



## Company

The companies of ALTANA AG develop, manufacture, and distribute high-quality, specialty chemical products and provide the associated services. ALTANA is a globally active corporation headquartered in Wesel, Germany, with an international sales share of approximately 87 percent. Its four divisions, BYK Additives & Instruments, ECKART Effect Pigments, ELANTAS Electrical Insulation, and ACTEGA Coatings & Sealants, occupy a leading position in their target markets with respect to quality, product solution expertise, innovation, and service.

ALTANA offers innovative and environmentally compatible solutions for coating manufacturers, paint and plastics processors, the printing and packaging industries, the cosmetics sector, and the electrical and electronics industry. The product range includes additives, special coatings and adhesives, effect pigments, sealants and compounds, impregnating resins and varnishes, and testing and measuring instruments.

The ALTANA Group, which belongs to SKion GmbH, an investment company owned by Susanne Klatten, who is also the Deputy Chairwoman of ALTANA's Supervisory Board, currently includes 45 production sites and more than 50 service and research laboratories worldwide. Throughout the Group about 6,000 people work to ensure the worldwide success of ALTANA. In 2015, ALTANA achieved sales of more than 2 billion euros. About 6 percent of sales are invested in research and development every year. Its high earning power and high growth rate make ALTANA one of the most innovative, fastest-growing, and profitable chemical companies in the world.

### Corporate performance indicators

	2014	2015
Number of employees	6,064	6,096
Sales € million	1,952	2,059
EBITDA € million	397	391
EBITDA margin %	20.4	19.0
Research and development expenses € million	114	128
Investments € million	90	86
Total production t	643,592	625,500
Gross value added € million	739	788
Final products t	505,000	512,000
WAI 1 <sup>1</sup>	3.81	4.73
WAI 3 <sup>2</sup>	51.52	57.04
Total CO <sub>2</sub> (Scope 1 + Scope 2) <sup>3</sup> t	219,165	210,858
Drinking water m <sup>3</sup>	1,368,129	1,472,924
Non-hazardous waste t	9,302	10,418
Hazardous waste t	18,712	18,571

<sup>1</sup> Work Accident Indicator 1 (number of occupational accidents with lost work time of one day or more per million working hours)

<sup>2</sup> Work Accident Indicator 3 (number of lost work days due to occupational accidents per million working hours)

<sup>3</sup> Scope 1: direct emissions; Scope 2: indirect emissions

### About this report

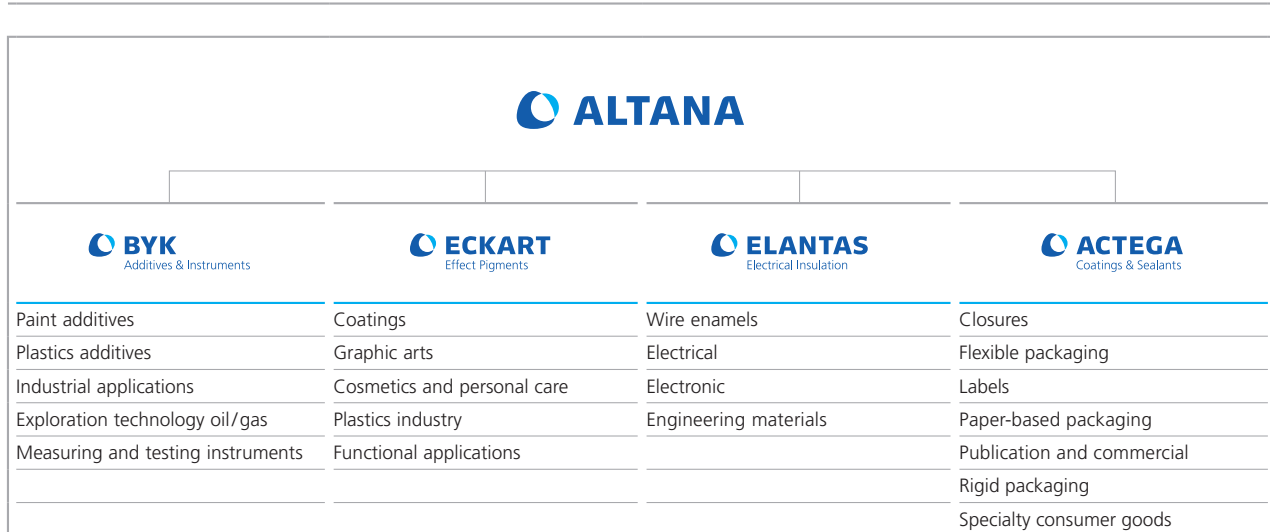
The Sustainability Report 2015 was written by ALTANA AG to provide the public, the company's employees and business partners, authorities, non-governmental organizations, and all other stakeholders with information about the implementation of sustainability in the strategy of ALTANA in terms of ecology and corporate social responsibility. The company's economic development is discussed in detail in its 2015 Annual Report.

The facts and key figures presented in this report refer to fiscal year 2015; environmental performance indicators refer to the period from October 1, 2014 to September 30, 2015. Unless otherwise noted, our

statements apply to all divisions and worldwide subsidiaries that were part of the ALTANA Group in 2015. The report follows the international G3 guidelines of the Global Reporting Initiative (GRI). We performed an in-house assessment of our compliance with GRI indicators and have concluded that the report meets the requirements of application level A.

For further information on the topics presented in this report, on further performance indicators, and concerning the GRI Index, please visit [www.altana.com/sustainability](http://www.altana.com/sustainability). The annually published report also serves as COP on ALTANA's implementation of the principles of the Global Compact. The report is available in both German and English.

