micro, not to be confused with our sister company JSR Micro Inc in California USA.

/innovating responsibly

"I do not think it is possible to pursue excellent quality and fully focus on customers and employees without addressing CSR."

As we began to write our first CSR report, we felt we were entering new territory. However, as time went on, it actually turned out to be familiar terrain. From the outset, JSR Micro has always aimed to provide innovative materials that will benefit society. Responsible operations and sensitivity to stakeholder expectations form our foundation.

Having started up as a small emerging player in the semiconductor industry in the 1980s, we managed to get traction with large established players by delivering superior quality. We achieved this by carefully listening to the needs of our customers while simultaneously taking care of the well-being and development of our employees.

I do not think it is possible to pursue excellent quality and fully focus on customers and employees without addressing CSR. Efforts to minimise negative environmental impact and potential hazards to health and safety are a logical extension of our business strategy. This is why CSR values have been embedded in our culture and operations from the very beginning.

The reporting process provided us with an opportunity to take stock of these efforts and place them in the larger context of current sustainability trends. Such trends include scarcity of resources, climate change, shifting regulations and consumer opinions, and supply chain impacts. Whilst we have gone beyond our due diligence obligations within our own operations, we are planning to extend our knowledge and efforts in the future to our supply chain partners. Our aim is to reach out to support a truly sustainable future for everyone.

This report is our first step in creating transparency towards our stakeholders regarding the CSR activities that come so naturally to us. We hope that you will enjoy reading it and we look forward to receiving your feedback and suggestions.

Sincerely,

Bruno Roland
President JSR Micro

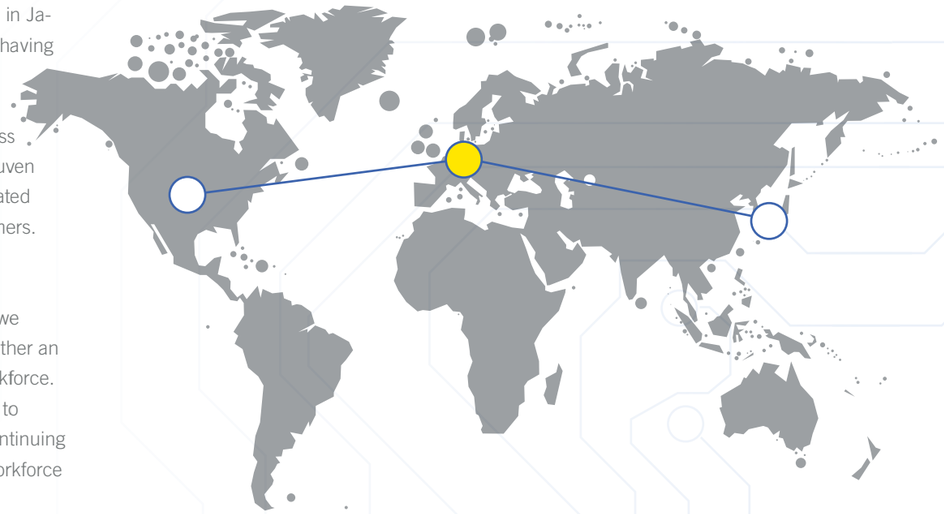
SEMICONDUCTOR INDUSTRY
LIFE SCIENCES
ENERGY

/company profile

JSR Micro NV is a privately owned subsidiary of JSR Corporation. [G4-7] **Our operations are located in Leuven, Belgium, and we serve customers in Europe, Japan, Malaysia, Israel, Singapore, the United States and Russia.** [G4-8] **Our mainstay is to provide specialty chemicals for the semiconductor industry. In the last decade we have expanded our expertise into new growth markets in the life sciences and energy sector.**

Strategically located in Belgium

The quest to produce at the lowest cost level has pushed many manufacturing facilities to relocate to Asia. We do not consider this option. Our sister companies are situated in Japan and the US. By virtue of having operations in Belgium, we are able to provide an extra assurance in terms of business continuity. Our location in Leuven also puts us strategically situated close to our European customers.



Specialized workforce

Since our founding in 1986, we have worked hard to put together an engaged and specialised workforce. Therefore, we are committed to remaining in Belgium and continuing to nurture and expand our workforce here in the EU region.

JSR Micro company profile 2013-2014 [G4-9, G4-10 and G4-11]

PEOPLE

Total workforce

122 in 2013

125 in 2014

Women in workforce

in 2013: 35%

in 2014: 37%

100% of employees covered by collective bargaining

PLANET

Energy use

21,652 GJ in 2013

21,827 GJ in 2014

Water use (in K m³)

16 in 2013

12 in 2014

Hazardous waste

578 metric ton in 2013

513 metric ton in 2014

Non-hazardous waste

36 metric ton in 2013

40 metric ton in 2014

Reported in Calendar Years

PROFIT

Net sales

48 mio euro in 2013

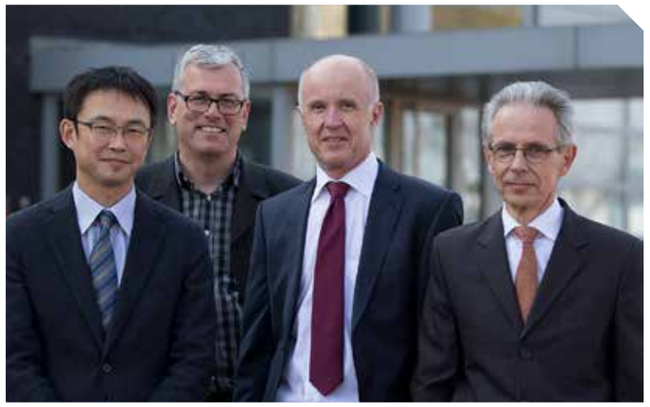
54 mio euro in 2014

Debt vs Equity

20% in 2013

23% in 2014

/exploring CSR



CSR: What it means to us
Responsibility, respect and transparent communication are the values that guide how we do business. These values also describe our approach to CSR.

Responsibility means being accountable for the broader impacts of our operations. This refers to the well-being of our employees, the quality of our products and the health of our environment.

We believe that treating each other with respect enables open communication. And this is not restricted to communications between employees and their superiors, but also applies to our relationships with other stakeholders.

