Systems to shape the environment

Updated Environmental Statement 2016
Infineon Technologies Austria, Villach Site

www.infineon.com/austria

Contents

Board of Infineon Technologies Austria

1. Preface

Dear Reader,

Microelectronics from Infineon are the key to a future that is worth living in. We make life easier, safer and greener – with technology that achieves more, consumes less and is available for everyone. Efficient semiconductors reduce energy consumption and improve the performance of electrical devices. Chips from Infineon can control the increasing traffic, while making it safer and reducing congestion; they also increase agricultural productivity, and help people to manage their lives independently even in old age.

With over 3,600 employees from around 60 countries, we are substantially involved in shaping this future with our developments from Austria. In so doing, we act prudently and pay attention to ensuring a balance between our entrepreneurial success and consciously dealing with people and our environment.

This commitment is recognised: Infineon has been listed in the Dow Jones Sustainability™ Europe Index for the seventh time in succession, and included in the Dow Jones Sustainability™ World Index for the second time – and is the only European semiconductor company to be listed.

With IMPRES, the Infineon Integrated Management Program for Environment, Energy, Safety and Health, we have created an excellent basis in our company for all our processes, strategies and objectives for the protection of people and the environment. These guidelines are already successfully embodied in numerous internal and external measures and cooperation arrangements.

In this Environmental Statement, we show you our commitment and our clear principles and measures for a green today and tomorrow, for the benefit of people and the environment.

Sabine Herlitschka Oliver Heinrich Thomas Reisinger

THE BOARD OF INFINEON TECHNOLOGIES AUSTRIA AG:

- CEO and Technology Director:
  Dipl.-Ing. Dr. Sabine Herlitschka, MBA
  Area of responsibility: Research and Development, Human Resources, Communication
- CFO: Dipl.-Ing. (FH) Oliver Heinrich (left)
  Area of responsibility: Finance, business responsibility for product lines, IT, Purchasing, Business Continuity and Compliance
- Operations Director: Dr. Thomas Reisinger (right)
  Area of responsibility: Production, Technology, Quality Management, Infrastructure and Logistics

Infineon at a glance

Facts and figures 2016

Infineon Technologies AG

Sales	€6,473 million
Employees throughout the Group	36,299

Infineon Technologies Austria

Sales	€1,839.5 million +29%
Profit on ordinary activities	€158.5 million +4%
Total investments	€357 million
of which investments in property, plant and equipment	€133.9 million +20%
of which investments in intangible assets	€223.1 million
Total employees	3,625 +4%
Proportion of women overall	16.2% +1.25%
Employees in R&D	1,426 +12%
Employees in product and process development and quality assurance	approx. 450
Additional permanent external employees via third companies	approx. 1,800
Degree candidates and doctoral students*	93
Apprentices	49
Interns and vacation/industrial placements*	976

Research and development

R&D Expenditure	€411.8 million
R&D Expenditure as a percentage of sales	22%
Initial patent applications	287

Production

Products (basic types)	1,800
Production volume	16.3 billion chips
Audits and customer visits	27

*Aggregated values.
Fiscal year 2016, as per 30 September 2016,
including domestic shareholdings

A leading company, which is one of the strongest industrial companies in Austria in terms of research

2. The company

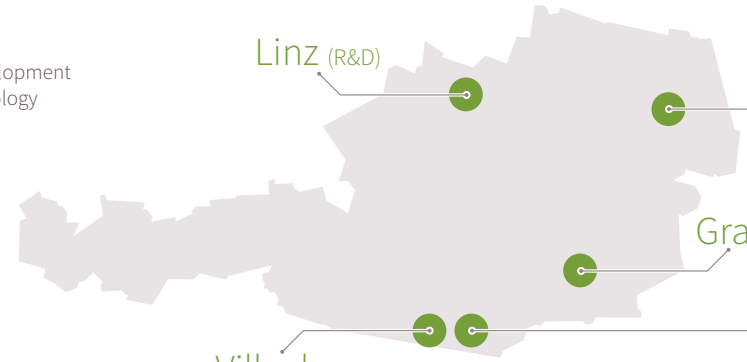
Infineon Technologies Austria

Infineon Austria (also referred to below as Infineon Austria) is a subsidiary of Infineon Technologies AG, a world leader in semiconductor solutions that make life easier, safer and greener. Its Austrian head office is in Villach, with further branches in Graz, Klagenfurt, Linz and Vienna. Besides Germany, Infineon Austria is the only subsidiary within the Group that pools competencies for research and development, production and global business responsibility. Our employees from around 60 countries have established Infineon as a leading company in Austria. An R&D expense rate of more than €400 million makes Infineon Austria one of the strongest industrial research companys' in Austria.

Part of your life. Part of tomorrow.

Semiconductors are small and hardly perceptible, yet they are essential companions in our daily life. Chips from Infineon are used where electricity is generated, transferred and used. They secure our digital data exchange, reduce cars' CO_2 emissions and enable automated driving. Whether in cars, smartphones, fridges, debit cards and ID cards, or industrial facilities, expertise from Infineon Austria can be found in many everyday applications.

R&D Research and development
IT Information technology
M Marketing
P Production



Infineon Technologies Romania SCS (R&D)

Infineon Technologies (Kulim) Sdn Bhd, Malaysia (P)

_ See Glossary, page 46

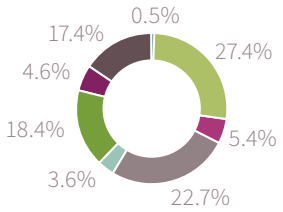
2.1 Fiscal Year 2016: Growth on All Levels

The last fiscal year 2016 (accounting reference date 30 September) was one of the most successful in the history of the Infineon Technologies Austria Group. Sales reached a new record level at € 1,839.5 million, exceeding the previous year's sales (€ 1,427.1 million) by € 412.4 million, or 29 percent. The profit on ordinary activities was € 158.5 million, an increase of € 6.4 million or four percent compared to the previous year.

The strong growth resulted from the positive market development in the global product business of energy-saving chips. Infineon Austria's business responsibility in this area was further expanded when the Infineon Group acquired the US semiconductor manufacturer International Rectifier. In August 2016, the Group transferred global responsibility for several of its previous competitor's product lines to the Austrian subsidiary. Infineon Austria is now responsible for the global market activities of eleven product lines in total.

2.2 Site Description

Gross usable floor space*
170,284.28 m²



- Data centre: 819.39 m²
- Facility area: 46,643.51 m²
- Laboratory space: 9,207.04 m²
- Office space: 38,654.04 m²
- Other areas: 6,158.84 m²
- Production areas: 31,347.00 m²
- Peripheral areas (clean rooms): 7,861.95 m²
- Peripheral areas (other than clean room: 29,592.50 m²

*Real Estate Survey & SoFi Area Reports 2016

Infineon Austria employs approximately 3,200 people in Carinthia (and around 3,050 of these in Villach), making the company one of the largest employers in the region. Around 50 percent of employees have had an academic education.

Infineon Villach was founded in 1970; it is the largest Infineon site and the head office in Austria. What makes this site special is the fact that Villach is the only site outside Germany that pools competencies for research and development, production and global business responsibility.

The economic environment of the Villach region is regarded as the high-tech hub of the Alpe-Adria region, and offers good general conditions for an international company such as Infineon.

The factory premises are located in the industrial and commercial zone on the south-eastern side of the city, and are thus in the immediate vicinity of the Villach Technology Park, which is home to microelectronics education and research facilities. The A2 motorway, which connects to the southern rail line and the airports in Klagenfurt and Ljubljana, makes the site very easy to reach. The overall area of the site, including roads and pathways, is 165,617.67 m², with the rented areas amounting to a further 37,102.17 m². Approximately 34.3 percent of the owned area is covered by construction, and approximately 20.9 percent comprises green areas.

_ See Glossary, page 46

2.3 Research Centre and Flagship Factory for Innovative Semiconductors

TECHNOLOGY FROM VILLACH CAN BE FOUND IN:
- LED lighting
- Servers
- Photovoltaic systems and wind farms
- ABS braking systems
- Electronic power steering
- Electric and hybrid vehicles
- Fridges and induction hobs

TECHNOLOGY FROM GRAZ CAN BE FOUND IN:
- NFC ATM cards
- Debit and credit cards
- Security chips for PCs and tablets
- Social security cards (e-cards)
- Control of automatic transmissions

TECHNOLOGY FROM LINZ CAN BE FOUND IN:
- Radar chips for driving assistance systems
- Distance warning systems
- Automatic emergency braking systems
- Autonomous vehicles
- Aerial switches
- Receiving amplifiers

Infineon Austria pools local expertise and worldwide research activities in the areas of mobility, security and energy efficiency. The company's innovations are driven by synergies in research, development and production at the site, which also strengthens the global market success of Infineon chips made in Austria. The Group makes good use of the expertise of its Austrian subsidiary: Villach is the only site worldwide to have global business responsibility for eleven product lines.

In addition, according to the Top 500 ranking by the business magazine "trend", Infineon Austria has been one of the strongest companies in Austria for many years in terms of research. It has confirmed this again in 2016 with a research quota of 22 percent of sales. Infineon Austria has continuously expanded both its local expertise and its global research tasks. The recipe for success includes short development periods, the highest quality and a focus on customer-oriented system solutions with a "from product to system" approach.

Market success through innovation

New ideas, new routes and new solutions are a major basis of the success of Infineon and of Austria as a technology location, both today and in the future. So for years Infineon has pursued a strategy centred around excellent innovation management, not only in the company and with the employees, but also in cooperation with partners such as universities, research institutions, start-ups or the domestic maker community.

Innovations from Villach

The global Infineon competence centre for power electronics was established in Villach in 1997. The major developments in Villach include silicon power semiconductors – a field in which Infineon is the world market leader- and power electronics and sensor technologies in the mobility research area. Whether it is electronic seat adjusters, airbag systems, electronic power steering or headlights that do not dazzle oncoming drivers even when on full beam, Infineon is present in many of the applications found in our cars. The mobility concepts of the future, such as electric and hybrid vehicles, are amongst the areas being opened up by the Villach research centre. Infineon Austria is also the leader in the development of circuits which disseminate both digital and analogue signals.

Innovations from Graz

What Villach is to power electronics, Graz is to contactless and security technologies. The development centre in Styria is Infineon's worldwide competence centre for everything wireless. Whether it is the Near Field Communication (NFC) transmission standard, wireless components for cars such as tyre pressure sensors, or security chips – the Graz team have been drivers of security and mobility innovations since 1998.

Innovations from Linz

Infineon Austria's subsidiary in Linz, Danube Integrated Circuit Engineering (DICE), is a development centre for high-frequency components, focusing on 77 GHz radar chips for driver assistance systems – a sector in which Infineon is the world market leader, with 20 million chips sold to date. Radar chips using expertise from Linz were in use in January 2015 when Audi demonstrated with its A7 Piloted Driving Concept that autonomous driving was no longer just a vision for the future.

Production and technology

Electronic components are produced on silicon wafers in Villach's frontend semiconductor production facility. These components are manufactured and tested in various technologies and complexities in up to 1,200 production steps on four different wafer diameters. A total of around 1,800 basic product types are manufactured simultaneously in Austria. In 2016, 16.3 billion chips were produced in Villach.

Trailblazer for Industry 4.0

Industry 4.0, in other words networked and knowledge-intensive production, offers the opportunity of accelerating innovation and improving both productivity and quality. Infineon Austria is implementing this as the trailblazer in Austria. The research, development and production complex in Villach that was completed in 2015 embodies the essence of these Industry 4.0 activities.

Infineon Austria is carefully analysing the changes to production jobs that industry 4.0 will bring with it. Systematic training measures have been introduced for the existing personnel, while the creation of new job profiles is still continuing. One example of this is the role of the Control Centre Technician, who monitors production and controls the systems using a mobile control panel.

Tangible success

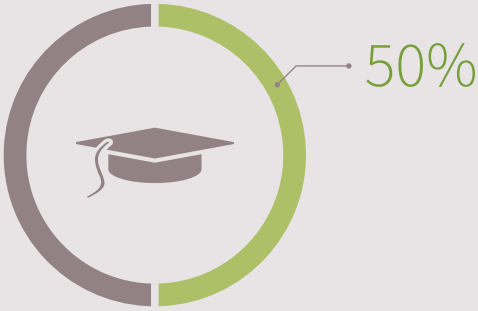
One of the current innovation projects "made in Austria" is a reference design for multicopters, which was developed during a teaching event held with the Management Center Innsbruck. The multicopter contains more than 50 Infineon components, the majority of them developed in Austria. The system solution has now met with interest from customers and experts in Asia and America. Another success story is Power300, the development and production of energy-saving chips in 300-millimetre thin wafer technology. In 2013, Power300 was awarded the Austrian State Prize for Innovation.

To ensure that things continue in this way, the team in Villach are already working on the next generation of energy-saving chips made from new materials such as gallium nitride (GaN) and silicon carbide (SiC). These chips can convert power much more efficiently and enable further miniturization of the application, making chargers and mains units smaller and lighter.

_ See Glossary, page 46

Flagship projects

300 mm thin wafer technology
Gallium nitride (GaN) and silicon carbide (SiC)



Proportion of graduates

50 percent
(almost doubled since 2003)

Research strength

The business magazine “trend” has highlighted Infineon Austria for many years as one of the strongest companies in Austria in terms of research.