## Business divisions and product portfolio



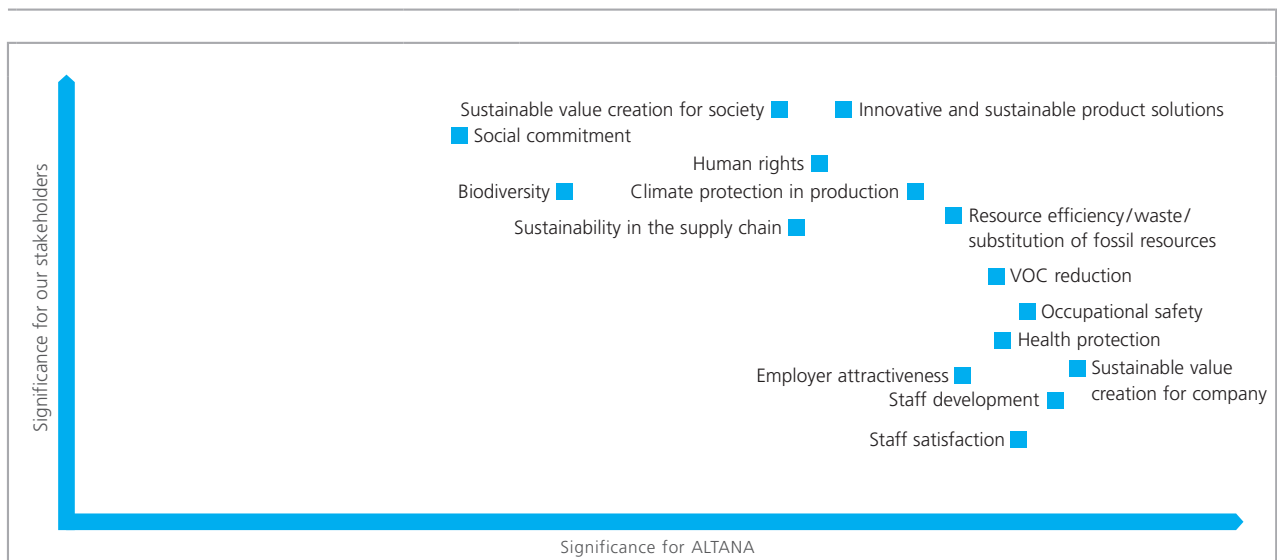
as of January 1, 2016

## ALTANA Materiality Matrix

The ALTANA Materiality Matrix shows all topics addressed in this sustainability report. In addition, the matrix makes it

clear that the relevance of a topic is often assessed differently internally than externally. At the same time, all fields of activity are important to us. We focus special attention on topics on the right side of the matrix (see graphic).

### ALTANA Materiality Matrix



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Further key performance indicators, and the GRI Index can be found in the Notes to the Sustainability Report 2015 on the Internet at [www.altana.com/sustainability](http://www.altana.com/sustainability)



Ladies and Gentlemen,

For the ALTANA Group, sustainability is a decisive factor for value-creating business. We view sustainability as a triad consisting of economy, ecology, and social responsibility. This understanding of sustainability finds application Group-wide. And that's why we support the aims of the UN Global Compact initiative.

As an innovation-driven specialty chemicals company, we see a clear connection between sustainability and innovative capability. In addition to developing products and solutions that make a contribution to environmental and climate protection across the entire value chain, we continually work on expanding our service around the sustainability of our products. Thus, we can offer our customers added value in myriad ways.

With our efforts in environment, health, and safety, we have achieved a good level so far. But our aim is to steadily improve and advance ourselves and our company. To this end, we have created a new form of organization in this sector – so-called expert platforms. On October 1, 2015, the first four expert platforms began work. They considerably improve cross-divisional knowledge exchange on issues such as energy efficiency and product safety and push forward sustainability in general at ALTANA.

The network idea of these platforms is decisive. So we expressly invite all of our employees to actively contact the members of the respective expert platforms about issues relating to environment, health, and safety. The experienced experts are also available to our customers, business partners, the professional public, and associations.

We are continuously working to reduce our energy and resource consumption as well as the amount of waste we produce. In 2015, again, in most of our companies we were able to clearly improve the performance indicators we defined regarding CO<sub>2</sub> emissions, waste generation and disposal, and water consumption.

The key to constant optimization and innovation in the area of sustainability are our employees. They are distinguished by their willingness to change and not only implement



**Martin Babilas**

Chief Executive Officer since January 1, 2016



**Dr. Gerald Kirchner**

Head of Environment, Health and Safety since  
October 1, 2015

changes, but also see them as a personal challenge. They change their perspective, continually look for ways of making improvements or finding completely new solutions, and thus create decisive added value. Whether "Unchanged Yet Open," "Solid Yet Adaptable," "Safe Yet Variable," "Permanent Yet Renewable," "Constant Yet Different," or "Basic Yet Passionate," behind these attributes are exemplary colleagues whom we introduce to you in the chapters of this report.

At this juncture, we would like to express our gratitude to Dr. Andreas Diez, who retired at the end of January 2016 after belonging to the company for more than 30 years. As Vice President Environment, Health and Safety, he established this department in the company and expanded it to make it what it is today. Dr. Gerald Kirchner succeeded him on October 1, 2015.

We would also like to thank all of the employees who through their dedication have made ALTANA a sustainable employer, business partner, and neighbor. We wish you enjoyable reading.