CSR: embedded in our culture [G4-15]
Although we do not have a dedicated CSR department, we have always addressed important sustainability topics through our management systems. In 1991, JSR Micro was one of the first companies in Belgium to obtain an ISO9001 certificate. This was expanded with the ISO14001 and OHSAS18001 certificates.These management systems provide checks on our performance and a structure to continuously improve. However, they only work if the company culture supports them.

ISO 9001:2008 (since 1991) *ISO 14001:2004 (since 2005)* *OHSAS 18001:2007 (since 2008)*

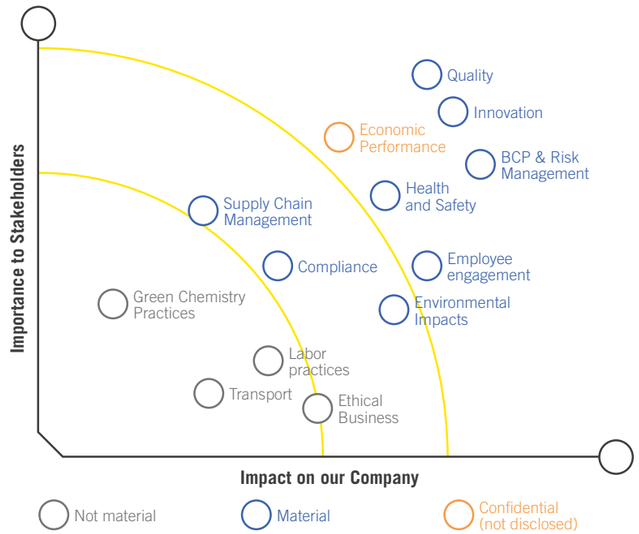
CSR: engaging our stakeholders [G4-25]
Stakeholders are defined as those groups that either impact or are impacted by JSR Micro. We engage both proactively and continuously with those groups that have a critical influence on our success. Such groups include **employees, customers, business partners, suppliers, industry associations and regulatory agencies**. In addition, we always respond to the requests that we receive from stakeholder groups with which we have less frequent contact, such as **neighbours and Non-Governmental Organisations (NGOs)**.

CSR: determining material topics [G4-18]
To determine the most impactful, or 'material' topics to report about, we sent out a survey to all stakeholder groups.

To assess the impact of CSR topics on the future of the company, we asked the CSR team and executives to rank the topics of the GRI guideline and the industry specific CSR topics. The results were plotted together in the materiality matrix.

Our stakeholders [G4-24]

Materiality Matrix [G4-19]



Governance and Ethics [G4-15]
JSR Micro's daily operations are run by an Executive Committee made up of four people. Meanwhile, both long-term decisions and strategy development are overseen by a seven person Board of Directors that consists of the Executive Committee and three members of JSR Corporation.

As JSR Corporation is a shareholder, business partner, supplier and customer of JSR Micro; we work closely together in many areas. In 2011, we adopted the JSR Group Principles of Corporate Ethics, which outline the basic rules for business conduct and responsibilities to stakeholders. To improve accessibility, we also translated it into Dutch and distributed it to all employees.

The industries that we operate in are complex environments where our researchers and sales people work closely together with our customers and regularly encounter competitors (e.g. during exhibitions and conferences). In order to ensure that our colleagues clearly understand the principles of antitrust, we provide them with regular training that is facilitated by external experts.

/we walk our talk

"CSR is not new for JSR Micro. It has a name now. "

Jos Jacobs,
trade union representative

2002

Action: New facility at the Technologielaan
Result: Minimal resource use

Action: Optimisation of packaging for locally produced products
Result: Less polystyrene usage

Action: Recuperation of production water for sanitary use
Result: Less water consumption

2003

Action: Production process optimisation
Result: Energy saving

2004

Action: Investments for QC equipment and production automation
Result: Less hazardous waste

2005

Action: ISO 14001:2004 certification
Result: Environmental management system

Action: Frequency control on electrical motors
Result: Energy saving

Action: Switch off boiler in summer
Result: Energy saving

2006

Action: Introduction of a day/night regime for airco installations
Result: Energy saving

Action: 'ik kyoto' campaign - bike to work
Result: 22 participants - 1,811 kg CO_2 reduction

2007

Action: Investment in Semitool equipment for wafer cleaning with Ozon & Di-water
Result: No more hazardous chemicals - Cost reduction

Action: 'ik kyoto' campaign - sustainable commuting (bike, carpooling, public transport)
Result: 26 participants - 3,951 kg CO_2 reduction

2008

Action: OHSAS 18001:2007 certification
Result: Health & Safety Management System

Action: 'Kill a watt' sensibilisation campaign on hidden consumers
Result: Energy saving

Action: Started to recycle waste solvent
Result: Less waste

Action: Optimisation of the bottle washing process
Result: Less water consumption

Action: Switch to drinking water dispensers using tap water
Result: CO_2 + cost reduction & ergonomics improvement

Action: Reduce printers / standard: 2-sided printing
Result: Save paper

Action: Optimisation of cooling water chiller
Result: Energy saving

Action: Change from air freight to sea freight for products imported from Japan
Result: CO_2 reduction

Action: 'ik kyoto' campaign - sustainable commuting & Home office
Result: 33 participants - 3,716 kg CO_2 reduction

"Although JSR Micro does not have a dedicated CSR department, we have always addressed important sustainability topics through our management systems."

Bruno Roland, President, General Manager

2009

Action: E-order confirmations saved in SAP
Result: Less print-outs & less regular mail

Action: Sending out all purchase orders by e-mail
Result: Less print-outs, faxes and regular mail

Action: Switch off air extraction in non-critical zones
Result: Energy saving

Action: Reduce number of freezers
Result: Energy saving

Action: 'ik kyoto' campaign - sustainable commuting & Home office
Result: 25 participants - 2,495 kg CO_2 reduction

2010

Action: Finetune recycling hazardous waste i.c.w. De Neef Chemical Processing
Result: by 2015 33,317 ton of hazardous has been recycled

Action: Installation of big slow fan in the warehouse to push down warm air
Result: Energy saving + reduce heating cost

Action: Training in ergonomics
Result: Prevent injuries

Action: 'ik kyoto' campaign - sustainable commuting & Home office
Result: 23 participants - 2,048 kg CO_2 reduction

2011

Action: Endorsement of the Electronic Industry Citizenship Coalition's standard (EICC) [G4-15]
Result: Ethics, labor practices & environmental management

Action: Full truckload shipping to multiple customers
Result: Co_2 reduction

Action: 'ik kyoto' campaign - sustainable commuting & Home office
Result: 29 participants - 3,320 kg CO_2 reduction

2012

Action: Use water reservoir of sprinkler installation to cool the fermentor
Result: Energy reduction

Action: 'ik kyoto' campaign - sustainable commuting & Home office
Result: 37 participants - 3,604 kg CO_2 reduction

2013

Action: Health plan
Result: Health award 2014!