R&D workforce

The 1,426 employees in R&D make up more than a third of our total employees.

16.3 billion chips

In the FY 2016 16.3 billion chips were manufactured in Villach on four different wafer diameters (100 mm, 150 mm, 200 mm, 300 mm).

Fabrik 2015

Winner of the award for the most efficient production plant in the “Groups” category and the special prize for “Maintenance”,
(Fraunhofer Research and “Industriemagazin”)

Bright prospects for the future

Thanks to their energy efficiency, high light output and infrequent maintenance requirements, LED technologies enable companies to reduce their power and running costs. Once the light bulb itself was a worldwide technological leap, but today it has been succeeded by new light sources: LEDs. As an expert in LED technologies, Infineon supports these developments with its products.

Infineon Austria backs LEDs at its Villach site

40% of the building fitted with LEDs to date
6,200 LED lights, with an average energy saving of ⌀ 720 MWh
in the FY 2015 and 2016

Environmental Protection, Energy Management, Occupational Safety and Health Protection

3. Company Policy

Infineon's occupational safety, health and environmental protection, and energy management policies are based on the company's responsibility towards people and the environment.

As well as process regulations and requirements, the values behind every strategy must be actively embodied in order to achieve the targets that have been set.

To meet its high standards, Infineon has implemented effective and sustainable processes and measures within the company. These processes and measures not only serve to fulfil the legal requirements and official stipulations, but also form the basis for the continuous improvement of our performances in occupational safety, health and environmental protection, and energy efficiency.

GUIDELINES FROM THE IMPRES POLICY – ESSENTIAL EXTRACTS
(Infineon Integrated Management Program for Environment, Energy, Safety and Health)

- We promote a sustainable global society, and enable energy-efficient end products and applications through our everyday actions, innovations and products.
- We use energy consciously and efficiently, and handle resources economically.
- We strive to be the leaders in our industry in terms of energy efficiency, including in the future.
- We contribute to climate protection in several areas, for instance by minimizing our greenhouse gas emissions.
- We continuously work to further strengthen our ecological net benefit with our products and solutions on the one hand, and our efficient processes and production on the other hand, including in the future.
- We regard the prevention of accidents as a self-evident obligation. This also includes our duty to motivate our employees to actively support health promotion.
- We ensure that our policy for occupational health and safety, environmental protection and health protection, and energy management is implemented effectively. We regularly review and continuously improve the technical and organizational procedures that are necessary for this.
- We regard it as every employee's obligation to support our goals for occupational health and safety, environmental protection and health protection, and energy management by means of responsible action. It is a constant duty of management to increase and support awareness of this at all levels.
- We encourage our business partners to follow our guidelines. We work cooperatively with authorities, associations and non-government organizations.

A summary of the entire IMPRES policy of Infineon Technologies AG can be found at www.infineon.com/sustainability.

_ See Glossary, page 46

3.1 Integrated Management – a Holistic Approach

VOLUNTARY COMMITMENT SINCE 1997
- EMAS (Eco Management and Audit Scheme of the European Union)
- Environmental management standards ISO 14001
- EMAS Prize: 2009 and 2013
- The first company in Austria to be validated in accordance with the EMAS III Regulation

www.bmlfuw.gv.at/umwelt/betriebl_umweltschutz_uvp/emas

In 2005 Infineon merged its occupational safety, health and environmental protection activities to create IMPRES ("Infineon Integrated Management Program for Environment, Safety and Health"), covering all the processes, strategies and corresponding goals in these areas worldwide.

Infineon has been certified under a matrix certification in accordance with the standards ISO 14001 and OHSAS 18001, and in addition its largest European frontend sites and the Campeon corporate headquarters have been certified under ISO 50001 since the end of 2012.

We actively contribute to a sustainable society through our daily actions and our innovations. Our measures in occupational safety, accident prevention and health protection consistently aim to minimise the possible risks at all workstations, in order to protect the health and well-being of our employees. We believe that sustainable environmental protection includes the efficient use of natural resources. Possible environmental impacts are investigated at the earliest possible stage, and are taken into account in product and process development. We do everything possible to prevent pollution having an impact on people and the environment, or if this is not entirely possible, to keep it to a minimum.

One of the world's most sustainable companies

In past years the Infineon Group has received numerous awards for its work in terms of CSR (Corporate Social Responsibility). Infineon is exceptionally proud of these awards, which recognise the company's achievements.

Several notable examples of this within the Infineon Group are:
- In 2017 Infineon was included in the "Sustainability Yearbook" for the seventh year in succession. This year for the first time we were included in the Silver Class.
- Infineon has been included in the Dow Jones Sustainability™ Europe Index for the seventh time in succession, and in the Dow Jones Sustainability™ World Index for the second time – and is the only European semiconductor company listed.

3.2 Organisation of the Environmental Management System

We do not merely pay lip service to protecting the environment, but regard it as a corporate obligation and thus a part of our Infineon's social responsibility.

Compliance with legal standards and regulatory requirements is a matter of course for us, but as everyone knows, laws are often difficult to understand. This is why we have formulated internal regulations, which demonstrably turn our environmental protection visions into specific work instructions for every

_ See Glossary, page 46

individual in the company.
In 2010 the Villach site, which has been EMAS certified since 1997, was also the first company in Austria to be assessed under the EMAS III Regulation (EC) No. 1221/2009. The site won the EMAS prize for the constant interconnection between environmental and economic objectives in 2009, and again in 2013.

The documentation of environmental protection, energy management, occupational safety and health protection at Infineon includes the IMPRES manual and all the IMPRES-related process descriptions, work instructions and other IMPRES-related documents.

As a part of IMPRES, the integrated management system at the entire Villach site is regularly inspected in internal and external audits. The most senior management/site management representatives regularly evaluate the management system as part of a management review, in order to continuously improve and review activities.

3.3 Employee Involvement

The foundation of Infineon Austria is its outstanding employees. With their motivation, flexibility and specialist expertise, they make a fundamental contribution to the company's success, and it is they who shape the corporate culture at our sites throughout Austria. It is therefore all the more important for Infineon Austria to offer an attractive working environment. The company has therefore actively created its internal and external framework conditions using a variety of initiatives and measures. This includes flexible working time models, teleworking opportunities, bilingual childcare facilities and a comprehensive health promotion programme.

Family and work

"PLUS" FOR WORK AND FAMILY
› IDC (International Day Care Center)
› ISC (International School Carinthia)
› "berufundfamilie" audit

Infineon thus provides the basis for effectively reconciling work and family life, and a healthy work-life balance. This is why Infineon Austria has created numerous offerings and facilities:

› International Day Care Center (IDC): the child-care facility at Infineon in Villach, which is closed for only a few days a year and offers flexible and longer opening times, with care provided in both German and English
› International School Carinthia (ISC) in Velden: a private all-day school with English as its main language and German as its second language
› The "berufundfamilie" audit has awarded Infineon Austria its national quality seal for the company's measures and activities in this area.

Training initiatives

The company's training activities appeal to all age groups – from the children's day-care centre to degree studies, Infineon Austria actively awakens an interest in science, technology, engineering, and mathematics (STEM). Infineon Austria also provides substantial support for employees to take part-time training courses in parallel with working.

_ See Glossary, page 46

Benefitting from a wealth of ideas

The company suggestion scheme also constantly generates new approaches to innovation and ideas for improvements. In the fiscal year 2016, the programme entitled "Your Idea Pays" (YIP) resulted in the realisation of 85 suggestions on the theme of energy, 128 suggestions on the theme of occupational safety and health protection, and 20 suggestions on further environmental protection topics. The financial amount achieved through these suggested improvements was around € 850,000, and they also generated over 60 invention disclosures.

Information from the very first day

From the very first day employees start working at Infineon, they are given comprehensive training in the areas of occupational safety, health and environmental protection, and energy efficiency. Information on environmental protection, environmental aspects and publications is continuously provided on the company's Intranet as well as on-site, where information is posted on bulletin boards. The Environmental Statement is available both at the company's sites and as a download from the Intranet.

3.4 Occupational Safety and Health Protection

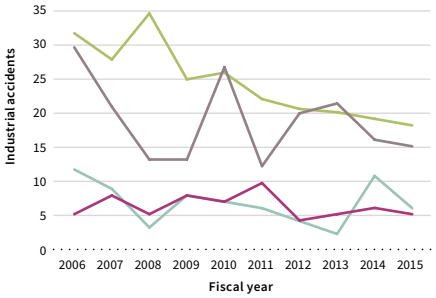
Occupational safety on the basis of both the statutory provisions and international regulations has been a fixed element at the Villach site ever since workplaces first existed here, and is consistently undergoing further development. This can also be seen in the very low number of occupational accidents at Infineon Austria's Villach site compared to the value for the electrical industry sector in Austria as a whole.

All the agreed and supporting safety measures (awareness, training, monitoring) are also reflected in the very low accident rate for our Villach facility in the calendar year 2015 (statistical comparisons from AUVA), which also continues in 2016.

Prevention, exercise, nutrition and mental health are the extended focal points of our Medical Centre at the Villach site, which is managed by two physicians and a specially trained graduate nurse. The Health Team, consisting of people from various departments, also provides support by promoting health awareness at the site under the motto "by employees for employees". Fitness and health-related offerings, an annual Health Day, an in-house mediator team, and training on stress management and burnout-prevention all contribute to overall well-being. External psychological advice is also available free of charge and anonymously. On the basis of these activities in the area of health promotion and prevention, the Villach site has already been awarded the "Workplace Health Promotion" seal of quality several times.

To secure this result for as long as possible, in both the fiscal year 2015 and in 2016 in addition to the tried and tested prevention service, training courses also focused on the topic of chemical safety on-site.

Frequency of occupational accidents
(per 1,000 employees)



Recognised occupational accidents
(recognised by AUVA)

2006	5	12	30	32
2007	8	9	21	28
2008	5	3	13	35
2009	8	8	13	25
2010	7	7	27	26
2011	10	6	12	22
2012	4	4	20	20.5
2013	5	2	21.5	20
2014	6	11	16	19
2015	5	6	15	18

NB: No AUVA report is yet available for 2016 (as at February 2015), therefore no current sector values are available either.

Infineon Technologies Austria AG
Competitor 1
Competitor 2
Electrical sector

_ See Glossary, page 46

Certified

Worldwide matrix certification in accordance with the standards:
ISO 14001 (Environmental management)
OHSAS 18001 (Health and safety management)
ISO 50001 (Energy management)
ISO 27001 (Information security management)

Award-winning

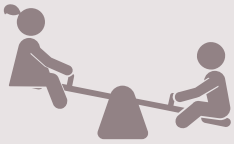
"berufundfamilie" audit
Quality seal for workplace health promotion
Silver award for being a non-smoking company

Company fire department

62 exercises
97 voluntary members
6 shifts
4 vehicles
2 full-time employees

1,428 ideas

1,428 suggested improvements realised in total
On energy: 85 suggestions realised
On health and safety at work: 128 suggestions realised
Other environmental protection topics: 20 suggestions realised



+40

In 2016 the IDC (day-care centre) was expanded by an extra 40 places and now has 120 places in total.

24 hours/365 days

The security and emergency shutdown systems at Infineon Austria run constantly.

3.5 Compliance with Statutory Environmental Regulations

CONSOLIDATED OFFICIAL RULING
Proactive behaviour by the company in t he areas of environmental protection and legal compliance through the consolidated official ruling.

The company complies with the legal regulations and other relevant regulatory requirements (official rulings). It also observes the stipulations contained in permits, with matters of insurance law and when applicable official regulatory orders. The current legal regulations relating to occupational safety, health protection and environmental protection (including energy) at the site are summarized in a directory of legislation. This is also the case for voluntary commitments, requirements originating in permits and regulatory orders, etc. The departments responsible for maintaining this information at the Villach site are precisely defined. The legislation directory is reviewed on a regular basis and modified as necessary, and among other things forms the basis for process descriptions and other corporate regulations on occupational safety and health protection, environmental protection and energy.

3.6 Emergency Precautions and Emergency Management

EMERGENCY PRECAUTIONS AND MANAGEMENT
› The business Disaster Response Organization,
› fire department,
› and company medical service
are fundamental pillars of our operational safety management system.

In collaboration with the responsible emergency and medical response services, we have taken all the safety and precautionary measures necessary to prevent a potential emergency incident on-site or, insofar as this not entirely possible. to limit the impact of any such event as far as possible. In addition, all the essential environment-related processes are monitored by process control and/ or with continuous measurements. This means that even minimal variances from intended operations or other incidents are detected at the earliest possible stage.

Internal emergency response system

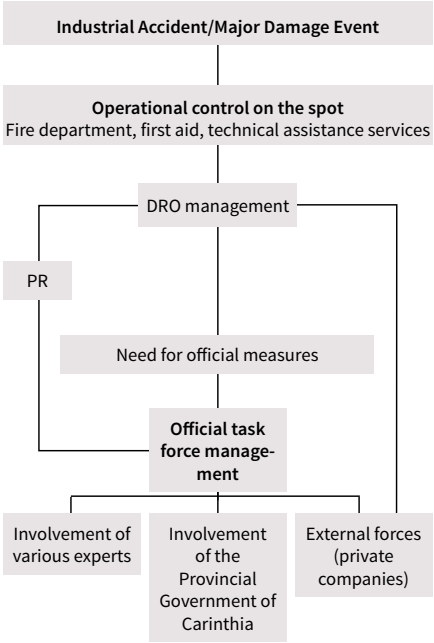
In addition to the shift workers and the staff on call, the Infineon Villach company fire department and our company medical service are available to rectify any malfunctions and respond to possible emergencies and accidents.