**Martin Babilas**  
Chief Executive Officer



**Dr. Gerald Kirchner**  
Head of Environment, Health and Safety





# Management

ALTANA stands for sustainable profitable growth. In 2015, we had our various sustainability achievements audited by EcoVadis for the first time and introduced so-called expert platforms that heighten the exchange of knowledge across our divisions. Meanwhile, the environmental management systems we have launched, the ALTANA Excellence program, and research investments in future technologies continued to promote our growth.

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# UNCHANGED YET OPEN

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**Implementing sustainable management** means acting with a long-term orientation. This perspective combines the protection of natural foundations of life with responsible management and economic thinking. That is how we put it in our first sustainability report in 2010, and this maxim remains unchanged. Yet with successes we face growing challenges – challenges that require us to be open to new things, as Dr. Gerald Kirchner knows. The new head of ALTANA's Environment, Health & Safety (EH & S) department is planning to bolster sustainability as a corporate value.

**WITH OUR NEW EXPERT PLATFORMS, WE BRING TOGETHER KNOWLEDGE. AS A RESULT, IN THE FUTURE WE WILL BE ABLE TO OFFER OUR CUSTOMERS EVEN BETTER SERVICE AROUND THE SUSTAINABILITY OF OUR PRODUCTS.**

#### **Sustainability as a Corporate Value**

Our signing of Global Compact, the development of concrete targets for environmental and health protection, and Group-wide key performance indicators: these are just a few of the milestones of our sustainability strategy. They show how important it is to develop measures with which we can measure sustainable management in our companies. It is our firm conviction that only when something is measured can it be shaped in a future-oriented way.

With this in mind, we have set ourselves a new goal. "We want to develop sustainability into a distinct corporate value," explains Dr. Gerald Kirchner, who has headed ALTANA's EH & S department since October 2015. He wants sustainability – like economic factors – to become an assessable value for the Group as a whole. Thus, in the future sustainability will be on an equal footing with other factors, for

example fixed assets and business capital, as well as innovative strength.

The most important prerequisite: Independently of our decentralized business model, we have to establish uniform criteria across our companies that enable them to mold their sustainability strategy. To this end, a continuous exchange of information is needed. At the suggestion of Dr. Kirchner and his predecessor Dr. Andreas Diez, the Management Board launched four expert platforms across ALTANA in October 2015.

#### **Concentrated Expertise**

Experts from all over the world work on the platforms. They bring together knowledge on key issues that concern all ALTANA companies. In the process, they create synergies and help avoid redundancies. The result will be internationally comparable, efficient, and transparent processes.



First, the platforms address the process of data management pertaining to regulatory matters. This includes the European regulation REACH, the Globally Harmonized System of Labeling Chemicals (GHS), and regional laws. Second, they examine how we review and verify our products' compatibility with food. Third, they investigate the efficiency of our products, with a special focus on lifecycle analysis. Fourth, we intend to further develop the EH & S key indicators.

### Best Practice Models

"The platforms create a framework within which the companies can work out best-practice models and exchange ideas about them," explains Dr. Kirchner.

The experts on the platforms are not only available as contact partners within the company. Externally, too, they are well-versed contacts for customers and business partners, for the specialized public, and

for associations. If, for example, new laws or regulations that affect our industry are up for discussion in the future, we can rely on the knowledge of these experts in order to contribute to opinion formation as a group.

"At the end of the day, it is a question of whether we can concentrate our expertise even better," says Dr. Kirchner. "Only then can we continue to offer our customers the added value they are accustomed to from us: reliable, comprehensive support that goes far beyond products and specific applications." To sum it up in one word: service.

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Dr. Gerald Kirchner began his career as Head of Product Development at BYK. Subsequently, he built up the company's innovation management and global organization in the area of product safety and advanced BYK's sustainability management.

As Head of EH & S at ALTANA, he seeks to make the Group's sustainability management even more measurable.

## Company

ALTANA AG is a globally active group of companies. It develops, produces, and sells high-quality specialty chemicals, including additives, special coatings and adhesives, effect pigments, sealants and compounds, impregnating resins, as well as testing and measuring instruments. The company is based in Wesel, Germany.

In August 2015, Stefan Genten joined ALTANA's Management Board as the new CFO. He succeeded Martin Babilas, who became Chairman of the Management Board at the beginning of January 2016, succeeding Dr. Matthias L. Wolfgruber. A complete overview of the responsibilities of the members of ALTANA's Management Board is provided in the Annual Report 2015.

To prepare for his new role in the Management Board, Martin Babilas explicitly sought personal exchange with employees in our group. To this end, he traveled to different ALTANA companies in the U.S., Europe, and Asia.

In parallel, all staff members had the opportunity to give their opinion about the topic of Continuity and Change in an Intranet survey. The results show, on the one hand, that ALTANA's Guiding Principles are firmly anchored in the workforce, and, on the other, that our employees are willing to change, for example when it comes to optimizing processes.

In the last fiscal year, the ALTANA Group generated sales of 2,059 million euros and its EBITDA (earnings before interest, taxes, amortization and depreciation) amounted to 391 million euros. ALTANA achieved 87 percent of its sales in markets outside of Germany. Detailed information on our group's financial data can be found in our annual report, where we also listed the public grants the companies in our group received in the 2015 fiscal year. The annual report can be called up at [www.altana.com/annual-report](http://www.altana.com/annual-report).