Action: Water-saving taps with sensor in the sanitary blocks
Result: Save water

Action: 'ik kyoto' campaign - sustainable commuting & Home office
Result: 39 participants - 4,988 kg CO_2 reduction

2014

Action: Company bike plan
Result: CO_2 reduction / healthy lifestyle

Action: Donation of iron waste to Natuurhulpcentrum Opglabbeek
Result: Recycling + charity

Action: Health plan
Result: Prevention

Action: New air compressor installed, higher efficiency
Result: -50% energy

Action: LIC installation
Result: prevent shut downs due to power dips

Action: Vendor invoice management - encourage e-invoicing
Result: 50% of our suppliers sends now e-invoices

Action: 'ik kyoto' campaign - sustainable commuting & Home office
Result: 50 participants - 6,284 kg CO_2 reduction

2015

Continue improving
Now that we listed our CSR actions of the past years, we realise that CSR already became a mindset at JSR Micro. Our efforts to contribute to a better future for all our stakeholders will continue of course.

Stay tuned at **www.jsrmicro.be** to learn more about our future CSR-initiatives!

/materials innovation: our core business

The JSR group mission assures social responsibility: "We create value through materials to enrich society, people and the environment."

JSR excels in materials knowledge and we apply this in different sectors. As such, we are not merely innovative in the sense of coming up with new materials and chemistries, but we are also often pioneering as we bring entirely new propositions to society.

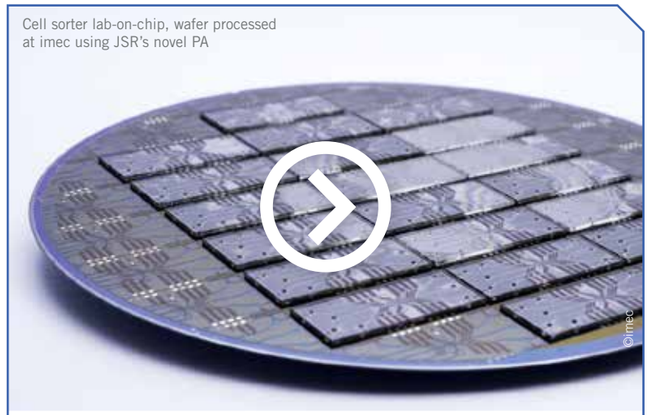
Innovation 'one-on-one' [G4-26]
Innovation is not an isolated activity. To understand future materials needs, we cooperate in various R&D-projects with customers, business partners, industry peers, universities and research organisations. We listen carefully to understand what our customers' requirements are and jointly create and optimise that unique product that fulfills their needs. We call our approach 'innovation one-on-one'.

Sharing our discoveries
We share the findings of our research through the publication of technical briefs and research papers and by delivering presentations at conferences.

Publication type	2013	2014
Presentations, posters & roundtable discussions	9	24
Research paper (peer reviewed)	1	4
Technical brief (not peer reviewed)	3	4
Total	**13**	**32**