In the event of serious damage incidents which cannot be dealt with in the course of normal operations, the site's Disaster Response Organization (DRO) can be activated. Specially trained crisis management team leaders with operational authority are constantly available via the control stations, and can immediately take over the management of a response whenever necessary.

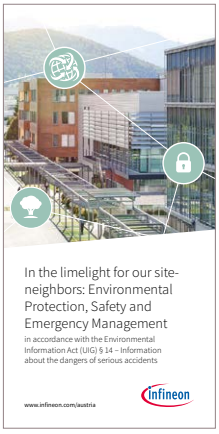
Furthermore a specially trained chemical response team is available when necessary as a part of the Disaster Response Organization to respond to any possible damage events involving chemicals or gases.

The company medical centre is staffed from 08.00 to 15.00 Monday to Friday, and supported by 57 emergency paramedics who are permanently on-site.

_ See Glossary, page 46



Source: Information folder „In the limelight for our site-neighbors“, 2016



External alarm and hazard response plans

We have formulated clear and detailed alarm and hazard response plans in order to limit the impact of emergencies and accidents outside the plant premises.

During the last fiscal year approximately 62 rescue exercises and training sessions again took place in the areas of fire protection and prevention, chemicals, and technical assistance.

Chemicals and how we handle them

The materials with hazardous properties that are required at the Villach site are securely stored, transported and used. Deliveries are made using specially approved vehicles and transport containers. On the Villach site, there are leak basins and retention basins equipped with specially coated walls in every delivery area, in the chemicals storage facility and in the central chemical supply rooms for the production area, in order to securely prevent any conceivable leaks. Transports within the premises, for example from the chemical and gas storage facility to the supply facilities for production, are conducted under strict security precautions. Further transport to the production facilities takes place using double-walled pipelines, which among other things are monitored by sensors to ensure they are leakproof. Our production facilities are equipped with extensive safety and emergency shutoff systems. In the event of an incident, the necessary emergency procedures can be initiated from here in the shortest possible time.

_ See Glossary, page 46

Foto: Industriellenvereinigung/Kurt Prinz

Cool and clever savings!

The focus of the research project BaMa (Balanced Manufacturing) was on energy savings in the chiller equipment. This provides cold water for the air conditioning systems, and ensures that the air in the clean rooms is dehumidified and the halls are cooled. The success factors for this are additional smart meters and data analyses: eleven of the 19 chiller units in total at the Villach site were extensively analysed. Together with other measures concerning these systems, the more precise adjustment of which chiller systems are used in what way, and when they are used together, produced a significant saving in energy.

Clear energy savings: 13.5% (around 4,070 MWh) in the FY 2016 21% by the FY 2020

Numbers, Facts and Figures

4. Environmental Impacts

An environmental impact is any positive or negative change in the environment which occurs wholly or partly because of the activities, products or services of an organization. Infineon Austria is aware of the presence of various environmental impacts, and continuously endeavours to identify new impacts and when necessary take appropriate countermeasures.

4.1 Input/Output Analysis

To keep the impact of the Villach site on the environment as low as possible, processes are optimized on the basis of the systematic recording and evaluation of energy and material flows. In particular, systematic recycling and treatment measures are used to keep the consumption of resources as efficient as possible. Below we report on the direct environmental aspects involving the Villach site, such as the energy required, fresh air, water, chemicals and other materials, as well as the generation of exhaust heat, exhaust air, waste water and waste generally.

INPUT during the fiscal years 2014, 2015 and 2016

Raw, auxiliary and operational materials	Unit	2014	2015	2016
Wafers	t	123.21	119.92	121.86[3]
Gases	t	86,913.68	87,442.80	90,962.57
Wet chemicals	t	4,971.36	5,274.34	5,507.94
Photochemicals	t	1,488.00	1,480.99	1,562.95
CMP chemicals and slurries	t	231.32	196.27	188.15
Other chemicals	t	5.96	17.77[4]	15.07
Chemicals for facilities	t	4,773.23	4,469.37	5,046.42
Metals (in products)	t	22.55	19.99	21.44
Water	m^3	4,144,234	4,110,072	4,567,106
Ultrapure water[1]	m^3	1,740,589	1,850,334	2,061,900
Air	10^9 Nm^3	14.14	14.88	14.88
Recirculated air	10^9 Nm^3	64.02	68.15	70.22

Energy	Unit	2014	2015	2016
Primary and secondary energy	GJ	989,518.19	1,037,984.40	1,071,289.12
Self-produced energy[2]	4,252 Pt	271,932.10	296,531.71	317,566.66

[1] Approx, 90% of the ultrapure water - generated by reclamation from cooling water.
[2] Energy from heat pumps and waste heat.
[3] Including contracted production.
[4] Increased use of special chemicals for process evaluation, e.g. waste water precipitation.

_ See Glossary, page 46

OUTPUT during the fiscal years 2014, 2015 and 2016

Waste total[1]	Einheit	2014	2015	2016
Non-hazardous waste	t	4,905.30	4,944.46	3,147.69
Hazardous waste[2]	t	2,588.33	3,203.92	4,918.26

Emissions into the air	Unit	2014	2015	2016
Exhaust air total	10^9 Nm³	14.21	14.95	14.96
of which emitted[3]	10^9 Nm³	12.08	12.71	13.39
with PFC contamination	10^9 Nm³	0.01	0.01	0.01

Waste water	Unit	2014	2015	2016
Waste water total	m³	4,100,815	4,079,499	4,432,682
Production waste water requiring treatment	m³	2,547,418	2,192,502	2,833,610

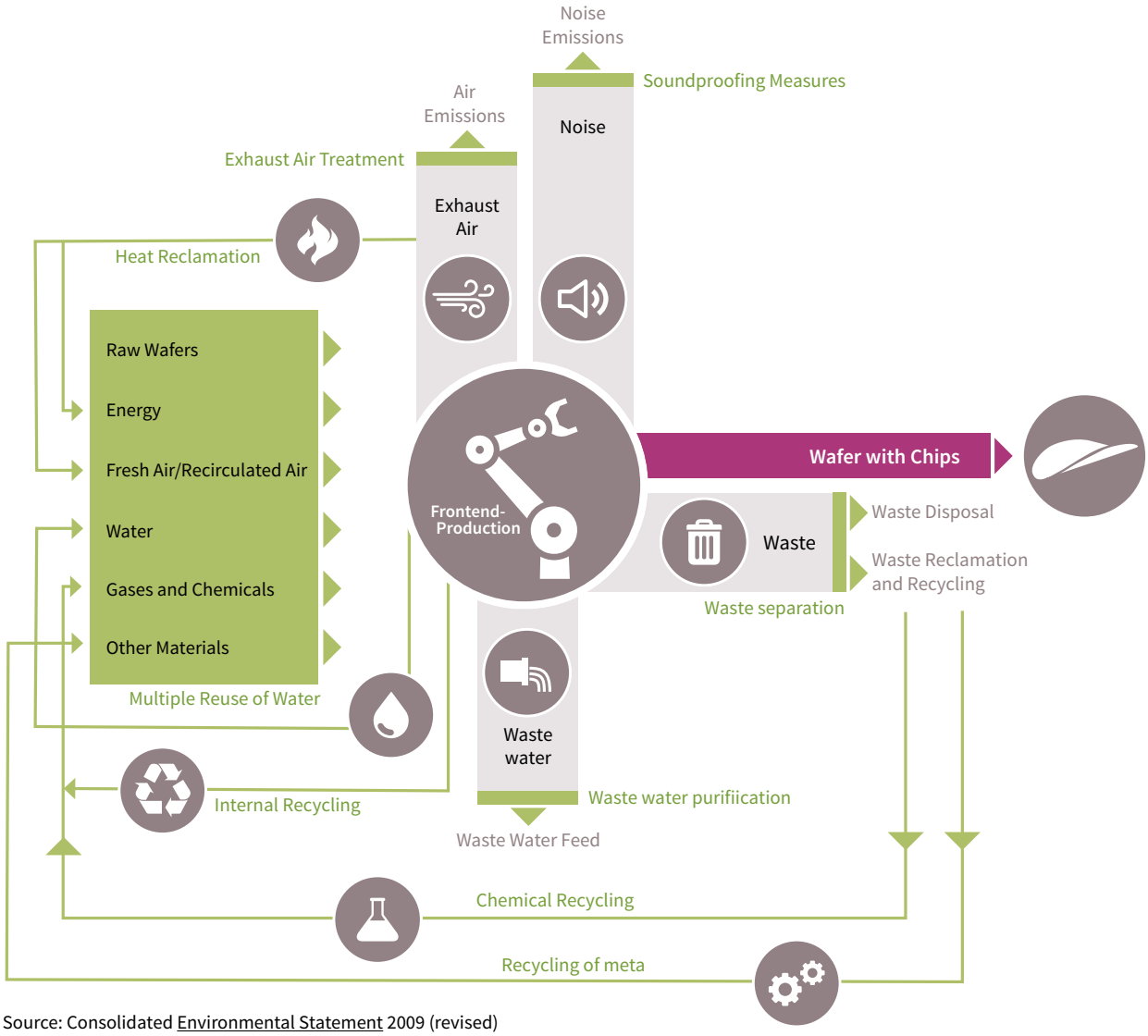
[1] Waste statistics see page 24.
[2] Not including notified and externally recycled solvents.
[3] These details include the exhaust volume flows from clean-room areas and the recorded exhaust air volume flows from other site areas.

The moderate increase in the overall consumption of resources in the areas of energy and gases for the fiscal year 2016 once again resulted primarily from site expansion, the corresponding technology shifts, and the ramp-up phase and filling of the existing production areas with equipment.

The marked increase in hazardous waste in the reporting period 2016 resulted from the necessary reclassification of the precipitate from the waste water treatment plant as waste (see section “Waste management”).

The reporting was already converted to area normalization in the fiscal year 2010, i.e. starting from the fiscal year 2015 the specific consumption of resources per cm² of silicon surface produced excludes the manufacturing of wafers for other sites and manufacturers. This also results in a shift in the target figures with regard to the specific consumptions. The concept and guiding principle of the EMAS III Regulation in terms of data comparability and the intended benchmarkability have thus also been taken into account.

_ See Glossary, page 46



Source: Consolidated Environmental Statement 2009 (revised)

4.2 Direct Environmental Impacts

Direct environmental aspects are under the direct control of the company and are directly connected with the company's activities, products and services.

Environmental aspects are identified by means of both reviewing the statutory provisions and examining the materials flows. The most evident direct environmental aspects are emissions into the air and water, solid waste and the consumption of resources and energy. The environmental impacts of our products are described in the section on indirect environmental impacts.

Energy, climate protection and carbon footprint

ENERGY MANAGEMENT SYSTEM
Proactive implementation of the requirements of the Energy Efficiency Act by developing and implementing an energy management system in accordance with ISO 50001 at the end of 2012

The topics of energy and energy savings are taken very seriously in the company, a fact which also led to the energy management certification in accordance with ISO 50001 in 2012. Thus processes are optimized on the basis of the systematic tracking and evaluation of energy and material flows. In this way systematic optimization measures are used to keep consumption as efficient as possible.

In the area of emissions, due to the rigorous pursuit of the CO_2 reduction programme (especially in the test facility) it was also largely possible to maintain the level of specific emission of CO_2 equivalents over the last 15 years compared to the previous fiscal years despite complex production expansions (see section "Exhaust Air").

The CO_2 calculations were made on the basis of EDM reporting as required by the industrial gas regulations and the templates of the ESIA PFC working group, using information provided by the Intergovernmental Panel on Climate Change (IPCC) in the currently valid form.

The manufacture of semiconductors uses energy, primarily electrical energy. This energy is needed on the one hand to create a stable production environment with defined ambient conditions in the clean-rooms, and on the other hand for operating the production facilities. Thus the majority of the energy consumption at the Villach site occurs during production.

With the integration of the requirements under ISO 50001, Infineon has created the structures at the Villach site to systematically identify further optimisation potential in terms of energy consumption, and also to implement this where it makes sense.

The graph alongside illustrates the development of the use of electricity and district heating at the site. The use of district heating since 2011, generated from an energy mix predominantly focussed on renewable energy sources, has enabled the use of natural gas to be reduced from a typical approximately ten percent to the current level of approximately 2.5 percent.

Since April 2013 the Villach site has been purchasing electricity from its energy provider consisting of 100% hydro power and green energy. This year again this will reduce the CO_2 impact on the atmosphere by approximately 55,000 tons. The objective for the fiscal year 2016, namely not to exceed the value of 271 GWh of electricity even taking account of the continuous growth of the site, was positively met with 256.3 GWh. The newly-set target for the fiscal year is to continue to remain below the maximum value of 271 GWh. Diesel and extra-light heating oil (EL) are used only in minimal quantities and for emergency power systems.