## Consequences of Climate Change

As we enhance our portfolio, we aim to continually expand our offer of innovative climate-friendly customer solutions. This particularly concerns the development of water-based products free of VOCs (volatile organic compounds). This is discussed in more detail in the "Products" chapter of this report.

In addition, we analyze financial risks that can arise for our group due to the consequences of climate change. We assume that prices on the raw material markets will not remain at their current level in the long term, but will go up again. This applies especially to raw-materials from fossil sources that we need for our production.

Only one of our sites can be impacted by the immediate effects of climate change. ELANTAS PDG is based near the Mississippi River; rising water levels could potentially reach the site in the distant future.

## Certified Management Systems Serve Sustainability

All of the companies in our group have an obligation to continuously reduce the environmental effects of their business activities and to take the necessary action to achieve this goal. Every managing director has signed a voluntary declaration to do so.

We determine the necessary data and key figures for environmentally conscious management with the help of internationally acknowledged management systems, for example ISO 14001. In addition, all of our companies are obliged to have their management system certified by independent third parties. This also applies to companies we acquired in the last few years.

The certification process on the basis of ISO 14001 is at a high level within the Group. 86 percent of all sites com-



ply with this standard. Furthermore, all of our German companies have begun to adapt their energy management to the specifications of ISO 50001. Some companies have already taken the necessary measures.

In addition to the certifications, the employees are trained about various environmental topics. At the manufacturing sites, a total of 80 percent of all employees took part in various trainings and events devoted to environmental issues.

### Audit of the Sustainability of Our Supply Behavior

In the year under review, ALTANA's holding company and BYK at our Wesel site underwent a sustainability audit for the first time. The focus was on our supply behavior. The internationally operating company EcoVadis based in Paris examined our working, environmental, and production conditions.

According to EcoVadis, this audit is comparable with guideline ISO 26000 and based on the specifications of the Global Compact initiative, which ALTANA joined. Within the chemical industry, EcoVadis has become the world's leading audit, and thus evaluation, platform for sustainability. Many of our customers also underwent this assessment.

In the online assessment made by EcoVadis, based on a questionnaire and a document check, ALTANA was given 58 points, well above the average (the mean score in the industry is 41 points), and thus received a silver rating. In the chemical manufacturing group, we were in the top twelve percent worldwide.

We use the results of this assessment to measure our own performance as well as the progress we have made in sustainable management. Therefore, we will have the assessment done again, and also have further aspects of our

group tested successively. Other companies in the ALTANA Group will also undergo this assessment.

We make the results available to our customers on EcoVadis' supplier portal. As a result, they can be convinced of the sustainability of our supply chain in an uncomplicated way.

### Sustainability Projects with Customers

Another example shows the tremendous importance that sustainable trends and products have for our customers. Last year, BASF Coatings published a two-and-a-half-minute film in eight languages on its website and elsewhere. In the film, the company outlines its stringent quality demands regarding environmentally friendly water-based systems that contribute to reducing VOCs.

Representatives of the company and of ALTANA report on how the close cooperation between BASF Coatings and the companies in our group help spawn innovative solutions and future-oriented formulations. The two partners' COCKPIT project, among others, serves this purpose.

### Sustainability in Everyday Life

Starting with our involvement in the climate initiative "2041" launched by the British polar researcher Robert Swan (see the "Social Commitment" chapter of this report), our sustainability ambassadors are pushing ahead in-house initiatives to raise awareness of environmentally conscious action in day-to-day life. To this end, we carried out a web-based survey on sustainability at our Wesel site in 2015. More than forty percent of the employees participated.

The results highlight the importance of this issue in the eyes of our workforce. Most of the respondents believe that sustainability is just as important for their lives as for the

company as a whole. The request in the survey for staff members to develop ideas for sustainable action in everyday life met with an excellent response. We received a total of 70 suggestions and are currently examining whether they can be implemented.

### Image Campaign Shows Employees

“The people at ALTANA make the difference and are the plus for our customers” – that is the gist of the new, integrated image campaign we launched last March. The five advertising motifs show employees from different companies and in different capacities. The employees reflect our group’s innovative strength and service orientation, as well as its knowledge and abilities. Thus, the advertisements concisely demonstrate how we offer our customers added value.

With the help of a QR code integrated in the ads, viewers arrive at our website directly, where they can read about which “pluses” were realized for customers in concrete cases. Further information is provided by short films that go into the respective topic in more depth. Here, too, employees talk about their experiences. Without a script, they freely discuss how ALTANA creates added value for its customers.

In the course of this authentic image campaign, a new HR campaign was initiated last year that also builds on the “plus” concept. Details can be found in the “Human Resources” chapter on page 50 of this report.

### Excellent Health Management

Many ALTANA companies actively implement health-promoting measures. In recent years, BYK at our Wesel site was the first company to develop a systematic, target-oriented, continuous occupational health management system (OHMS).

It encompasses occupational safety and health (OSH) measures with sports, fitness, and health offers, as well as occupational reintegration after longer periods of illness.

In 2015, BYK had its offer audited by a third party for the first time. On behalf of the Corporate Health Award (CHA) initiative, experts from EuPD Research Sustainable Management GmbH analyzed the structure, strategy, and achievements of the company’s occupational health promotion and gave it the “Excellent” seal of approval. Receiving 84 of 100 possible points, BYK outperformed the majority of the companies analyzed by CHA.

### Environmental Advantages Thanks to ALTANA X

Our Group-wide excellence program titled ALTANA X serves to establish sound, data-assisted decision-making management in all of our companies. The aim is to improve the quality of our internal processes in the long run. Therefore, ALTANA X includes a transparent key figure system. We use it to gauge the costs and benefits of the respective measures.