OUR AIM: PRODUCE AT LEAST SIX PUBLICATIONS PER YEAR

Cell sorter lab-on-chip, wafer processed at imec using JSR's novel PA

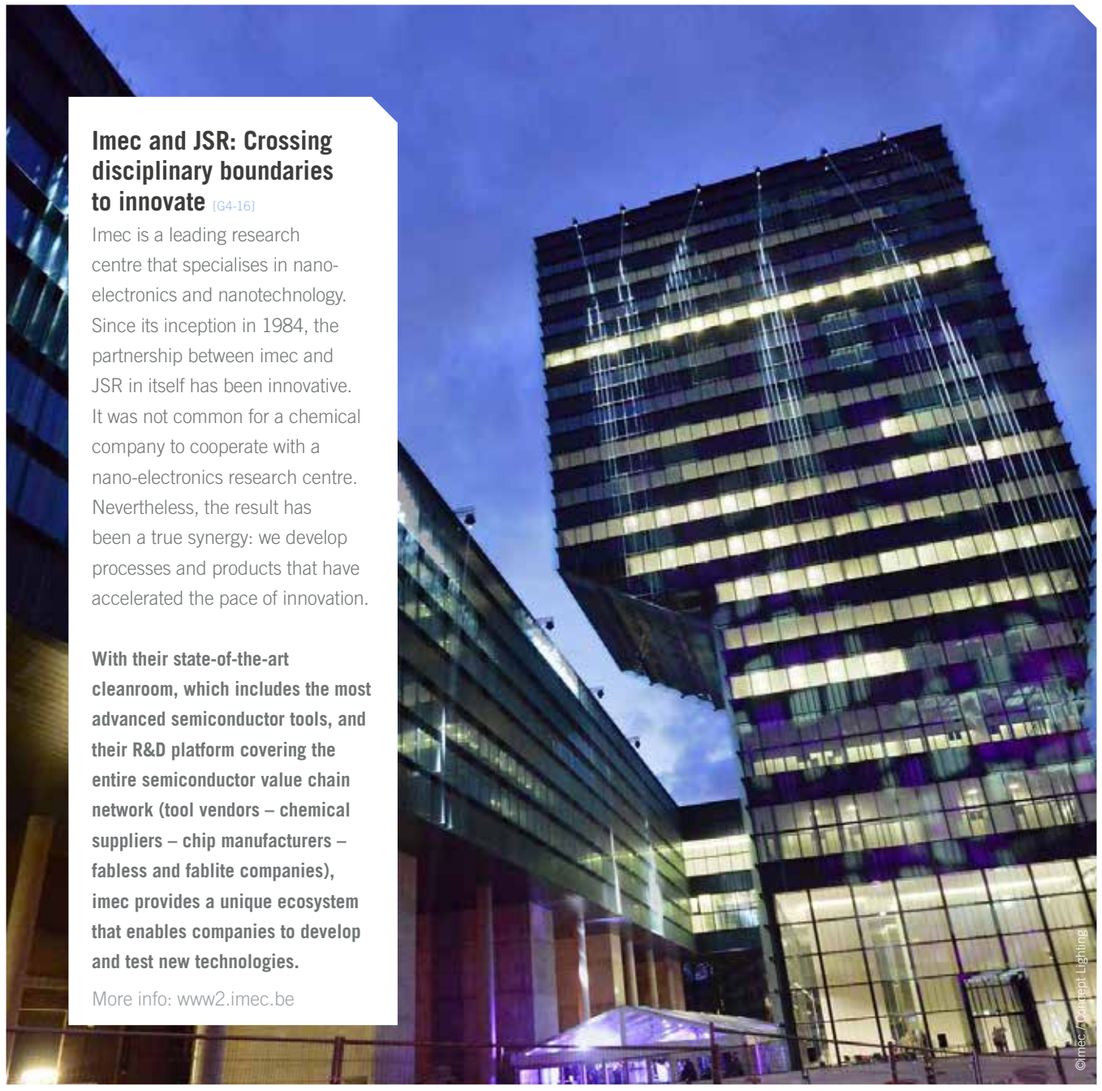


Nano-electronics that hold the promise of accurate, quick and low cost diagnosis

Recently, both imec and JSR have crossed a new boundary by applying expertise in nanoscale technology to the life sciences sector. Together with partners, imec is developing advanced bio-electronic technology to enable the introduction of the next generation of life science tools. These tools will cover life science research, diagnosis and treatment. One of the platforms that imec is developing is an image-based cell sorting system that is fully integrated on a chip approximately the size of a microscope slide.

The system enables one to image, classify and sort cells in blood in a matter of minutes, which will make it accessible for point-of-need applications.

Watch the movie clip
vimeo.com/82078661



Imec and JSR: Crossing disciplinary boundaries to innovate [G4-16]

Imec is a leading research centre that specialises in nano-electronics and nanotechnology. Since its inception in 1984, the partnership between imec and JSR in itself has been innovative. It was not common for a chemical company to cooperate with a nano-electronics research centre. Nevertheless, the result has been a true synergy: we develop processes and products that have accelerated the pace of innovation.

With their state-of-the-art cleanroom, which includes the most advanced semiconductor tools, and their R&D platform covering the entire semiconductor value chain network (tool vendors – chemical suppliers – chip manufacturers – fabless and fablite companies), imec provides a unique ecosystem that enables companies to develop and test new technologies.

More info: www2.imec.be

/our products

Here are some of JSR Micro's most innovative products. For a detailed overview of all of our products, please refer to our website: www.jsrmicro.be

Electronic materials: Photoresist

Explanation of the technology
Microchips are manufactured through a layer-by-layer production process. Photoresist is applied to a silicon wafer and is then baked to dry. A pattern is created by exposing part of the photoresist to UV light that falls through a stencil or 'mask'. The parts exposed to UV light become soluble in a caustic solution that is called a developer. The developer removes the exposed parts and leaves the desired pattern, which is consequently used as an etch or implant barrier layer.

At the end of each chip layer processing step, the resist is removed from the wafer.

Impact on society
Improving the functionality of microchips is the key to increasing the performance of smartphones, tablets, computers, cars and satellites, and it plays a pivotal role in trends such as 'the internet of things'. Improvements in microchip performance and reductions in size also imply reduced energy consumption of electronic devices.

Customers and markets [G4-8]
Semiconductor manufacturers in the electronics market.

Challenges
The main challenge involves developing and manufacturing materials for next generation lithographic technologies such as Extreme Ultraviolet Lithography (EUV) or Directed Self-Assembly (DSA). The number of customers that have the capability to apply these technologies is shrinking. R&D advanced tools can only be accessed through third party collaborations. Manufacturing and QA need new kinds of partnerships.

The internet of things
Connecting electronic devices to the internet to enable the smart use of these devices. For example, the refrigerator will notify you of the need to restock it or a sensor in the waste bin will notify the waste collector that it needs to be picked up.

DRIVEN BY INNOVATION

Life Sciences:

Explanation of the technology

Microbeads
JSR's microscopically small magnetic beads are functionalised so that they can link with bioreceptors. The bioreceptors pick up biological markers in the blood that could indicate a disease. The beads are then extracted with a magnet and analysed to make a diagnosis.

ExoCap
JSR's ExoCap technology offers a new approach for the ultra-selective detection of exosomes, which are small particles used by the cells in our body to communicate. Analysis of the exosomes can diagnose severe diseases (like cancer), without harmful scans or surgery.

Bioprocessing
JSR's protein A resin is used in the development and manufacturing of the latest generation of therapeutic antibody drugs. The resin captures and purifies the antibodies with high selectivity. JSR's bead polymer technology has resulted in a high capacity resin that offers clients both productivity and cost benefit in manufacturing. Our facility in Haasrode is the principal manufacturing site for the protein A ligand.

Impact on society
With aging populations, the demand for effective and affordable healthcare will continue to grow. JSR's life sciences products help to meet this demand.

Customers and markets [G4-8]
Hospitals, healthcare institutions, research centres in the healthcare and pharmaceutical industries, biopharma companies, universities.

Challenges
Focus on the right technologies, market segments and partners. As the industry is highly conservative, the key is to technically differentiate in terms of product performance and quality.

Energy: Lithium Ion Capacitors (LIC)

Explanation of the technology

An LIC is an electrical storage device that occupies the middle ground between batteries and capacitors. It is able to release energy more quickly than batteries and stores more energy than capacitors. As such, it fills a gap in the market.

Impact on society

Nowadays, the energy market is in flux. To achieve sustainability, we will need to shift from using fossil fuels to using renewable energy. Energy storage devices play a key role in this shift, for instance in terms of quick local energy storage, uninterrupted power supply or electric transportation. Compared to regular batteries, the life expectancy of an LIC is very long, which in turn reduces resource usage and waste.