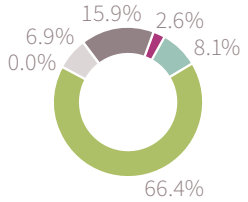
Our Energy Efficiency Project

In order to keep the utilization of energy and resources as efficient as possible and to learn from periods of underutilization, in the fiscal year 2009 we launched a site-wide Energy Efficiency Project that also addresses the issue of innovative strategies for resource optimization. Under the direction of an energy manager, the project was also continued in the last fiscal year, with a focus on innovation and data management.

Energy statistics for the site

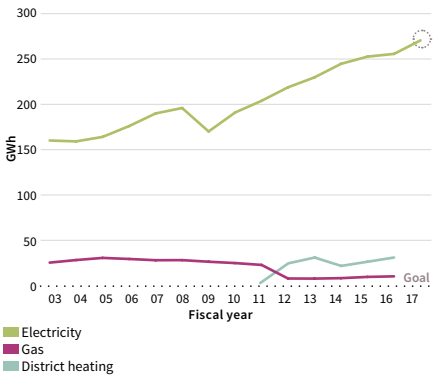
As shown in the energy consumption graph, the specific electricity consumption in the fiscal year 2016 remained constant in comparison to the previous fiscal year.

Breakdown of energy requirements at the Infineon Villach site 2016



- Natural gas
- District heating
- Electricity
- Emergency power diesel/heating oil EL
- Energy from heat pumps and refrigeration equipment with heat recovery
- Energy from exhaust heat (calculated)

Energy consumption Villach total



_ See Glossary, page 46

Since 2012 Energy management certification in accordance with

ISO 50001

100% clean energy

Through the use of electricity that was 100 percent water power and green energy, 2016 too approximately 55,000 tons of CO_2 was prevented.

Clever transportation

Savings of foam equivalent to ten road trains in FY 2016 thanks to the new transport solution with reusable packaging.

Clever savings

In FY 2016 10.9 GWh of energy was saved (8.7 GWh of heat and 2.2 GWh of power). This is equivalent to the power consumption of approx. 500* family households (four people) and the heat consumption of approx. 600*.

*Comparative values from the energy supplier KELAG

Infineon Group's carbon footprint

~1.8 million tons
CO_2 burden[1)]

1:30
Ratio

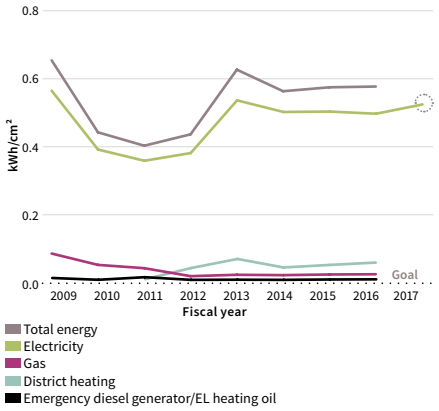
~52.4 million tons
CO_2 savings[2)]

Net ecological benefit: CO_2 emissions reduction of around 50 million tons

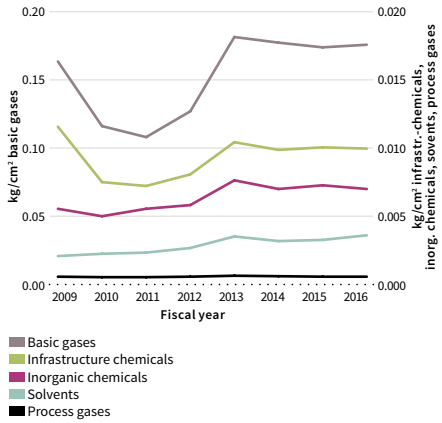
[1] This figure considers manufacturing, transportation, function cars, flights, materials, chemicals, water/wastewater, direct emissions, energy consumption, waste etc. and is based on internally collected data and externally available conversion factors. All data relate to the fiscal year 2016.

[2] This figure is based on internally established criteria, which are explained in the explanatory notes. The figure relates to the calendar year 2015 and considers the following fields of application: automotive, LED, PC power supply, renewable energy (wind, photovoltaic) drives as well as induction cookers. CO_2 savings are calculated on the basis of potential savings of technologies in which semiconductors are used. The CO_2 savings are allocated on the basis of Infineon market share, semiconductor content and lifetime of the technologies concerned, based on internal and external expert's estimations. Despite the fact that CO_2 footprint calculations are subject to imprecision due to the complex issues involved, the results are nevertheless clear.

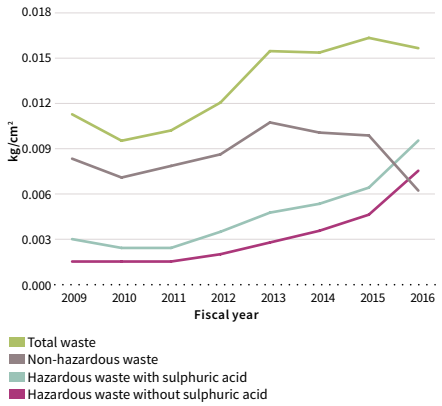
Energy consumption
in kWh/cm² silicon surface area,
normalised by fiscal year – 2016



Consumption of chemicals and gases
in kg/cm² silicon surface area,
normalised by fiscal year – 2016



Waste
in kg/cm² silicon surface area,
normalised by fiscal year – 2016



The consumption of EL heating oil, which is required for the emergency diesel generator, was again very low in the period under review.

Chemicals and gases

In the area of chemicals and gases, the specific consumption in the fiscal year 2016 was kept constant compared to the previous fiscal year. Slight increases in the consumption of basic gases and solvents were due to the filling of empty capacities and the optimised use of equipment.

The reversal of the usage trend in the fiscal year 2013 was due to the commissioning of production capacities and the associated optimised usage of these. Since then the consumption quantities have stabilised.

Waste management

Infineon Austria attaches a great deal of importance to in-house recycling networks at the Villach site. All employees are therefore encouraged to reduce residual waste volumes by collecting and sorting waste and reusable materials, and a pilot project on this subject is currently underway at the site.

The essential content of the hazardous and non-hazardous waste that can be dealt with by licensed waste collectors and processors is moved to the recycling area. Thus the calcium fluoride slurry from the waste water treatment system is used in the construction industry, the spent sulphuric acid is used for neutralization purposes, spent solvents are thermally recycled, and domestic and commercial waste is thermally recycled in a waste incinerating plant or used as landfill deponiert.

Due to the detailed analysis and the consistent use of recycling channels, the contribution margin in the waste management industry (revenues) in turn was approximately 15 percent in the fiscal year 2016.

The specific amount of hazardous waste rose noticeably due to a necessary reclassification of some waste. The previously non-hazardous calcium fluoride slurry from the waste water treatment plant stagnated noticeably, making it necessary to reclassify this as hazardous waste.

To resolve this problem, work has started on a thesis on this topic in cooperation with the University of Ljubljana, and the first results are positive. A downgrading is expected for the fiscal year 2017.

Non-hazardous waste

Below is a summary of the non-hazardous waste for the site, broken down into the main contributors and their recycling flows.

In the fiscal year 2016, the total quantity of non-hazardous waste was approximately 3,148 tons, thus showing a clear reduction as a result of the reclassification of calcium fluoride slurry (mid-2016). A breakdown gives the following distribution:

Waste from production	Unit	2014	2015	2016
Total non-hazardous waste	t	3,698.38	3,764.26	1,861.98
of which materials recovered (non-thermal)	t	364.43	332.84	365.94
of which thermally recycled	t	128.74	128.91	140.39
of which disposed of	t	3,205.22	3,302.51	1,355.65

Production Waste – Remaining site (e.g. periphery, facilities, office areas)	Unit	2014	2015	2016
Total non-hazardous waste	t	911.59	898.44	924.26
of which materials recovered (non-thermal)	t	325.85	323.32	324.40
of which thermally recycled	t	30.39	16.03	30.36
of which disposed of	t	555.36	559.09	569.50

Packaging	Unit	2014	2015	2016
Total non-hazardous waste	t	295.33	281.76	361.45
of which materials recovered (non-thermal)	t	178.73	171.66	171.14
of which thermally recycled	t	116.60	110.10	190.31

The major elements of the non-hazardous waste in the fiscal years 2014, 2015 and 2016 were:

Non-hazardous waste	Key numbers	Unit	2014	2015	2016
Slurries from waste water plant	31641	t	3,185	3,281	1,336
Domestic and commercial waste	91101	t	480	449	500
Contents of grease traps (kitchen)	94705	t	124	131	130
Iron and steel waste (commercial scrap metal)	35103	t	216	175	210
Used paper	91201	t	179	172	171
Biogenic waste	91104	t	138	172	172
Wood waste from construction/demolition	17202	t	56	94	42
Wood waste	17201	t	112	109	189

Domestic and commercial waste increased slightly in comparison to the previous fiscal year. The production of commercial scrap metal from scrapped equipment and of wood waste fluctuate over a period of many years.

Hazardous waste

In the fiscal year 2016, the total quantity of hazardous waste was approximately 4,918 tons. The main components can be broken down as follows:

Hazardous waste	Key numbers	Unit	2014	2015	2016
Solvent mixtures[1)]	55370	t	694	626	686
Spent acids (sulphruric acid)	52102	t	869	913	1,023
Other aqueous concentrates	52725	t	896	1,494	1,010
Residues from solvent recycling	55370	t	239	230	270
Calcium fluoride slurry	31641	t	–	–	2,076

[1)] Excludes residues from solvent recycling.

The amount of hazardous waste produced in the fiscal year 2016 is essentially due to a significant increase in miscellaneous aqueous concentrates, sulphuric acid and reclassified calcium fluoride slurry.

The other aqueous concentrates are specific waste types which presently cannot yet be processed internally.

Waste from Production	Unit	2014	2015	2016
Total amount of hazardous waste	t	2,485.93	3,089.89	4,840.48
of which materials recovered (non-thermal) or recycled	t	877.83	954.62	1,053.37
of which thermally recycled	t	710.99	640.20	699.55
of which disposed of	t	897.10	1,495.07	3,087.56

Production Waste – Remaining Site (e.g. periphery, facilities, office areas)	Unit	2014	2015	2016
Total amount of hazardous waste	t	76.59	94.03	59.33
of which materials recovered (non-thermal) or recycled	t	17.70	18.42	10.56
of which thermally recycled	t	46.70	45.35	4.06
of which disposed of	t	12.19	30.27	44.71

Packaging	Unit	2014	2015	2016
Total amount of hazardous waste	t	25.81	19.99	18.45
of which materials recovered (non-thermal) or recycled	t	5.99	0.93	1.01
of which thermally recycled	t	19.80	19.06	17.44

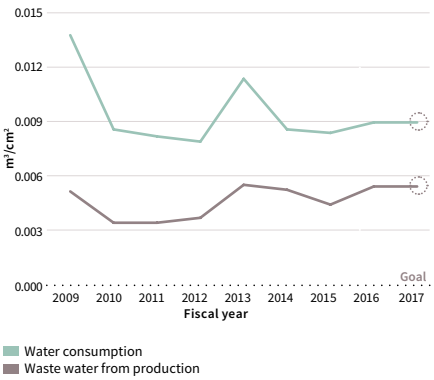
In the area of operational recycling of spent solvents by means of redistillation, in addition to the solvents PGMEA, cyclopentanone and N-Methylpyrrolidone (NMP), since 2014 dimethylformamide (DMF) has also been successfully recycled externally.

A total of 684 tons of pure solvents was thus recycled externally using closed loop recycling management, with recycling rates of up to 74 percent. The overall recycling rate remained at the previous fiscal year's level with 38 percent of the total spent solvents, after major savings in cyclopentanone consumption were achieved at equipment level.

It should also be noted that our spent solvent mixtures are thus not only valuable energy sources in terms of thermal recycling, but are also valuable secondary raw materials. Thus preference is clearly given to the recovery of materials rather than thermal recycling.

_ See Glossary, page 46

Water Consumption and Waste Water Volumes from Production
in m^3/cm^2 silicon surface area, normalised by fiscal year – 2016



Water and waste water treatment

The Villach site largely covers its water requirements from the site's own wells. Due to the ongoing extensions of the operating facilities and technology shifts, and because of production requirements, almost 45 percent of this water is now converted into ultrapure water for production using special equipment. The water for cooling these production and infrastructure facilities is also available on-site. We purchase drinking water and water for sanitary installations from the local utility provider.

For the above reasons, and due to the commissioning of a further large water pump, it was also therefore no longer possible in the fiscal year 2016 to reduce the specific water consumption and specific waste water quantities any further compared to the original plans. The growth in equipment is also clearly evident in the consumption of cooling water.

The specific water consumption was 8.9 l/cm^2 and the waste water consumption was 5.5 l/cm^2 in relation to the silicon surface produced.

Based on the consumption quantities above, the company has now set its sights on new consumption targets (see graph) for the fiscal year 2017.

Extracts from the typical values for the ingredients in our waste water that are directly and indirectly introduced are shown in the following tables.