With this comprehensive approach, economic benefits are coupled with ecological advantages in a number of projects in an especially fruitful way. An example is a project that aims to reduce BYK’s energy costs at its Schkopau site. With the project, we can reduce the use of raw materials and at the same time improve exhaust air purification and wastewater treatment. In Vigo, Spain, ACTEGA worked together with customers to make screw caps more user friendly. They managed to produce less scrap when applying the sealant in the cap, thus reducing the amount of waste. The improvement measures that ECKART America introduced to clean production plants also have a lasting effect on the environment because, wherever possible, environmentally hazardous substances are avoided.



## Compliance: Training of New Staff

ALTANA has had a comprehensive Compliance Management System (CMS) since 2008.

Detailed information about this system as well as our group's leadership and responsibility structures can be found at [www.altana.com/compliance](http://www.altana.com/compliance).

ALTANA's Code of Conduct, a binding guideline for all of our employees and managers worldwide, is a component of the CMS. It provides information about proper behavior in instances of corruption, accepting or giving advantages, discrimination, and conflicts of interest. Since 2010, we have educated all of our employees about our Code of Conduct with the help of special e-learning instruments on a platform set up expressly for this purpose. There are German, English, Italian, and Chinese versions.

In 2015, 750 employees from Great Britain, Germany, the U.S., and Canada completed this electronic training program.

In the year under review, ALTANA had to pay a penalty of 50,000 euros in the Netherlands. The reason was a deflagration at BYK-Cera in 2011 in which a staff member suffered severe injuries.

## Awards

In 2015, ALTANA received the Bronze Award of the German Stevie Awards in the category "Company of the Year – Other Industries." With the award, the jury honored the ALTANA Group's impressive combination of growth and sustainability, as well as its strong social commitment. The German Stevie Awards are business prizes for companies. They were initiated by the U.S. entrepreneur Michael Gallagher in the U.S. in 2002 and later were brought to Germany.

Dr. Sue Graham, Managing Director of ELANTAS PDG, was the first woman in any company to receive the Golden

Omega Award from the American Institute of Electrical and Electronics Engineers (IEEE). With the prize, the institute honored Graham's outstanding achievements in the electrical and insulation industry in the U.S. The award is presented every other year to a personality from science, business, or education.

## Global Compact in the Supply Chain

As a member of the worldwide Global Compact initiative, we have committed ourselves to implementing its principles in our supply chain. Our suppliers can read the corresponding code of conduct on our procurement platform, among other places, where they can sign it. A total of 480 companies have done so since 2010. During talks with suppliers, we find out whether they have adhered to these voluntary commitments.

## Responsible Care and Chemie<sup>3</sup>

The basis of our activities is the chemical industry's worldwide sustainability initiative, called Responsible Care. All of the ALTANA Group's managing directors personally signed this voluntary initiative and, based on it, submit an annual report to the German Chemical Industry Association (VCI), which uses the data for its annual Responsible Care progress report.

In Germany, the sustainability initiative Chemie<sup>3</sup> (Chemistry<sup>3</sup>) has set itself the goal of achieving sustainability above and beyond the objectives of Responsible Care. The initiative was established by the VCI together with the German Mining, Chemical and Energy Industries Union (IG BCE), and the German Federation of Chemical Employers (BAVC). ALTANA supports this initiative because it is in line with our group's Guiding Principles. An important part of

the work of Chemie<sup>3</sup> is to convey to its members exemplary solutions and approaches for sustainable management.

## Stakeholders

We determine the stakeholders relevant to us on the basis of our experience and recognizable communication needs. In addition, we analyze which groups might have special expectations or fears vis-à-vis the chemical industry.

In our communications, we rely on dialog with various interest groups. They include neighbors, local political representatives, and the media, as well as public authorities, associations, customers, and suppliers. The exchange serves to strengthen trust in our products and the safety of our plants. Our annual reports and annual sustainability reports contribute to this.

Our involvement in associations is part of our communication with interest groups. In 2015, the executive committee of the German Chemical Industry Association again appointed a representative of our group to the Technology and Environment committee. The committee's task is to contribute to opinion making in the association and to develop appropriate positions.

In addition to being a member of the German Chemical Industry Association, we belong to two other industry associations via our company BYK-Chemie: the European Chemical Industry Council Food Contact Additives (CEFIC / FCA), and since 2015 the Chinese association AICM (Association of International Chemical Manufacturers). ECKART is a member of the German Association of Producers of Pigments, Fillers, Functional Additives, Food Colorants and Others (VdMi) and is represented in its Technical Commission. In addition, the pigment manufacturer is a member of the European umbrella association Eurocolor, of the European Printing Ink Association (EuPIA), and of the European Metal Particulate Association (EMPA).

## Products

We want to be leading in everything we do. This particularly concerns our innovative products, which conserve resources and protect the climate. We help our customers manufacture with low emissions and energy-efficiently and enhance the safety of their products. Moreover, we offer our customers comprehensive service and expert assistance concerning regulatory issues, among other things.

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21	Plasticizer-Free Medical Packaging
22	Guidelines and Their Impact on ALTANA
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# S O L I D YET ADAPTABLE

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**It is not only important to our customers that our additives exactly fit their** applications. They also want to be sure that our specialty chemicals comply with the various regulatory requirements of the different markets in relevant countries. Megan McCutcheon has the necessary solid expertise. She is part of the BYK International Regulatory Service Team. This team is well prepared to continually adapt to meet new challenges.