Customers and markets [G4-8]

Companies in the industrial market, with solutions for public transportation and energy storage systems.

Challenges

The LIC is a new technology and it does not fit in with existing regulatory frameworks. For example, regulations are in place for recycling lithium ion batteries but not for lithium ion capacitors. We proactively engage with regulatory agencies for the recognition of the LIC technology in these frameworks so that it can be integrated into future recycling guidelines and best practices. In some ways, the LIC is ahead of its time. For proactive companies, this is an environmentally friendly solution enabling them to anticipate regulations. However, as implementing LIC solutions entails new electronic designs, this means that introducing this product to the market also requires partnerships with module and system providers.

"We started working with JSR Micro to model applications for the LIC. This has been very interesting as JSR's LIC technology is at the forefront of current innovations in energy storage technology, enabling reductions in fuel consumption and CO2 emissions".

Prof. Dr. Eng. Noshin Omar
The Battery Innovation Centre (BIC) of the research group MOBI of the Vrije Universiteit Brussel (VUB)

How LIC can be applied in public transport

In comparison to batteries, LICs are small and light. This makes them highly suitable for use in the transport sector. This short film explains how LIC's can be used in buses as in this one in Leuven.

Watch the movie clip
youtube.com/watch?v=ecslHC53sYk

Protecting delicate equipment against power dips

With the introduction of renewables to the electricity grid and the dilapidation of older technologies, power fluctuations and outages have become more common. LICs are used to neutralise these power dips.

/the imperative of excellent quality

Quality is guided by our customers who expect products with a consistent performance that meets their expectations, every time, batch after batch.

Semiconductor production technology is one of the most complex technologies out there: microcomputers and memories are fabricated at nanoscale and producers continuously push the technological boundaries. Even the slightest deviation can have a dramatic impact on the manufacturing process of our customers. Continuous improvement is essential if we are to remain in sync with the evolution of our customers. Whereas semiconductor manufacturing technology sets the quality standards, we are now applying these decades of experience to the life sciences and energy domains.

Tracking quality
To achieve excellent quality, we take a proactive approach. This involves us defining and measuring 1/ the cost of preventing and detecting defects and 2/ the cost of failures. By focusing on the optimisation of the first two concepts, we attempt to bring the latter down. For example, in recent years we have hired two additional QA engineers and invested in further process automation.

Total cost of quality as % of sales

GOAL: COST OF QUALITY MAX. 2.5% OF SALES

Managing quality
In the short term, we find input for quality improvements from different sources, such as audits and our own people's proposals. We reward the best suggestion on a bimonthly basis.

After certifying for ISO9001, we have also implemented many elements of the TS16949. The Failure Mode and Effect Analysis (FMEA), for example, is more elaborate and more precise in terms of detecting and measuring risks. The identified risks are either eliminated or extra controls to processes are added. This results in a plan that comprehensively anticipates potential errors.

The voice of our customer [G4-26]
We regularly receive evaluation scorecards from our customers and have worked extremely hard to achieve the very high scores that our customers give us. Having received the score, improvement programs are defined in order to address the gap that remains between the score given and perfection.

Supplier Awards
Customer appreciation for our services is also clearly demonstrated by the many awards that we have received over the years.

Intel supplier awards 2010-2013

"Quality in itself will not reduce costs but the best way to cut costs is to produce quality."

Jim Mulready
Global Quality Director

/risk management and business continuity planning

Minimising risks through a preventive approach
The first step in minimising risks is preventing them. Risks at our company, such as an environmental spill or a loose wire that someone could trip over, are assessed and handled through our management systems and compliance with rules and regulations. As many European laws take the precautionary principle as a point of departure, proof of risk mitigation is an essential part of compliance. Our approach minimises risks by preventing avoidable accidents from occurring in the first instance.

Planning for business continuity in the face of uncertainty
Business continuity planning then takes the broader approach and evaluates risks outside the company. Such risks include employee strikes, IT security, terrorist attacks, supply chain risks, storms and floods, natural disasters such as earthquakes, and much more.

By planning for these unlikely but impactful events, we ensure resilience, recovery and contingency in the face of uncertainty. This preparedness is important not only for us but also for our stakeholders.

Due to the intricacy of semiconductor processing, finding substitutes for our products would pose a challenge to our customers. We cooperate with our corporate parent and sister companies to attune and test response strategies to potential disasters. To this end, each of our plants is able to take over the production of the others. In addition, we review risks to business continuity on an annual basis in collaboration with DNV GL, which is an expert in this area.

It is impossible to predict the future. However, we believe that these complementary approaches go a long way towards reducing risks and ensuring that we are prepared for the unexpected.

"We review risks to business continuity on an annual basis."

/employees: the key to our success

"The atmosphere here is very collaborative. Colleagues always try to help each other. You can also easily go to the President whose door is always open."

Xavier Buch,
Sales and R&D Manager

The entrepreneurial and convivial atmosphere, working at the cutting edge of the most advanced technologies and a drive to be the best, are joint factors that make it attractive to work at JSR Micro.

We place a high premium on employee satisfaction. Our management team facilitates this through various programs, such as employee development plans, the company health plan, as well as by providing training and education opportunities and coaching. Our low turnover rates confirm the success of this approach.

Employee development plans [G4-26]
At JSR, we encourage an open process in which employees and managers match tasks to the company strategy and discuss both development and educational needs. Every JSR Micro employee has an annual review with his or her manager about the previous year's performance and the development strategy for the forthcoming year. Employees have the opportunity to provide input and request specific training or education. Due to the dynamic nature of our business a midterm adjustment of the plan is sometimes necessary.

We provide an annual workshop for all of our employees to ensure that everyone understands the performance management system. We also take this opportunity to educate employees in an area that will support workplace relations. For example, the 2014 workshop included a section on providing feedback.

Maintaining our company culture while growing
When we hire new employees, we not only look for a technical match to a functional description, but we also seek people who match with our company culture.

Since JSR Micro was founded, we have intentionally and carefully fostered values such as **quality**, **safety**, **a customer focus** and **collaboration**.