Sampling Container Austrian Waste Water Emission Ordinance (AEV)
Semiconductors – indirect – external monitoring

Substance	Unit	Official limit value	Measured value 2014	Measured value 2014	New official limit value 10/2016	Measured value 2016
Filterable substances	mg/l	250	45	77	250	47
Ammonium-N (NH_4)	kg/d	240	156.3	157.6	240	215.4
Fluoride (F)[1]	mg/l	50	59.7	37	50	36.9
Phosphorus (P total)	kg/d	60	53.5	75	60	29.3
Nitrogen (N total)	kg/d	250	292.1	319.4	250	275
Sulphate (SO_4)	mg/l	400	128	336	200	152
AOX[2]	mg/l	0.5	<0.01	0.013	0.5	0.03
Copper (Cu)	mg/l	0.1	0.07	0.09	0.1	0.05
Molybdenum (Mo)	mg/l	1	<0.05	<0.05	1	<0.05
Nickel (Ni)	mg/l	0.3	<0.05	0.15	0.3	<0.05
Zinc (Zn)	mg/l	2	<0.10	<0.10	2	<0.10
Boron (B)	mg/l	1	<0.50	<0.50	1	<0.50
HC total[3]	mg/l	3	<0.10	0.16	3	<0.10
v[4]	mg/l	0.05	<0.010	<0.010	0.05	<0.010
Arsenic	mg/l	–	–	–	0.10	<0.10

[1] Due to the increased production capacity utilization levels and the resulting requirement for higher waste water load limit values, the appropriate increases to the limit values were requested from the responsible authorities in the fiscal year 2009.
[2] Absorbable organically bound halogens.
[3] Hydrocarbons.
[4] Purgeable organically bound halogens.

_ See Glossary, page 46

Contaminated waste water from production is purified by our internal waste water treatment plant, which is equipped with state-of-the-art automatic online analysis functions and corresponding retention basins, and will be extended during the next fiscal year due to the consumption situation described above.

Due to the increased production capacity in recent years and the resulting requirements for higher waste water load limit values, increases in the limit values for fluoride, phosphorus, phosphates, nitrogen and ammonium-N were requested in the fiscal year 2009. For this reason, possible load overruns for these specified parameters are continuously reported to the authority; a comprehensive official order in respect of the legislation pertaining to water was issued by the authority in October 2016.

Sampling Container Austrian Waste Water Emission Ordinance
Semiconductors – indirect – external monitoring

Substance	Unit	Official limit value	Measured value 2014	Measured value 2014	New official limit value 10/2016	Measured value 2016
pH value		6.5–8.5	7.3	8.4	6.5–8.5	7.7
Filterable substances	mg/l	50	<10	<10	50	<10
Ammonium-N (NH_4)	mg/l	20	0.31	0.75	20	1.4
Fluoride (F)	mg/l	50	<10	1.7	50	<10
Phosphorus (P total)	mg/l	2	0.13	0.44	2[8]	0.32
TOC[1]	mg/l	30	1.4	2.2	30	3.4
CSB[2]	mg/l	120	<15	<15	120	<15
AOX[3]	mg/l	0.5	<0.01	<0.01	0.5	<0.01
Antimony (Sb)	mg/l	0.1	<0.06	<0.06	0.1	<0.05
Arsenic (As)	mg/l	0.1	<0.05	<0.05	0.1	<0.05
Lead (Pb)	mg/l	0.1	<0.05	<0.05	0.1	<0.05
Cadmium (Cd)	mg/l	0.05	<0.002	<0.002	0.05	<0.002
Chrome (Cr)	mg/l	0.1	<0.02	<0.02	0.1	<0.02
Copper (Cu)	mg/l	0.2	0.08	0.06	0.2	0.06
Molybdenum (Mo)	mg/l	0.1	<0.05	<0.05	0.1	<0.05
Nickel (Ni)	mg/l	0.3	<0.05	<0.05	0.3	<0.05
Selenium (Se)	mg/l	0.1	<0.1	<0.1	0.1	<0.01
Zinc (Zn)	mg/l	1	<0.1	<0.1	1	0.55
Tin (Sn)	mg/l	1	<0.1	<0.1	1	<0.1
Boron (B)	mg/l	1	<0.05	<0.5	1	<0.5
HC total[3]	mg/l	1	<0.1	<0.1	1	<0.1
POX[4]	mg/l	0.1	<0.010	<0.010	0.1	<0.010
Anionic surfactants	mg/l	2	<0.02	0.23[7]	2	<0.02
BTXE[6]	mg/l	0.1	<0.002	<0.002	0.1	<0.002
Non-ionic surfactants	mg/l	1	<0.1	<0.1	1	<0.1

[1] Total organically bound carbon.
[2] Chemical oxygen demand.
[3] Absorbable organically bound halogens.
[4] Hydrocarbons.
[5] Purgeable organically bound halogens.
[6] Total volatile aromatic hydrocarbons.
[7] 24-h daily mixed sample (increased, but within the permitted scatter range).
[8] consensus value to be changed in future to 1.0 mg/l in accordance with the official order in respect of water legislation

Source: External Monitoring of Waste Water Treatment System 1st half of 2016, MAPAG (state-accredited testing and inspection agency) and BDL ZT GmbH 2016

_ See Glossary, page 46

Exhaust air

To provide the clean rooms with fresh air, large amounts of ambient air are taken in, cleaned of particulate matter and after being recirculated several times (multiple circulation routing) are filtered and then discharged back into the environment. When necessary we remove process-related contaminants from exhaust air by means of treatment systems.

Here we remain well below the official regulatory limit values. The environmentally relevant substance classes in terms of exhaust air are collected in defined exhaust flows based on their chemical properties.

In the area of acidic/alkaline exhaust air (process exhaust air), wet scrubbers are used, organic components are purified using after-combustion systems and perfluorinated compounds (PFCs) from semiconductor manufacturing are incinerated in a high-temperature process and cleaned using a wet chemical.

Air emissions Halls 14, 15, 16 – Measured values from the fiscal years 2014, 2015 and 2016

Substance	Unit	Limit value[1]	Measured values (averages)								
			Hall 14			Hall 15			Hall 16		
			2014	2015	2016	2014	2015	2016	2014	2015	2016
Hydrogen chloride (HCl)	mg/m^3	10	0.36	≤0.30	0.31	≤0.30	0.35	0.31	≤0.30	≤0.30	0.31
Hydrogen fluoride (HF)	mg/m^3	1	n. z.	n. z.	n. z.	n. z.	n. z.	n. z.	≤0.24	≤0.24	0.25
Hydrogen fluoride (HF) Hall 14	mg/m^3	3	0.35	0.37	0.38	n. z.	n. z.	n. z.	n. z.	n. z.	n. z.
Hydrogen fluoride (HF) Hall 15	mg/m^3	2	n. z.	n. z.	n. z.	≤0.24	≤0.24	0.22	n. z.	n. z.	n. z.
Chloride (Cl_2)	mg/m^3	2	0.52	≤0.50	0.53	≤0.50	≤0.50	0.49	≤0.50	0.52	0.45
Nitrogen oxide as nitrogen dioxide (NO_2)	mg/m^3	100	4.71	4.39	3.98	≤0.82	0.89	0.71	5.90	5.69	4.64
Ammonia (NH_3)	mg/m^3	10	1.25	0.78	0.66	≤0.69	0.71	0.78	≤0.69	≤0.69	0.66
Hydrogen bromide (HBr)	mg/m^3	3	≤0.67	≤0.67	0.69	≤0.67	≤0.67	≤0.42	≤0.67	≤0.67	0.62
Arsine (AsH_3)	mg/m^3	0.5	≤0.017	≤0.017	0.04	≤0.017	≤0.017	0.09	≤0.017	≤0.017	0.02
Phosphine (PH_3)	mg/m^3	0.5	≤0.007	≤0.007	0.02	≤0.007	≤0.007	0.01	≤0.007	≤0.007	0.02
Organic carbon	mg/m^3	20	1.64	≤1.61	2.04	[2]	≤1.61	≤1.61	n. z.	n. z.	n. z.
Organic carbon Hall 16	mg/m^3	30	n. z.	n. z.	n. z.	n. z.	n. z.	n. z.	8.70	6.06	5.06
Carbon monoxide (CO)	mg/m^3	100	≤9.28	≤9.28	8.58	≤9.28	≤9.28	2.51	≤9.28	≤9.28	12.98

[1] Limit values in accordance with the official order "Reduction in limit values of emission limit values – authorisation of change 1/GV-B-5196/1/T:151/Ch"; valid from May 2016.
[2] In the fiscal year 2014, organic carbon for Hall 15 was cleaned in the H16 solvent purification system, hence there is no separate value.
n/a = not applicable

Air emissions Halls 13, 16A und 17

Substance	Unit	Limit value[1]	Hall 13			Hall 16A			Hall 17
			2014	2015	2016	2014	2015	2016	2016[1]
Hydrogen chloride (HCl)	mg/m^3	10	≤0.30	≤0.30	≤0.24	≤0.30	≤0.30	≤0.53	≤0.75
Hydrogen fluoride (HF)	mg/m^3	1	n. z.	n. z.	n. z.	≤0.24	≤0.24	≤0.20	≤0.50
Nitrogen oxide as nitrogen dioxide (NO_2)	mg/m^3	100	≤0.82	≤0.82	≤0.66	≤0.82	≤0.82	≤0.66	≤0.66
Ammonia (NH_3)	mg/m^3	10	≤0.70	≤0.69	≤0.60	≤0.70	≤0.69	1.11	n. z.
Arsine (AsH_3)	mg/m^3	0.50	n. z.	n. z.	n. z.	≤0.017	≤0.017	n. z.	0.08
Organic carbon	mg/m^3	20	4.70	≤1.61	n. z.	n. z.	n. z.	≤1.61	n. z.

[1] New hall, measurement data only available from 2016.
n/a = not applicable

As visible in the tables above, the actual figures at the individual emission points of the site are essentially well below the limit values. It was therefore jointly agreed with the authority that the emission limit values should be adjusted and reduced. The implementation of this project will be described in the next environmental statement.

The agreement with the authority on the reduction in limit values was implemented in spring 2016. The newly adjusted and reduced limit values have already been incorporated into the tables mentioned.

The latest figures are substantially below the new limit values against all parameters and across all halls. The fluctuation in individual exhaust air values compared with the previous year is explained by technology shifts and fluctuations in utilisation.

The old limit values or the (new) limit values from May 2016 respectively are shown in the following table:

Substance	Old limit value mg/m³	New limit value mg/m³
Hydrogen chloride (HCl)	30	10
Hydrogen fluoride (HF)	3	1–3[1)]
Hydrogen fluoride (HF) Hall 16	1	1
Chlorine (Cl_2)	3	2
Nitrogen oxide as nitrogen dioxide (NO_2)	200	100–150[1)]
Ammonia (NH_3)	30	10–15[1)]
Hydrogen bromide (HBr)	3	3
Arsine (AsH_3)	0.5	0.5
Phosphine (PH_3)	0.5	0.5
Organic carbon	30	20–30[1)]
Carbon monoxide (CO)	100	100

[1)] Hall-specific depending on the state of the technology.

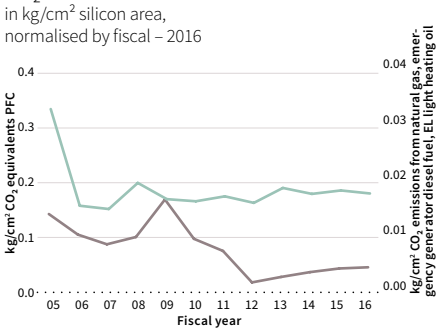
Low emissions

Based on the specifications of the EMAS III Regulation, this Environmental Statement also includes reports on the emissions of NO_X (nitrogen oxide), SO_2 (sulphur dioxide) and dust.

The site's NO_X emissions from production in the fiscal year 2016 were approximately 22,100 kg (2015: 25,500 kg). The proportion of fossil fuels after conversion to district heating is negligible (basis for calculation emissions statement 2013) As indicated in the last Environmental Statement, the site's SO_2 emissions are also negligible.

The NO_X emissions from production areas were evaluated by estimating the loads of the exhaust volume flows from their NO_X contamination (values below the measurement detection limit of 0.66 mg were included in the calculation using the value of the detection limit - worst-case calculation).

CO_2 emissions
in kg/cm² silicon area,
normalised by fiscal – 2016



CO_2 equivalents PFC (Data basis WSC/ESIA)
CO_2 emissions from natural gas, emergency generator diesel fuel, EL light heating oil (Data basis Gemis Österreich version 4.81)

CO_2 emissions

variety of climate-relevant gases are used in the semiconductor industry in etching processes for the structuring of wafers and also for the cleaning of production facilities. These include perfluorinated compounds (PFC), i.e. perfluorinated and polyfluorinated hydrocarbon compounds, sulphur hexafluoride (SF_6) and nitrogen trifluoride (NF_3), which are climate-relevant gases that cannot be replaced by other substance groups.

We minimize the use of these gases firstly by means of ongoing process optimization via more efficient production methods and more intelligent air exhaust purification concepts, and secondly through the use of alternative PFC group gases with higher conversion rates and lower greenhouse potential. However, the increasing complexity of our products is leading to a slightly increasing requirement for climate-relevant gases.

As already reported in the last Environmental Statement, SF_6 is a process gas that is essential to the semiconductor industry. Furthermore, because of its dielectric properties it is used worldwide in high-voltage technologies as an insulation gas. Current state-of-the-art technologies offer no alternative to the use of SF_6 as a process gas for plasma etching in semiconductor component production.