# ONE ADDITIVE CAN BE USED IN ACCORDANCE WITH DIFFERENT REGULATORY REQUIREMENTS AND SAFETY GUIDELINES AROUND THE WORLD: BYK OFFERS ITS CUSTOMERS THIS COMPETITIVE EDGE.

## National and International Regulations

Does the additive contain volatile organic compounds (VOCs) or other critical substances? Does it meet the requirements of the international Globally Harmonized System (GHS)? Can it be used in toys or in contact with foodstuffs? Hundreds of such questions reach BYK USA every month.

Questions are asked by purchasing agents, specialists from our customers' research departments, or by experts who oversee customers' regulatory product documentation, says Megan McCutcheon. As Manager Regulatory Affairs, she coordinates a four-member team based at BYK's U.S. site in Wallingford that informs customers in the NAFTA region about the additive's status under relevant safety, health, and environmental protection regulations. Many of the questions the team in Wallingford receives concern laws and

regional regulations that are valid in the U.S., Canada, and Mexico.

## BRIEF Document for Each Additive

"Some of these questions can be answered quickly," says the manager. "For example, we send these customers the appropriate BRIEF document." BRIEF is an abbreviation for BYK Regulatory Information Extended Form, a document that is compiled for each additive. It contains relevant regulatory data. For example, it provides information about whether an additive contains VOCs and in which National Chemical Inventories it is listed.

Other questions are more complex. "Then we may need to compile a small dossier containing specialist literature or studies in which the background is explained in more depth, or even contact external experts," explains McCutcheon.

Global customers need details on European or Asian legislation. If need be, Mc-



Cutcheon clarifies these issues with the help of her colleagues in Germany, China, Japan, or Korea who are experts on such regional regulatory matters. "All in all, our service gives us a significant competitive edge," McCutcheon says confidently. "Our customers know they can use one additive at different sites in different regions without regulatory risks, and in turn can offer customers around the globe the same product."

### Sustainable Product Planning

The global Regulatory Service Team's work is facilitated by the sustainable approach BYK takes to develop and manage its portfolio. At the beginning of product development, the researcher ensures that no critical substances are used. Once the formulation has been established, BYK registers the new product in all relevant countries worldwide in accordance with the respective national or industry regulations, including the Toxic Substances

Control Act (TSCA) in the U.S. or the Canadian Domestic Substance List (DSL).

Moreover, the experts on the Regulatory Service Team maintain contact with associations, networks, and authorities in their regions. As a result, they can adapt to new legal developments at an early stage. Megan McCutcheon has observed that such legislative procedures have been spawned increasingly by supranational developments. "The trend toward internationally harmonized guidelines is growing," she says. "And we are well positioned here too."

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Megan McCutcheon is a biologist and also holds a master's degree in environmental law. She has worked for BYK USA for almost 30 years. While at first her primary area of responsibility was environmental protection, over the years she has taken on additional tasks revolving around health and occupational safety, and today, among other things, she is an expert on regulatory requirements.

She is convinced that changes are part of life. It is critical to be open to change, she believes, in order to shape it.



## Sustainable Product Development

Our understanding of sustainable management as part of corporate responsibility has a direct bearing on our product portfolio. When we develop new products, we ensure that they use as little resources and as little energy as possible. Wherever possible, we look for alternatives to critical substances or utilize new, future-oriented technologies.

We generally aim to minimize the effects of our products on people and the environment with a high degree of economic efficiency. This sustainable portfolio strategy reflects the internationally valid voluntary commitments we have made. In addition, it supports comparable efforts on the part of our customers.

In 2015, our companies made further progress regarding the sustainability of their product portfolios. As a result, our group as a whole has managed to tap new markets and make new client contacts, as the following examples show.

## Climate Protection Thanks to Digital Printing

More and more packaging manufacturers are using digital printing for design purposes. This future-oriented technology is particularly suitable for flexible packaging such as folding boxes, stand-up boxes, and tubes. ACTEGA manufactures special coatings for these applications, including overprint varnishes and primers. They are marketed under the brand ACTDigi and our customers have shown great interest in them.

In view of the numerous economic and ecological advantages (among other things, digital printing uses much less ink and produces less waste), as part of its global restructuring measures in 2015, the company decided to make digital printing products a focal point of its business activities.

To this end, ACTEGA formed an internationally operating team consisting of ten researchers and application tech-

nologists who work on advancing customer-oriented applications for digital printing. Laboratory capacities have been made available to them in Germany and the U.S. ALTANA's cooperation with Landa Digital Printing, initiated in 2014, is also helping grow this portfolio.

## Powder Coatings Reduce Emissions

Many of our customers in the coatings industry rely on low-emission products. Thus, water-based systems are now the center of interest rather than conventional solvent-based systems. We support this trend with our additives and pigments for water-based coatings.

Powder coatings are being used increasingly in industrial applications, particularly on metallic substrates. When they are processed, less waste is produced because the powder almost completely melts into the coating.

Thanks to new developments in recent years, we have been able to reduce the energy needed for application of powder coatings. As a consequence, the climate-relevant CO<sub>2</sub> emissions of powder coatings can be reduced by 25 to 60 percent, depending on the thickness of the coating layer, compared to solvent-based systems, according to a new study in the Netherlands.

Our companies support this trend. In addition to special aluminum- and pearlescent-based effect pigments, ECKART also offers a so-called bonding service at its Hartenstein and Painesville sites. With the service, our customers' basic powder coating products are processed with effect pigments.