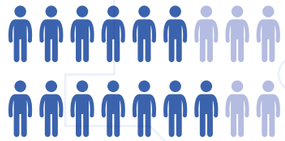
As we are growing quickly, balancing growth and sustaining our company culture will be one of the challenges that we face in the coming years.

"When I had a muscle ache in my shoulder, colleagues brought me devices, such as a track ball and an ergonomic keyboard. That helped!"

Henny Volders, QA Engineer

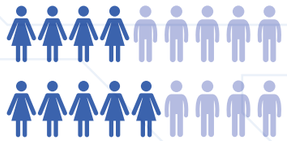
JSR Micro employee facts [G4-10]

Total workforce (headcount, contractors included)



122 in 2013
125 in 2014

Women/man

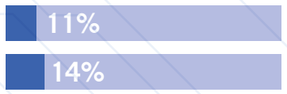


43/79 in 2013
46/79 in 2014

Turnover rate

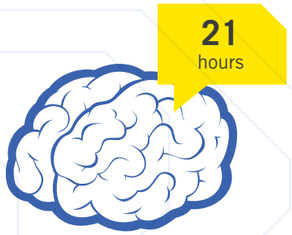
in 2013
in 2014

New hire rate



in 2013
in 2014

Average hours of training per year per employee (CY)



in 2013

in 2014

More detailed figures about our employees: **jsrmicro.be**

/providing a safe and healthy workplace

DURING THE LAST 5 YEARS
ACCIDENT RATE = 0
LOST DAY RATE = 0

Employees spend a considerable proportion of their time at work. Consequently, their workplace has to be safe and healthy.

In line with our company culture, we take a proactive approach to managing safety. The kind of goals that one sets will play a major role in steering behaviour. By setting a goal to minimise accidents only, one can create an incentive to cover them up. Therefore, to prevent accidents, we set targets for reporting a maximum amount of risks and near misses, which are also called incidents.

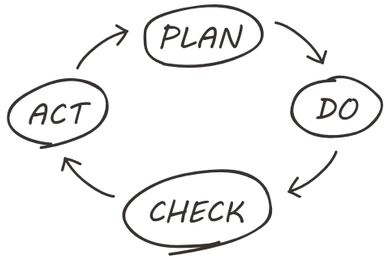
To stimulate incident/accident reporting, we put a direct link to the reporting database on every employee's desktop. In this file they can also review what action has been taken in response. The management review board regularly gives an award to the person who has made the most valuable contribution towards preventing accidents.

Furthermore, a cross departmental team attend the monthly 'EHS tours' (Environment, Health and Safety) during which they take a close look at different departments.

"For every accident, at least 10 incidents are reported."

Anja Vander Elst,
EHS Manager

Continuous improvement
Continuous improvement is embedded in the ISO/OHSAS management standards through the Plan-Do-Check-Act (PDCA) cycle.



We first assess the risks to health and safety and then develop a plan to manage and control these risks. The assessed risks are broad and include ergonomics as well as psychosocial factors. During the year we work on eliminating these risks. The midterm plan sets out a five year course and is reviewed and updated each year.

Involving employees:
The Committee for Prevention and Protection at Work
Under Belgian law, companies with over 50 employees are required to have in place a committee for prevention and protection at work. At JSR Micro, we formed such a committee in 2005, prior to our being legally required to do so.

The committee is made up of representatives of both the employer and the employees. Representatives of the employees are elected every four years. During monthly meetings they are informed about topics covering safety and the environment, as well as the performance of our business.

They are also encouraged to present subjects of their own. Together with other EHS information, such as the KPIs, the results of these meetings are communicated to all employees in the monthly EHS newsletter. The committee also has the power to approve or amend both the annual EHS plan and the five year plan.

Rode Kruis Vlaanderen

Donating blood
Once a year, the Red Cross organises a blood donation drive at our research and business park. JSR Micro supports this initiative and employees are permitted to donate blood during office hours. On average, approximately 10 employees volunteer.

"Since we have been offered fruit at work, I've been eating more fruit - not only at work, but also at home."

Veroniek Motmans, Supply Chain Planner

/our award-winning company health plan:
JSR Micro - commit to be fit

Our company health plan goes above and beyond supporting the health and well-being of all our employees - this is because the employees are the company. Our commitment towards employee well-being has earned us the 'NV health award' that was presented by VIGeZ, the Flemish Institute for health promotion and disease prevention.

We have organised the company health plan around three themes: creating awareness, healthy food and exercise.

The health compass: creating health awareness
The core of our company health plan is the 'health compass', which is an assessment that creates insights into eight areas of physical and mental health[1].

Participating in the health assessment is voluntary and through our partnership with Premed we can guarantee that results are handled on a confidential basis. Due to the low threshold for participation, rates of participation have been high: 84% in 2013 and 87% in 2014.

The results are shared with employees on an individual basis.

Organisation-level results are presented in information sessions, during which Premed gives advice to encourage healthy habits. The aggregated organisation-level results help us to understand company-wide risks and expand our company health plan.

Providing an ergonomic workplace
When purchasing office furniture, we have always chosen high quality and ergonomic options. We also provide employees with an individual analysis of the workplace and, if necessary, additional supportive furniture is also arranged.
To stimulate people to take regular brakes, we installed ergo software on all PCs. This software recommends short breaks and offers exercise suggestions that employees can easily do behind their desks.

Healthy food & drinks
Employees are provided with free fruit and fresh water in coolers. Some of our employees have founded a 'Soupbank!' On a given day, a participant makes soup for the entire group. Meanwhile, in the winter months, participants enjoy a fresh cup of soup on a daily basis.

[1] We developed the compass in close collaboration with the External Service for Prevention and Protection at Work (ESSW) Premed and the Committee.

"Programs to stimulate health represent an investment in the employees and consequently in the future of the company."

Anja Vander Elst, EHS Manager

/Our 'company bike' program:
Benefitting People-Planet-Profit

Car travel is becoming increasingly complicated in our region. Commuters have to fight daily traffic jams and things are getting worse all the time. To give our employees a chance to try out a healthier and, sometimes, even faster transportation alternative, JSR Micro introduced the 'company bike' program.