In recent years, systematic reduction programmes have enabled the amount of SF_6 used as an insulation gas in the wafer testing facility at the Villach site for measuring and testing completed wafers to be decreased to the minimum quantity necessitated by measurement technologies. The remaining basic load results from the special requirements of high-voltage measurement technology and from its use as a dielectric in the implantation systems.

Since the Villach site relies on sustainable reduction measures for reduction of greenhouse gas emissions in the context of the Kyoto Protocol, especially in the area of exhaust air purification, we have been able to achieve a steady state condition in terms of the ratio of specific CO_2 emissions to the amount of silicon surface area produced.

The use of perfluorinated hydrocarbons at the Villach site is rigorously monitored and reported on under the Austrian Industrial Gas Ordinance (BGBl.II No. 447/2002), and serves as the basis for the reporting required by this ordinance.

In accordance with the EMAS III Regulation, in addition the emissions of CO_2, CH_4 (methane) and N_2O (dinitrogen monoxide) used are examined in relation to CO_2 equivalents. Since the greenhouse potential of these process gases is relatively low in terms of CO_2 equivalents, and since in the course of an overall examination in fiscal year 2016 they accounted for only approximately 1.4 % of overall emissions, based on the 2004/156/EG guidelines this proportion was not taken into account in the ten-year analysis above. The use of CO_2-relevant hydrofluorocarbons (HFCs) as refrigerants is also negligible, at around 1% of the CO_2 emissions listed.

_ See Glossary, page 46

The significant drop in direct CO_2 emissions in recent years in the heating and waste gas purification areas (energy source natural gas) results from the switchover from site heating to district heating from April 2011. This means that the only remaining use for natural gas at the site is for the operation of special waste gas purification systems (burnboxes). Small amounts are still used in connection with boilers by the energy provider KELAG, but only for system function testing.

Dust emissions

The regulatory specifications on dust emissions (a maximum of 5 mg/Nm^3) are audited once a year at representative measurement points by an assessor as part of the corresponding control concept. Dust emissions for the site for the past fiscal year are estimated at approximately 9.47 tons (previous year 9.74 tons), resulting in turn from a load assessment of the exhaust air flows.

Noise

Infineon Austria maintains an up-to-date noise emissions log. The majority of the noise-generating machines such as compressors, cooling units, heating equipment and vacuum pumps are located in closed supply rooms. Noise levels at the boundary of the site are below the officially stipulated limit value.

4.3 Indirect Environmental Impacts

For Infineon Austria, sustainability means maintaining an even balance between successful economic activities and a conscious interaction with people and the environment. Environmental impacts do not only result from the company's own activities at the site; environmental damage can also be caused by the use and disposal of products and services. However, these elements cannot be controlled by the company, or only to a limited extent.

Easier, safer and greener

In 2050 there will be more than nine billion people living on Earth. The need for living space, food, energy and mobility is increasing, while resources are becoming ever scarcer. The Infineon Group is taking action here with its product solutions, and addressing these central global needs. It will be essential to halt climate change, and in particular to push ahead with reducing carbon dioxide emissions. Our products and innovations enable a saving of around 52 million tons of CO_2 a year via their use in the end applications. This is roughly equivalent to the CO_2 emissions produced annually by the electricity consumption of approximately 70 million people – more than the number of residents in the ten largest cities in the European Union.

In this way we are creating a substantial net benefit in comparison to the CO_2 emissions produced in the manufacture of these products.

_ See Glossary, page 46

GOALS OF THE PARIS CLIMATE SUMMIT 2015
Infineon is making a major innovation contribution to the low carbon economy and providing excellent support for this with its products.

2015 Paris Climate Summit– Infineon supports these goals

At the UN Climate Conference in December 2015 in Paris, 195 countries agreed to a Climate Agreement ("COP21"), which will come into force in 2020. Infineon is very well positioned in this regard, and this has also been confirmed in a report on the Climate Agreement by the investment bank Credit Suisse:

- Sustainable global growth of renewable energies through efficient semiconductor solutions.
- The intermediate storage of electrical energy will increase in importance because the generation of solar and wind energy can fluctuate greatly over the course of a day and a year. Here too the power semiconductors from Infineon will be a decisive part of the solution.
- The even greater efficiency of future devices and machines will make a decisive contribution to the reduction of CO_2. For example, Infineon components for controlling electric motor speeds can adjust the power emitted according to requirements and with low loss, thereby significantly reducing industrial electricity consumption.
- Our automobile semiconductor solutions enable increasingly stringent emission targets for vehicles. For example, aggregates such as steering and ventilator fans are being electrified so that their output can be dynamically adjusted to the actual needs. Moreover, a significantly higher proportion of vehicles will need to be fitted with a hybrid or purely electrical drive in order to meet the emission targets.

This positive assessment is confirmed in a report by the investment bank Credit Suisse, in which Infineon is explicitly listed as a company that will be positively influenced by the Climate Agreement.

(Source: Credit Suisse „ESG Spotlight – COP21: who wins? who loses", 14 Dec. 2015)

Infineon Austria: Systems to shape the future

The activities in Villach which also make a substantial contribution to the objectives of the Infineon Group are focused on two topics: increasing energy efficiency and system miniaturization through innovative power semiconductors. The global Infineon competence centre for power electronics was established in Villach in 1997. Power semiconductors play a key role in electronic devices. They convert mains power from the outlet to the requirements of the respective device, with their most important requirement being to minimise energy losses, which are usually in the form of exhaust heat.

Innovative chips such as these optimize energy consumption for cars, in consumer electronics and household appliances, for energy suppliers and industrial facilities. Power electronics efficiently transfers energy from the power plant to the consumer over thousands of kilometres. From solar cells and the power grid right through to washing machines, intelligent devices, so-called smart meters, make it possible to monitor every kilowatt hour down to the minute.

_ See Glossary, page 46

This also helps to save electricity, which means that semiconductors, micro-controllers and sensors from Infineon thus optimise the entire energy chain.

Around twenty percent of the electric energy consumed around the world is used for lighting purposes, and the figure is on the rise, but there is also a clear trend towards energy conservation in lighting applications. This requires appropriately efficient light sources and electronic components. At the Villach site we manufacture corresponding energy-saving products. Consumers benefit from savings in energy costs directly resulting from Infineon developments. And we are not just a supplier, but a user too: we also take appropriate measures for energy-saving lighting at our own site (see page 10).

Next generation of chips will enable further savings

To keep things this way, the Villach team is already working on the next generation of chips made from new materials such as gallium nitride (GaN) and silicon carbide (SiC). These can convert electric currents much more efficiently, and enable further miniaturization of applications.

Electromobility – we are moving (into) the future

The goal in the automotive research area is to design the next generation of vehicles. In sub-areas of electromobility, such as control electronics components for the drive systems of electric vehicles, the global business activity is being driven from Austria. The result is intelligent cars with a greater level of passive safety.

Together with leading companies from the industrial, research and energy sectors, Infineon Austria is a participant in the Austrian Mobile Power platform (AMP). The objective is the advancement of electromobility concepts. In autumn 2016 a major event for this was held at our Villach site in cooperation with the AMP. Infineon is also already committed to E-Mobility at the Villach site: the vehicle fleet includes electric cars for short-distance business trips, with charging stations also available on-site. Measures in this area are being successively expanded. These examples show that Infineon Austria is continuously researching the more efficient use of energy, and thus accelerating many a technological breakthrough.

We accept responsibility – clear focus on CSR

Infineon Austria has defined guidelines for sustainable growth based on the Infineon Austria strategy “Smart Growth2020” and the Group Corporate CSR Policy. Key themes are:

› Innovation is our DNA
› Strong employer – strong region
› For a green tomorrow

Numerous measures and example demonstrate our commitment to our innovative employees, the environment, and the regional surroundings (for examples see page 35).

Children

International Day Care Center (IDC)
ScienceMINIS
Strengthening MINT skills

Schoolchildren

ISC (International School Carinthia)
Girls' Day
Mädchen Lehre Technik (Girls into Apprenticeships and Technology)
SEMI High Tech University

Students

Infineon Summer/Winter School in Villach
iFindmyTalents network
NaturTalente at the University of Vienna
PhD@Infineon Austria
Ambassador network

Employees

Carinthian International Club
Club International (Styria)
Junior Talent Program
Generation management
Health Team
"The Green Way" team

Environment

District heating project
Waste heat recovery
E-cars in our vehicle fleet
Project Energy Efficiency 2020
"The Green Way" team

Surroundings

Joint use of synergies:
Cooperation on tourism and industry
"The Green Way" – cooperation with the region
IDC (International Day Care Center)
ISC (International School Carinthia)

Since 2014 we have reached over 25,000 children, teenagers and students

Infineon goes the green way

The permanent growth of the Villach site demands a well-thought out mobility concept. Under the motto “Take the Green Way”, a team of around ten employees from different departments is aiming to create attractive and sustainable alternatives to driving to work in your own car that are available all year round. The idea is for the Infineon vision “greener und smarter” to be brought to life even on the way to work. The mobility team’s clear goal is to reduce car traffic. Measures for this include, for example, attractive car parks for employee car-sharing schemes, internal car-sharing exchanges, sufficient cycle spaces and approaches to adapting the public transport network to the needs of its occupants (for more on this on see page 40).

Procurement and external companies

ENVIRONMENTAL MANAGEMENT SYSTEM
Around 90 percent of the Villach site’s main suppliers have a certified environmental management system.

As well as its own internal processes, Infineon Austria ensures that its procurement of services and equipment is environmentally friendly. This system has also been extended to include evaluations of our suppliers’ environmental performances. With success: around 90 percent of the main suppliers to the Villach site have a certified environmental management system.

Based on our group-wide guidelines, such as the Principles of Purchasing, which in turn are based on our Business Conduct Guidelines that are valid worldwide, all of our service providers and suppliers are obliged to meet our standards of occupational safety, health protection and environmental protection, and working and social conditions. A further guarantee of successful cooperation is the specification of environmental and occupational safety aspects in our framework agreements.
Additional requirements of our suppliers are formulated in our Technical Terms and Conditions of Delivery.

Green and environmentally-friendly product shipments

At the Villach site reusable packaging, consisting of plastic transport boxes, has replaced the previously-used cardboard packaging for transporting sawn wafers (6- and 8-inch), especially for shipments from the site to Warstein (Germany) and Cegléd (Hungary). In this way we currently save up to 55,000 cardboard boxes a year and up to 110,000 items of foam.

In the fiscal year 2016 the use of reusable packaging also enabled savings of EUR 200,000. This packaging was developed by a cross-site team of employees working together with suppliers. Qualification for the transport of 12-inch wafers is currently underway, and will be concluded shortly. This will result in further savings.

Green printing

In the majority of our print jobs, including this environmental statement, we pay attention to environmentally-friendly printing. This environmental statement has been printed on environmentally-friendly paper. The individual print components are PEFC-certified, meet the criteria of the Austrian ecolabel and are produced in a climate-neutral way.

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UW-Nr. 931

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_ See Glossary, page 46

Reporting on environmental and sustainability topics

In addition to the Environmental Statement, at site level a quarterly summary of the major environmental indicators is produced and forms the data basis for reporting on environmental and sustainability topics. The data from this summary is then included in the corporate-level reports.

4.4 Environmental Aspects and Key Topics

When evaluating the most important direct and indirect environmental aspects for our operational facilities, we formulate goals for the most important environmental impacts and initiate measures to prevent or reduce these. Direct, controllable aspects are evaluated by means of detailed analysis, and indirect environmental aspects are assessed qualitatively as Infineon has no influence over these at the Villach site.

Summary

The evaluation of the environmental aspects at the Infineon Austria Villach site for the fiscal year 2016 did not reveal any major problems.

4.5 Direct Environmental and Safety Effects during Normal Operations and Damage Events

At the Villach site, as well as evaluating the environmental impacts during normal operations, we also evaluate the effects of possibly non-standard operation. Our concept and our evaluation undergo continuous further development on the basis of the Seveso III classification of the site and the corresponding safety analyses.

Our new information folder for the neighbours of our site provides an in-depth analysis of the effects of possible operational damage events and a detailed description of the site's safety logistics.