BYK has a diversified additives portfolio that meets virtually all requirements when it comes to optimizing powder coating products and processes. It consists of wetting, dispersing, rheology, and surface additives that improve gloss and scratch resistance. In the U.S. and Europe, a number of these additives have been approved to come into contact with foods.



## Alternatives to Critical Substances

Solvents based on NMP (N-methylpyrrolidones) and NEP (N-ethylpyrrolidones) are used frequently in the coatings industry. In the European guideline REACH, they are listed as being “of very high concern” because they are toxic to reproduction. The Toxic Substances Control Act (TSCA) register in the U.S. also requires products that contain these toxic substances to be labeled accordingly. We therefore are continually working on replacing these substances with more harmless ones.

Last year, we managed to achieve this with a group of rheology additives for coatings. The new products are based on amide ester (ES) and amide ether (ET). Thus, they no longer have to be labeled. The development team consisting of researchers and application technologists received the in-house BYK Advance innovation prize for its new, versatile formulation.

## Substitute for Peroxides

Peroxides are used, among other things, to cure coatings on the basis of unsaturated systems such as polyesters and acrylates. But peroxides are critical compounds which are subject to a number of regulations pertaining to safe handling, transport, and storage. Our customers therefore find less hazardous, alternative substances appealing, and ELANTAS Europe has set itself the task of accommodating them. It opted for benzopinacol, as this substance is less critical and can be used as a curing agent.

At its Hamburg site, the company set up a testing center to develop a simple synthesis for the manufacture of benzopinacol. The objective was to come up with a method enabling products to be manufactured by the kilogram with uniform high quality and at low cost.

With Elan-cure, the trade name for benzopinacol, they succeeded. The innovative curing agent offers our customers many advantages. It meets the various technical requirements for unsaturated systems. Compared to curing agents based on common peroxides, Elan-cure products keep better and can be processed with lower emissions and more ecologically. Last but not least, they facilitate handling because fewer safety measures are required.

## Plasticizer-Free Medical Packaging

Provalin is the brand name for the thermoplastic elastomers (TPE) manufactured by ACTEGA DS. They enable PVC-free sealing of screw caps used, among other things, for glass jars. The easy-to-process plastic granulates have already proven themselves in the food industry. They are used in so-called pano seals, recognizable from the blue ring in the screw cap. With these seals, customers can rest assured that no harmful plasticizers, including phthalates, can migrate into the food.

Given the positive response to Provalin, ACTEGA DS has developed the technology further in recent years and brought TPE formulations for medical and pharmaceutical applications onto the market under the brand name ProvaMed. The elastic material fulfills all prerequisites for so-called medical-grade plastics and can therefore come into contact with blood or medicines.

ProvaMed TPE formulations are certified based on United States Pharmacopeia (USP) guidelines, among others. Thus, there is official proof that they are free of PVC, silicon, and latex and can be sterilized using various methods (gamma radiation, ethylene oxide, in autoclaves). Due to their enormous flexibility and high resistance, ProvaMed products are excellent sealing materials for syringes, for tubing connections in catheters, as well as for operating elements or

handle parts. The cosmetics industry, with its high hygienic and safety requirements, can also use ProvaMed for caps.

## Guidelines and Their Impact on ALTANA

The United Nations' Globally Harmonized System (GHS) is a standard that is to be used to create a uniform worldwide register for labeling chemicals. In Europe, this standard is part of the EU-wide CLP (Classification, Labeling and Packaging of Substances and Mixtures) regulation, which has already been implemented by our companies.

In the U.S., GHS is a component of the new HCS (Hazard Communication Standard) guideline that went into effect in June 2015. Our companies in the U.S. implemented the corresponding measures in their SAP systems within the deadlines provided. It must be noted, however, that in our view GHS standards are manifested so differently in the EU and the U.S. that manufacturers still have to bear additional costs.

International guidelines and national laws are the framework for our actions. Hence we attentively follow the development of plans that affect us and actively participate in opinion-making within the framework of our association memberships. This concerns the reform of TSCA in the U.S. as well as the REACH Review, which focuses on regulations for polymers and nanomaterials, among other things.

When it comes to nanomaterials, we advocate an EU-wide nanomaterial register. At the same time, however, we are concerned that it will not replace the national registers established by some countries. In light of the fact that there is still no feasible method for determining what nanomaterials are, we have observed growing uncertainty among all participants, manufacturers and customers, as well as nongovernment organizations. This is preventing progress from being made in the debate about what the term "nano" means.

We are also attentively following the development of the much-discussed transatlantic free trade agreement TTIP. Like the VCI, we expect the agreement to provide a number of advantages for our industry and thus for our group. If customs taxes disappear, the chances of exporting to the U.S. will improve, and the outlay for goods and services will be lower.

Transatlantic cooperation on regulatory projects can also be favorable for both partners, for instance when it comes to harmonizing the worldwide GHS. In the long run, TTIP can raise the global standards for protecting the environment, employees, and consumers. The prerequisite is that the TTIP stipulations are adopted by countries in other regions.

## REACH

In Europe, we are currently preparing further registrations in accordance with REACH. They primarily relate to BYK additives. Registration is planned to be completed by mid-2018 at the latest.

We continue to work on adapting our risk management regarding usage and storage of raw materials to the respective recommendations REACH makes for these substances. In addition, we are preparing safety data sheets in accordance with REACH regulations for all of these substances. In turn, the data sheets support our customers in their risk management.