Lease a bike
Each employee is entitled to choose a suitable bike - be it an electric bike, a road or mountain bike, a folding bike or another type of bike. JSR Micro will lease the bike for the employee for a period of three years. The only condition is that the employee must use the bike for commuting to work on a regular basis.

We introduced the company bike program in December 2014 and the first bikes arrived on 27 February 2015. Meanwhile, as at 30 March 2015, fifty-five of our colleagues had already signed up for the program, committing to regularly cycling to work during the next three years.

The company bike program is good for:
- Planet: CO_2 emission (almost) nil
- People: improved physical and mental health - people are happier and take fewer sick days
- Profit: special tax treatment and less fuel costs

This program is a great addition to our annual Ik kyoto campaign: during the summer months, we encourage our employees to use more eco-friendly ways of commuting to work.

"Previously, I never biked to work and always drove my car. Since I have my company bike, I use it to get to work at least once a week."

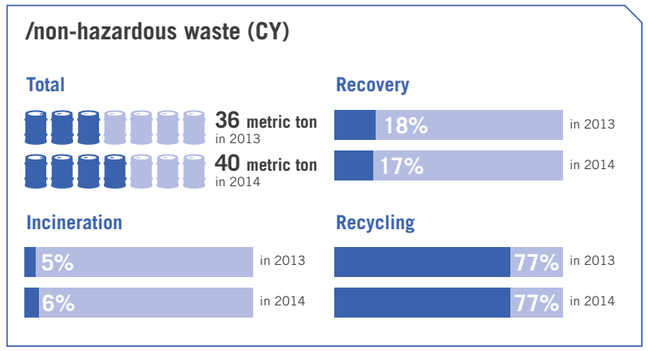
Sylvie Janssens, Process Technician

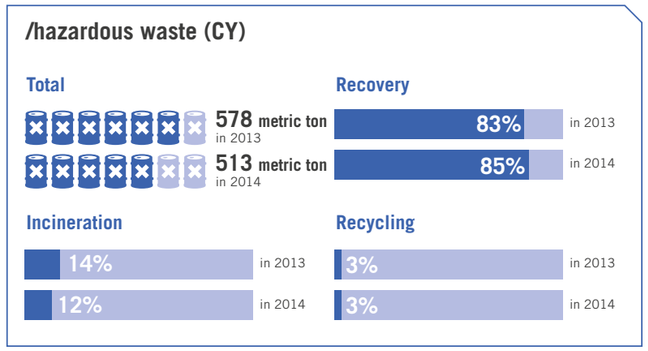
/taking responsibility for a healthy planet

Responsible environmental management is part of our company philosophy and is also a basic requirement for maintaining our permits. Belgian law sets out stringent environmental demands for companies from our sector. Harsh realities such as resource shortages, climate change and pollution drive us to take our responsibility even further.

Preparing for the future: Assessing and evaluating impacts
Within the framework of our environmental management system, each year we assess the different environmental impacts of all of our processes, such as energy consumption, emissions, resource usage, water and waste. The biggest environmental impacts are in the areas of energy and hazardous waste and consequently these represent the focus of our improvement programs. We track and evaluate performance with key performance indicators (KPIs) in all of these areas and use a goal setting approach to reduce impacts.

Recycling non-hazardous waste
Non-hazardous waste represents a small proportion of our total waste. We nevertheless encourage our employees to dispose of it separately so that it can be recycled.





Minimising hazardous waste
At JSR Micro, different processes and activities create different waste volumes. To remain consistent we set different goals for our specific waste streams. Over the years we see an increase in the total volume of hazardous waste. Sometimes goals collide and as mentioned in the Quality section, the requirements that our customers set for quality are increasing. Whilst we aim to minimise waste, improved quality can sometimes mean extra waste – for example, an extra rinsing step.

Waste from laboratory research is largely independent from production, although the addition of the life sciences departments has increased this waste stream.

Furthermore, in 2013, the installation of the Protein-A fermentation process caused an increase in waste. The start of a new process always increases waste and there is a learning curve in bringing it down again.

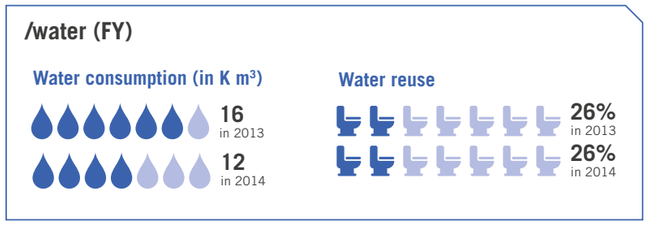
Reducing waste by extending the shelf life of products
Photoresist is a sensitive material with a limited shelf life. Sometimes the product expires before our customers are able to use it due to market fluctuations. If the quantities are substantial, our customers seek our support in order to find solutions to prolong the use of the affected material without running into quality risks.

Non-hazardous waste: We encourage our employees to dispose of it separately so that it can be recycled.

Water use and reuse
Semiconductor processes require very clean or 'ultrapure' water. We purify municipality water at our plant so that we can use it for production. The efficiency of this process is 74%; the remaining 26% only has a concentrated amount of minerals and it is used in our greywater system to flush the toilets. In 2013, a leak caused a spike in water consumption and this was subsequently detected and repaired. As a response, we began to monitor usage on a quarterly basis.

"We even use our 'greywater' to flush the toilets!"

Bart Denturck, Director Operations



"Annual target: Reduce energy consumption by 10%"

Energy and greenhouse gas (GHG) emissions
The reality of climate change increases the worldwide need to reduce fossil fuel consumption and GHG emissions. To minimise our contribution to this very important area of concern, we have set an annual target since 2008 to reduce energy consumption by 10%.

However, it is sometimes difficult to achieve this goal. Our operations were already lean initially and minimal resource usage was an integral part of the facility's design. Once we were fully operational in 2003, we conducted various projects to optimise production processes. During the period 2004-2008, we reduced the total energy consumption by 23.6%.

After we had picked all of the so-called 'low-hanging fruit', we faced the challenge of identifying new opportunities for improvement.

Simultaneously, the growth of our company and starting the Protein-A production increased our energy consumption.

We are currently working with Schneider Electric, a global specialist in energy management, to assess the possibilities for using renewable energy.