Plausibility test for Infineon Austria environmental aspects

		Evaluation of Environmental Relevance		
		2014	2015	2016
Environment and/or climate				
Emissions into the atmosphere › Based on the development of the site and the associated ramp-up of production, and the resulting technology shifts, continuous expansion and adjustment are necessary › Further optimization of operational exhaust air purification systems in the context of the Kyoto aspects › Extended service and control concept for the solvent purification system has been implemented, and received a positive expert evaluation › Automation concept for NO_x cleaner › Extension of exhaust air purification facilities and reduction in the limit values › Validation of exhaust air measurement technology › Creation of an exhaust air register › New solvent combustion system	P/M	B/C	B/C	B/C
Generation of waste water › Adaptation and expansion of waste water treatment system to meet operational requirements and state-of-the-art technologies › Based on the site expansion and the corresponding ramp-up of production, an increase in quantity thresholds is necessary; appropriate procedures were initiated with the authorities and concluded with the official order of 10/2016 › Load monitoring of hazardous ingredients; integrated into procedures relating to water legislation › Revalidation of the Environmental Laboratory pursuant to paragraph 7 of the Waste Water Emissions Regulation › New official order in respect of water legislation 10/2016 › Construction of a new waste water facility (equalising reservoir)	P/M	B/C	B/C	B/C
Non-hazardous waste › Main elements of non-hazardous waste are sent to recycling	M	B/C	B/C	B/C
Hazardous waste › Main elements undergo material reclamation or are recycled and reused › Downgrading of the hazardous element calcium fluoride slurry on the basis of process development and process switchover	M	B/C	B/C	B/C
Generation of dust › Regular dust measurements by external institution, all official requirements met, extended maintenance concept realized	M	B/C	B/C	B/C
Mental and physical impacts				
Noise emissions › No action required during normal operations › Safeguarding against construction site emissions with preventive measurements as necessary	M	C	C	C
Resource efficiency				
Water consumption/demineralised water (VE-water) › Permanent analyses of consumption (waste water reduction) in the production process › The increasing consumption is driven and controlled by technological and unit quantity factors	P/M	B/C	B/C	B/C
Operating resources and auxiliary materials › Continuous analysis of resources, processes and consumption › The increasing consumption is driven and controlled by technological and unit quantity factors	M	B/C	B/C	B/C
Chemicals, gases › Continuous analysis of resources, processes and consumption, as well as inputs and outputs › The increasing consumption of chemicals and gases is driven and controlled by technological and unit quantity factors › Large volumes of solvents are already recycled	M	B	B	B
Media consumption › Permanent optimization of hazardous goods transports by acquisition of oxygen and nitrogen from the on-site air fractionation facility › Dilution of chemicals on-site, central supply systems	P/M	B/C	B/C	B/C
Energy requirements, waste heat › More than 20 percent of the total energy quantity used undergoes heat reclamation and re-use › Comprehensive energy reduction programme (Energy Efficiency Project) › Heating for the site supplied by district heating from sustainable sources (including biomass)	P/M	B/C	B/C	B/C
Soil/ground water › Soil monitored by means of regular ground water analyses › A soil assessment is undertaken during every construction measure	M	C	C	C
Economic growth				
New operating sites › Based on the site expansion, procedures with authorities undertaken in good time to ensure legal compliance with the extensive obligations to provide proof	P	B/C	B/C	B/C
Safeguarding technical progress				
Process/innovations › Consistent and systematic evaluation and safeguarding of new technologies in respect of safety and the environment, including in the areas of ion implantation, electrochemical plating, silicon carbide and gallium nitride, and E-Mobility	P	B/C	B/C	B/C

Environmental Aspects and Measures		Evaluation of Environmental Relevance 2014	2015	2016
People and the environment				
Odour and noise emissions › No complaints from neighbours of the site › Problem analyses as necessary › Awareness-raising and training for response teams and plant supervisors on the topic of odour-related pollution in the production area	M	C	C	C
Requirements for other hazardous materials › Despite the increased complexity of technology in the production area and the resulting technical problems in separation, the consumption of hazardous materials and organic solvents increased only slightly, and the recycling rate of spent solvents remained stable › An additional external recycling project for the spent solvent element (DMF) was positively realised and was implemented in production	P/M	B	B/C	B/C
Environmental impacts in non-standard operations › Maintenance of a cross-site safety function plan and business continuity concept › Explosion zone concept (VEXAT) › Extensive safety analyses of radiation-relevant facilities › In-depth analyses of industrial accident regulations (production of a safety report) › Operation of a validated environmental protection laboratory › New fire station › Revision of the Disaster Response Organisation (DRO) › Evaluation of the environmental aspects in non-regulation operations undertaken	P/M	B/C	B/C	B/C
Legal compliance › Maintenance of a legislation database › Consistent continuation of consolidation › Expanded safety concepts (VEXAT, ADR, radiation protection, industrial accident regulations and evaluation under the industrial emissions guidelines) › Safety report prepared in line with the Seveso III Directive	P/M	B/C	B/C	B/C
Sustainable development › Separation and recycling concepts in various areas › Training and development concepts in the area of occupational safety, health and environmental protection, and energy › As required awarding of project work, dissertations/theses › Promotion of the YIP improvement suggestion scheme › Innovations in E-Mobility and solar technology: operation of a company e-charging station and use of an e-car for visits to the authorities › Extensive reporting on the environment and sustainability › Review of data via the Group sustainability report › Inclusion of further aspects of sustainability in the Environmental Statement (e.g. mobility)	M	B/C	B/C	B/C
Health activities › Continuation of company health promotion using a holistic approach › Activities run as needed and coordinated with the internal specifications; Key areas: – Preventive care – Exercise – Mental health (burnout prevention) › Best ageing › Mediation and coaching › Implementation of a Health Team with the aim of continuously developing company health promotion	P/M	B/C	B/C	B/C
Transport/mobility › Extensive focus on car parking spaces to deal with incoming and outgoing employee traffic › Intensified measures such as – Car sharing – Car pools – Communication/review with authorities about a planned on-site bus stop › Illustration on the topic of E-Mobility in an EMAS folder	M	B/C	B/C	B/C

P Project
M Ongoing measures

Assessment of the environmental relevance

A	Reduction measures are necessary due to high negative impacts on the environment by the plant or activity or its group
B	No immediate action necessary due to tolerable negative impacts on the environment, reduction measures have already been carried out or match the current
B/C	No immediate action necessary, measures are already being carried out (continuous improvement programs, dynamic process)
C	No immediate action necessary due to measures carried out or negative impacts on the environment which can not be influenced

_ See Glossary, page 46

A green thumbs-up!

Under the “Green Way” initiative, employees from many areas have been working towards a common goal since the beginning of 2016: creating attractive and sustainable alternative forms of mobility for getting to work all year round! A mobility survey and an analysis of employees’ residential locations formed the basis.

Implemented

- Car pool parking spaces
- Modernisation of the cycle parking spaces
- E-charging points on company premise
- Cable ducts for E-charging points
- E-Mobility event held with Austrian Mobile Power
- Internal mindsetting programme

Environmental Programme and Environmental Goals for the Fiscal Year 2017

5. Overview

BECAUSE THE ENVIRONMENT MATTERS
Environmental projects, our environmental programme and our environmental goals are reviewed, adjusted and updated yearly.

At the Villach site the occupational safety, health protection, environmental protection and energy programme is based on the objectives formulated in the environmental protection, energy management, occupational safety and health protection policies of the Infineon Group. The catalogue of goals and actions is reviewed, adjusted and defined once a year based on the corresponding input and output analyses and the aspects of the site that have been identified as being essential. At the same time, the measures, deadlines and responsibilities associated with the individual projects are also specified.

In recent years, in its Environmental Statement Infineon Austria has concentrated on highlighting its major strategic projects in the areas of waste water, exhaust air and recycling. When new equipment is necessary for innovations, the expansion of capacities and replacement investments, we pay close attention to the state of the art. Below we present examples of environmentally-relevant project activities that have provided, or are providing, a significant contribution to improving the site's environmental performance.

At Infineon, less is more

–45%
About 45% less electricity consumed per square centimeter manufactured wafer than the global average

–33%
About 33% less water consumed per square centimeter manufactured wafer than the global average

–47%
About 47% less waste generated per square centimeter manufactured wafer than the global average

We use resources much more efficient in our prodution processes than the global average of the semiconductor industry.

Basis for the calculations are the square centimeters processed wafer area in the front-end production and consumptions according to WSC definition.

Next projects
- Professional car pool app
- More attractive bus connections to the main railway station
- Extension of the E-charging points in the car park
- New transport and parking concept
- Supporting measures for cycles and E-Bikes

5.1 Measures Implemented in 2016

IMPRES Programme 2015 – Goals for 2016

	Goal	Measure	Status	Date
Energy efficiency	Preparation of an energy report as per EEffG (Energy Efficiency Act)	› On-site inspection and auditing of the Infineon sites in Austria; amongst other things depiction of the individual main consumers and processes	› Five sites were evaluated, Report was prepared and passed to the monitoring body	11/2015 ✓
	Energy efficiency measures for Villach	› Evaluation of individual projects and/or measures	› Individual assessments of 12 measures have been completed and documented internally › The goal of 10.76 GWh has been reached and accepted by the energy supplier, and reviewed against the Energy Efficiency Act (presented to the energy monitoring body)	09/2016 ✓
	Waste heat reclamation, extension of capacity	› Additional cooling systems with heat Recovery, Hall 24A	› Investment application submitted (10 GWh)	09/2016 ✓
	Use of exhaust heat from convertible compressors	› Waste heat reclamation from selected air compressors	› Investment application submitted (8 Gwh)	09/2016 ✓
Consumption of resources	Recycling of spent solvents	› Maintain a recycling rate of > 600t	› DMF is already being recycled externally following positive conversion of production	09/2016 ✓
Exhaust air	Evaluation of on-site air emissions	› Creation of an emissions inventory of hall-refined exhaust air	› Contents agreed with the authorities › Inventory prepared – evaluation undertaken	07/2016 ✓
Waste/ recyclable materials	Voluntary emission reduction in exhaust air according to the state of the art	› Technical details recorded with evaluation of representative exhaust air flows	› Project submitted › Limit value reduction of up to 30 percent implemented	07/2016 ✓
Waste management concepts	Hall 17 waste management concept updated	› Post-evaluation of the project in terms of waste legislation on the basis of the commissioning data	› Revision undertaken on basis of partial commissioning, update 10/2016 for full operation	06/2016 ✓
Safety	Reorganisation of Disaster Response Organisation	› Overhaul of the DRO training concept	› Training concept was overhauled and implemented, preparedness exercises held	09/2016 ✓
Legal compliance	Expansion of Hall 17 operating facility	› Environmental safeguarding of the ramp-up of Hall 17	› Expanded environmental acceptance measurements by external institute	12/2015 ✓
	Industrial Accident Ordinance	› Implementation of the Industrial Accident Ordinance on the basis of Seveso III	› Chemical policy regulations reported to authority	12/2015 ✓
			› Revision of safety report on basis of Seveso III requirements, report adjusted and submitted on time to termingerechte the authority	07/2016 ✓

✓ Project was successfully implemented

5.2 Planned measures for the fiscal year 2017

Based on the analysis of the environmental aspects and the measures derived from this, the following projects have been planned for the fiscal year 2017:

IMPRES Programme 2016 – Goals for the fiscal year 2017

	Goal	Measure	Status	Date
Energy efficiency*	Heat reclamation, expansion of capacity	› Additional cooling units with heat reclamation, Hall 24A; the additional cooling units with heat reclamation will be installed and commissioned in FY 2017	› Application has been submitted 09/2017	09/2017
	Use of the exhaust heat from convertible compressors	› Heat reclamation from selected air compressors; 0.8 MW heat capacity	› Implementation and commissioning 12/2017	12/2017
	Energy saving through the use of LED lighting	› Roll-out on selected areas and implementation plan; the aim is to have installed around 76 percent LED lighting in the clean rooms by the end of FY 2017	› This project will run continuously until the end of FY 2018. Status: LED surface measurement underway	09/2018
Consumption of resources	Recycling of spent solvents	› Maintenance of the recycling rate of >600 t, thus prevention of approx. 600 t of hazardous waste in the FY 2017	› External recycling of DMF, NMP and cyclopentanone	12/2017
Exhaust air	Evaluation of on-site air emissions	› External certification of internal measurement technology and measurement technology personnel (two employees)	› Currently in implementation phase	07/2017
	Extension of exhaust air capacities and replacement of old systems	› Implementation in parallel with equipment replacement or ramp-up, documented via submission projects	› Being implemented via individual projects with qualified partial documentation	12/2017
	Cleaning of organic exhaust air	› Commissioning and ramp-up of a further solvent incineration plant as capacity expansion, and redundancy system with capacity of 30,000 m^3	› Technical commissioning	03/2017
Waste management concepts	Short-term reduction in the quantities of hazardous waste from the waste water system (approx. 300t per month	› Diploma thesis on optimising the neutralisation of concentrates	› Waste element calcium fluoride slurry has been reclassified as non-hazardous waste	01/2017
	Updating of the waste water concept for Hall 17	› Post-evaluation of the project in terms of waste legislation on the basis of the commissioning data in full operation	› Update of the WWC –no relevant changes required compared to partial operation	11/2016
Waste water	New waste water facility	› Commissioning and ramp-up of a new waste water facility (retention basin) › To capacity expansion with 1,500 m^3	› Technical commissioning	05/2017
Mobility	„Green Way“ project	› Action programme to promote the occupational mobility logistics/E-Mobility	› Status and key elements as per project plan	12/2017
Employees / external companies	Increased information from employees, external companies and the interested public	› Preparation of a “Neighbourhood Information Folder” (04/2016) and a mobility folder	› Implemented and communicated 09/2016	09/2016
Safety	Evaluation of a weather station for assessing emissions	› Erection of two weather sensors (wind speed) on Halls 14 and 16. as well as several wind vanes	› Monthly data evaluations and visualisations	12/2016
	Industrieunfallverordnung (Industrial Accident Ordinance)	› Implementation of the requirements from the Seveso inspections	› Requirements have been examined, implementation projects started	12/2017

Green type: planned goals that have already been fulfilled within the fiscal year 2017 (before the publication of this Environmental Statement)

* The projects shown in the energy efficiency section are reproduced in a “BaMa” master plan dealing with simulations and optimisation projects for energy-optimised production.