/energy consumption (FY)

Electricity
10,763 GJ in 2013
10,831 GJ in 2014

Gas
10,889 GJ in 2013
10,996 GJ in 2014

/GHG emissions (FY)*

Scope 1 (in CO_2e)
549 in 2013
554 in 2014

Scope 2 (in CO_2e)
1,196 in 2013
1,203 in 2014

** Greenhouse gas emissions include gas and electricity. Other emissions were not included because we did not track them during the reporting period. However, we are convinced that gas and electricity consumption account for most of our GHG emissions.*

Reducing emissions by selling concentrate
Our developer products contain approximately 97% water. However, transporting water is not a sustainable way of working.

In 2012, one of our customers worked with a local facilities partner to design and build an installation to dilute developer to the point-of-use concentration starting from a tenfold concentrate delivered by JSR Micro. We supported this transition with our metrology and production expertise. Everyone benefits from this solution. The customers reduced their transport costs, we reduced storage volume and we also reduced transport GHG emissions by 90%. We are currently involved in similar projects with other customers. [G4-26]

100%
COMPLIANCE

/proactive compliance

It is very simple. We have zero tolerance for non-compliance. Complying with rules and regulations is the basis of our 'license to operate'. We go above and beyond, take a proactive approach and anticipate regulations.

Our Regulatory Affairs (RA) and Environment, Health and Safety (EHS) departments track developments in regulations and assure that we comply with the law. The RA department assesses every substance that enters our facility or is introduced to the EU market. Meanwhile, the EHS department assures that JSR Micro complies with the rules and regulations regarding working conditions and environmental protection.

Both during the reporting period and before, there have not been any incidents of non-compliance.

How we address the precautionary principle [G4-14]
The foundation of the precautionary principle is to reduce risks and exposure of technologies that are possibly harmful to people or the environment. Through in-depth hazard assessments, our RA department evaluates possible hazardous properties of substances and proposes alternatives in the case of chemicals that can be considered of very high concern. The EHS department will evaluate how employees work with the materials and whether safety can be guaranteed.

Anticipating regulation [G4-16]
As stated above, non-compliance is not an option. However, there are many substances that - whilst not being strictly forbidden - are the subject of growing scientific concern. In addition, countries and companies use their own 'blacklists' of substances that they ban. Moreover, in recent years public concern about the safety of synthetic chemicals has received increased media coverage.

Together, this creates a complex landscape. To respond to these trends and anticipate regulations, our RA department is active in a number of working groups within Essenscia, the Belgian industry organisation for chemistry and life sciences. Essenscia also closely cooperates with regulatory agencies on both a national and EU level.

For every situation where there is discretionary space, we take a pragmatic approach: Is this safe? If there are suspicions about toxicity, we will look for alternatives. Furthermore, concerns will be communicated to our business partners and customers.

In some instances, this even creates a competitive advantage. Responding to legislation is expensive as it takes years to develop semiconductor manufacturing processes and once they are in operation they cannot be easily changed. In the end, starting out with materials that have no risk of being banned not only has a strategic benefit, but it also has a great sustainable value.

/extending responsibility into our supply chains

"Sustainable purchasing starts with not purchasing"

Katleen Gorissen, Procurement Administrator

More than ever before, consumers care about how the products they buy were made. Although we are supplying business-to-business and our products rarely end up in end-products, many of our customers are asking how we manage labour rights, human rights, safety and environmental impacts in our supply chains. [G4-12 and G4-26]

This creates an impulse to extend our responsibility outside of company boundaries and to integrate CSR considerations within our supplier management programs.

Managing our supply chain
When we register new suppliers, we ask them to declare "the compliance with laws and ordinances, protection of resources, environmental conservation, safety and human rights". In the future, we plan to develop a code of conduct to detail our expectations regarding the base levels of responsible business.
New suppliers will be screened based on the criteria set out in the code of conduct.

We are currently also reviewing our supplier evaluation system. This provides a good opportunity to integrate CSR elements in this process, as well as in our audit protocols.

Most of our raw materials are sourced from our parent company in Japan. Their suppliers are covered by JSR Corporation's 'green procurement' and 'CSR procurement' programs. For further information regarding these programs, see **www.jsr.co.jp/jsr_e/csr/2014/customer.shtml**

CSR concerns in our supply chains
The CSR impacts on our supply chains are similar to our own as they involve labour conditions and emissions to the environment. The suppliers that we deal with directly are mostly located in Europe, where there is a reduced risk of law violations.

Conflict minerals [G4-27]
In the electronics supply chain, the use of conflict minerals - minerals that have been extracted and sold to finance local warfare - is a major area of concern. Some customers have requested detailed information about our approach to this issue. We are glad to report that no conflict minerals are used in the production of any of our products.

Value chain overview

INFLUENCE — PRODUCTION OF RAW MATERIALS
- Polymers
- Solvents
- Photoactive compound
- Resin

CONTROL — TRANSPORTATION

CONTROL — MANUFACTURING OF PHOTORESIST
[JSR MICRO ACTIVITY]

CONTROL — DISTRIBUTION

INFLUENCE — END USE BY B2B CUSTOMERS
[SEMICONDUCTOR MANUFACTURERS]

DISPOSAL

Training our employees in responsible purchasing

Working on the CSR reporting project made us think about the sustainability of the products that we use on a daily basis in our offices. We made an inventory and assessed these items for sustainability – what are we buying? Can we replace purchases with more sustainable options, such as fair trade products or products that contain recycled materials? To make the initiative stick, we are also planning to provide a workshop on responsible purchasing for everyone in the organisation who is involved in purchasing.

/CSR: more clearly than ever

The values that made our company successful – quality, innovation, and care for our employees and the environment - also represent the cornerstones of CSR. By embarking on the journey to create transparency and report about CSR, we have been provided with the opportunity to view our operations through a clearer lens.

By looking at how the manifold aspects of sustainability have been addressed in our organisation, we have come to see CSR as a thread that weaves these aspects together. We have been able to see more clearly than ever the connections between employees, departments and external stakeholders and how different activities interrelate.

Going forward, we are excited to build upon this momentum. We are eagerly searching for new ways of bringing together quality, innovation, care, and that crucial element - sustainability.

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JSR Micro
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