_ See Glossary, page 46

5.3 Special Environmental Achievements in the Fiscal Year 2016

When it comes to special environmental achievements, the Villach site is highly innovative and future-oriented. Below are several important examples:

Energy sources

- Based on many years of success in the use of heat exchangers and heat pumps, as well as the reuse of waste heat from systems and equipment, in the last fiscal year as in previous periods it was again possible to reduce the amount of energy required by approximately 23 percent of the total amount of energy used.

On-site energy efficiency

- Based on the ISO 50001-compliant energy management already implemented in 2012, a number of projects led by the Energy Manager focusing on energy efficiency have been launched and already realised. As part of the best practice sharing, a permanent exchange of information took place with the other Infineon sites.
- The aim of the Energy Efficiency Act, which came into force in January 2015, is to achieve cost-effective increases in the efficient use of energy by companies and by the government, and to save energy in order to meet the goals defined in Austria for 2020.
- Infineon has already complied with the legal obligation for major companies to report on the introduction of an energy management system or to carry out an external energy audit. At the Villach site and at five other Austrian sites external energy audits were realized, and the audit report was prepared and submitted on time to the monitoring authority.
- The use of electricity from 100 percent water power and green energy enabled approximately 55,000 tons of CO_2 to be prevented again this year.

District heating/CO_2

- On the basis of the switch from natural gas to district heating already implemented in the fiscal year 2012, CO_2 savings in the area of secondary energy of 3,000 tons were again achieved in the fiscal year 2016.

Recycling

- Based on the established recycling cycles of solvents, in the fiscal year 2016 it was possible to maintain the recycling rate at a constant level. The average recycling rate is currently approximately 38 percent, and one special solvent even achieved a recycling rate of up to 70 percent.
- The consistent continuation of the solvent recycling programme again enabled approximately 680 tons of solvents to be recycled.

Mobility

- Infineon Austria is strongly committed to sustainable mobility solutions at the Villach site. The ongoing activities in terms of mobility management (such as the “Green Way” initiative) have also been highlighted amongst others in the EMAS mobility folder.

5.4 Significant Changes Since the Last Consolidated Environmental Statement

A look back over the last three calendar years shows the following changes that have taken place at the Villach site:

2014

- In June 2014 the extension of the Villach site was announced.
  With the "Pilot Space Industry 4.0" an innovative concept for networked and knowledge-intensive production was implemented and tested. Research into new materials and technologies was also intensified. Investments and research expenditure in the amount of € 290 million in total were planned for the expansion from 2014 to 2017. The aim was to create around 200 new high-tech workplaces. The ground breaking ceremony for the new building complex took place in September 2014.
- Opening of the new 900 m² shipment building on the Villach site on 1 December 2014.
- Also in December 2014 the new waste management collection centre began operations.
- Expansion of capacities and redundancy in terms of the cooling supply for the production halls, with a focus on the energy centre Hall 13.

2015

- In October 2015 the new Villach building complex, the so-called "Pilot Space Industry 4.0", was opened for the specific testing and implementation of Industry 4.0 applications. The project made sustainable contributions to increasing energy efficiency, and brought substantial savings along the entire value creation chain.
- CSR Day: Reflecting the importance of sustainability and innovation, the 10th Austrian Corporate Social Responsibility Day took place on 16 October 2015 at Infineon's site in Villach. This was the first time it was held in Carinthia. The convention, which was organized by respACT, Austria's leading CSR corporate platform, is considered one of Austria's most important events on the topic of Corporate Social Responsibility.
- The brochure for neighbours of the Infineon site was updated at the end of 2015.
- "Factory 2015" Award: The Villach factory was honoured by Frauenhofer Austria Research and "Industriemagazin" as Austria's most efficient production operation in the category "Groups".

2016

- In May 2016 the kick-off for the European research project "SemI40" took place under the leadership of Infineon Austria. This project involves 37 partners from five countries researching the further development of autonomous factories. The joint goal is the next step in the development of Industry 4.0 applications. The focus of the goals amongst other things is on energy savings and more efficient overall use of resources in production.
- In May 2016 Infineon Technologies Austria AG became the first company in Carinthia to be awarded the certificate "Smokefree Company" in silver by the Kärntner Gebietskrankenkasse and the province of Carinthia in the context of its smoking prevention strategy.
- In September 2016 the International Day Care Center started the new day-care center year with 40 new places. The day-care center, which focusses on internationalism, technology and the natural sciences, now has a total of 120 places for children aged two to six.
- The European research project EPPL ("Enhanced Power Pilot Line") coordinated by Infineon Technologies Austria was successfully completed in September 2016. The project focussed on the development of energy- and cost-efficient semiconductor technologies and state-of-the-art production methods. The efficiency of the energy-saving chips developed by the EPPL was successfully demonstrated in four selected application areas (frequency inverters for photovoltaic applications, energy systems and LED lights for cars, and in medical technology in mobile X-ray equipment). Here clear savings were achieved in terms of both the energy costs and the size and weight of the chips used. The new power semiconductors exhibit up to 15 percent lower energy losses and are between 15 and 50 percent smaller than before, depending on the application.
- In October 2016 the event "E-Mobility on stage" was held at the Villach site in cooperation with Austrian Mobile Power. Interested parties from all over Carinthia experienced two days of presentations and discussions to do with electromobility, and were also able to try out electric cars, scooters and bikes. The numerous information stands were an opportunity to learn interesting information about purchasing electric vehicles and about charging technologies.

6. Glossary

6.1 Explanation of Terms

AEV	Austrian Waste Water Emission Ordinance (Abwasseremissionsverordnung)
Audit	The systematic and documented verification process within the company by means of which data and processes are identified and evaluated
AUVA	Austrian General Accident Insurance Institution (Allgemeine Unfallversicherungsanstalt in Österreich)
BaMa	Balanced Manufacturing (research project)
Best Ageing	Comprehensive health project for employees aged 50 and over
BKO	Disaster Response Organisation (DRO)
CMP	Chemical Mechanical Polishing
CO_2 equivalent	CO_2 is the chemical formula for carbon dioxide; since different greenhouse gases have different climatic impacts, a common unit is needed to compare them. This unit is referred to as a CO_2 equivalent and is calculated based on the amount of emissions of a particular gas multiplied by its climatic impact factor
Cyclopentanone	An organic solvent
DMF	The solvent dimethyl formamide
EDM	EDM Environment Austria is a composite system of Internet applications and databases to support the complex processes involved in environment-related duties of documentation, notification and reporting
EMAS	Eco-Management and Audit Scheme
E-Mobility	An innovation project at Infineon promoting energy-efficient electric and hybrid vehicles
ISO 14001	The International Standardization Organization (ISO) developed the globally applicable standard EN ISO 14001 to support companies in developing and expanding company environmental management systems
ESIA	European Semiconductor Industry Association
R&D	Research and Development
Frontend	Type of production in which chips are manufactured on the wafers
Hazardous material	Hazardous materials are materials or formulations with one or more of the following hazard properties: risk of explosion, oxidizing, highly or easily flammable, flammable, toxic, very toxic, detrimental to health, caustic, irritating, sensitizing, carcinogenic, toxic to reproduction, mutagenic or chronically harmful in some other way, transferring pathogens, hazardous to the environment
Gemis Österreich	Calculation model for environmental impacts (energy sources etc.) from the Austrian Environment Agency
Semiconductor	A crystalline material which displays electric conductivity increasing with temperature when warmed; examples of semiconductors are silicon or germanium; the term is also used for integrated circuits made with these materials
IDC	International Day Care Center
ISC	International School Carinthia
IMPRES	Infineon Integrated Management Program for Environment, Energy, Safety and Health
IMPRES Policy	The company‘s overall intentions and approach in terms of its performance in the areas of the environment, occupational safety, and energy and health management
IPCC	Intergovernmental Panel on Climate Change
IT	Information Technology, comprising all the methods, concepts and technologies for processing, storage, transmission and provision of access to information and data
KELAG	Kärntner Elektrizitäts-Aktiengesellschaft

Climate Agreement	The central goal is to limit global warming caused by greenhouse gases to significantly less than 2° C, and if possible even 1.5° C. In the second half of the century, a balance should be reached between the man-made emission of greenhouse gases and the binding of CO_2 via so-called sinks (e.g. forests). Contracting states must produce emissions reports and submit new climate protection plans every five years. Climate protection and global warming adaptation support was promised for developing nations and island states. From 2020, US$100 billion will be made available annually for poor countries. We believe that this Agreement represents an additional long-term driver towards a less intensive CO_2 energy supply and greater energy efficiency
Kyoto Protocol	Additional United Nations protocol with the objective of protecting the environment
Legal Compliance	Ensuring legal security
Matrix certification	A certificate listing all units/sites of a company which have been certified by an assessor
NMP	The solvent N-methyl-2-pyrrolidone
OHSAS 18001	Occupational Health and Safety Assessment Series – international standard for evaluation and certification of an occupational health management system
PFC	Perfluorinated compounds
PGMEA	The solvent propylene glycol monomethyl ether acetate
Clean room	Used for the production and inspection of micromechanical and electronic components and systems subject to particular requirements, e.g. freedom from particles
Seveso III	Council Directive 2012/18/EEC in the area of industrial accident prevention
Slurries	Suspensions of solids, sometime with chemical additives, used in the CMP process
Smart Meter	Intelligent measuring system which creates transparency for consumers; sends and receives data digitally within the communication network
SoFi	Database on sustainability reporting
State of the art	The development status of advanced procedures, facilities or operational modes which ensures the practical suitability of a measure for the protection of health, safeguarding the employee and for limiting environmental damage. When determining the state of the art, in particular comparable procedures, facilities and operational modes which have been successfully tested in practical operations should be used
STEM	science, technology, engineering, and mathematics
Environment (based on ISO 14001)	The surroundings in which the company or parts thereof are active; including among other things air, water, land and other natural resources, people and nature as well as their mutual interactions
Environmental Aspects	The elements of the company‘s activities, products or services, etc. or its sub-areas or sites, which interact or could interact with the environment
Environmental Impact	Any positive or negative change to the environment which is completely or partly the result of activities, products, services, etc. of the company or its sub-areas or sites
Environmental Statement	A document by means of which the company‘s sites that are certified under Regulation (EC) No. 1221/2009 communicate the activities performed, environmentally relevant objectives, environment-related services, environmental impacts, etc. to the public on a regular basis
Environmental Management System (based on ISO 14001)	Environmental management is part of the company’s management system; the environmental management system includes the organization, planning activities, methods, procedures and processes as well as the resources which are necessary for the development, implementation and fulfilment of the environmental policy, as well as for its evaluation and continued maintenance
VE-water	Ultra-pure water
Wafer	A disc made of a semiconductor material (silicon) with a diameter of up to 300 millimetres; in integrated circuit production the wafer is sliced from a monocrystal and serves as the carrier material for integrated circuits
WSC	World Semiconductor Council
YIP	Internal improvement suggestion scheme “Your Idea Pays”

6.2 Measurement Units

g, mg	Grams, milligrams
GJ	Gigajoule
GWh	Gigawatt hours
kg	Kilograms
kg/d	Kilograms per day
kWh	Kilowatt hours
kWh/cm²	Kilowatt hour (consumption) per square centimetre (silicon surface area)
l	Litres
l/cm²	Litres (consumption) per square centimetre (silicon surface area)
m², cm²	Square metre, square centimetre
m³	Cubic metre
mg/l	Milligrams per litre
MWh	Megawatt-hours
Nm³	Normalized cubic kilometre
nm	Nanometer
t	Ton (metric)

6.3 Validation

ETA
Umweltmanagement

Die ETA Umweltmanagement GmbH als akkreditierte Umweltgutachterorganisation nach dem UMG BGBl. I 99/2004 mit der Registrierungsnummer AT-V-0001, zugelassen für den Bereich NACE-Code 26.1

bestätigt, dass die

Infineon Technologies Austria AG

Siemensstraße 2, A-9500 Villach

wie in der vorliegenden aktualisierten Umwelterklärung 2016 dargestellt, alle Anforderungen der Verordnung (EG) Nr. 1221/2009 des Europäischen Parlaments und des Rates vom 25. November 2009 über die freiwillige Teilnahme von Organisationen an einem Gemeinschaftssystem für Umweltmanagement und Umweltbetriebsprüfung (EMAS) erfüllt.

Es wird bestätigt, dass

- die Begutachtung und Validierung in voller Übereinstimmung mit den Anforderungen der Verordnung (EG) Nr. 1221/2009 durchgeführt wurden,
- das Ergebnis der Begutachtung und Validierung bestätigt, dass keine Belege für die Nichteinhaltung der geltenden Umweltvorschriften vorliegen,
- die Daten und Angaben der Umwelterklärung ein verlässliches, glaubhaftes und wahrheitsgetreues Bild sämtlicher Tätigkeiten der Organisation innerhalb des angegebenen Bereiches geben.

Die nächste umfassende Umwelterklärung wird im Jahr 2019 publiziert. Jährlich wird eine für gültig erklärte, aktualisierte Umwelterklärung veröffentlicht.

Wien, 29. März 2017

Dr. Stefan Gara
Leitender Umweltgutachter

6.4 Date of the Next Environmental Statement

The next Environmental Statement will be an updated Environmental Statement, to be published in March 2018.

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