# Safety

ALTANA relies on a uniform safety culture. Technical and organizational measures contribute to enhancing work safety and anchoring the issue firmly in our employees' minds. Our top priority is to reduce the number of accidents. We are constantly working on minimizing dangers and improving the protection of our employees' health.

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# S A F E YET VARIABLE

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**Does safety** always go hand in hand with high costs and strict parameters? Not necessarily, as a new method using continuous mixing technology shows. ACTEGA Terra is implementing it at its Lehrte site. The method enables even critical substances to be processed safely and uncomplicatedly. On top of that, it is conducive to entrepreneurial flexibility, for the compact installation can be assembled and disassembled easily. In general, the method makes chemical manufacture free of batch production, independent of the number of shifts, and if necessary: mobile.

## RISK MANAGEMENT DOES NOT ALWAYS REQUIRE HIGH INVESTMENTS. INNOVATIVE METHODS CAN IMPROVE SAFETY WITHOUT GREAT EXPENSE. AN EXAMPLE: ACTEGA.

### Continuous Process Technology

Those who want to print magazines, photo books, and playing cards need high-gloss coatings that dry in no time. This is possible with ACTEGA Terra's TerraGloss UV coatings. They harden in fractions of a second under UV light thanks to a raw material that the company has recently started processing itself.

To do so, ACTEGA Terra utilizes an innovative method that has hardly been used in the chemical industry to date: continuous mixing technology with the help of a so-called reaction mixing pump. The method has many advantages, including relatively low investment costs and decreased energy consumption.

In addition, it enhances safety. "With the reaction mixing pump even critical substances can be processed safely," says project manager Dr. Daniel Kopetzki. He oversees the new process technology in the company's research and development

team. BYK, too, has begun using the method for processing especially reactive substances – with success.

### Greater Flexibility

The reaction mixing pump is at the center of the new method. It is small, compact, and extremely variable. Thus, it makes chemical manufacture more flexible. There are two main reasons for this. First, the pump is suitable for different reaction types depending on the choice of chemical groups. Second, it is so simple to set up that it is easy to dismantle and reassemble at another location.

### Production Around the Clock

Vital for safety: the reactions run automatically in a hermetically sealed container in which the required substances are fed directly from the storage tanks. So employees have no contact with the chemicals whatsoever. Unlike conventional batch production in special mixing vessels, with the method manual intervention is not



even needed for process and quality control. Hence the reaction mixing pump can produce around the clock regardless of the number of shifts, including on weekends.

Another considerable advantage of continuous process technology vis-à-vis traditional batch production: "The quality of the product is not subject to any fluctuations provided that raw material supply and filling are automatic," concludes Dr. Kopetzki. "Our customers can rely on this."

There is only one drawback. The method cannot be used with lengthy reaction times. "It is designed for particularly fast reactions lasting a maximum of 30 minutes," says Dr. Kopetzki.

ACTEGA Terra is currently making use of this production facility to process 25 tons of a raw material into a product that is used in UV-cured coatings every year. And

the capacity is by no means exhausted. The facility can produce up to 100 tons.

With the help of a second facility in the lab, the company is testing further usage possibilities. "The innovative method can also be used for many products made by our sister company in the U.S.," says the project manager. For ACTEGA North America also manufactures UV-cured coatings for the graphic arts industry. Dr. Kopetzki estimates that the method can be used for at least a fourth of all products, not just for ACTEGA, but for ALTANA as a whole.

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Before he started working for ACTEGA Terra, Dr. Daniel Kopetzki did research at the Max Planck Institute in Berlin, where he completed his doctorate.

"The more varied the customer's requirements are, the more multifaceted the production methods have to be," the project manager asserts. And safety is the top priority.



## Uniform Safety Culture Worldwide

As an employer, it is our duty to protect all ALTANA employees from dangers and to offer them safety at the workplace. The basis are the various technical and organizational measures we gear to the respective site's production conditions as well as to the laws and regulations in effect where the site is located.

Our uniform safety culture is oriented to the provisions of the internationally recognized OHSAS 18001 guideline. Many companies have their safety management system certified accordingly. In 2015, ELANTAS Europe had this done for its three Italian sites in Ascoli, Collecchio, and Quattordio.

In the year under review, 40 percent of all of ALTANA's sites were certified in accordance with OHSAS 18001 (in detail: BYK: 33 percent, ECKART: 38 percent, ELANTAS: 80 percent, ACTEGA: 17 percent).

## Occupational Safety: Our Goals

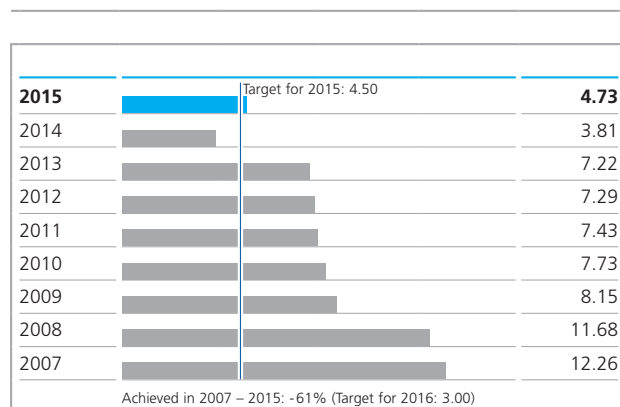
With the so-called Work Accident Indicator (WAI), we continuously observe occupational safety at our sites worldwide by setting the number of occupational accidents in relation to the number of working hours.

The top priority of our safety culture is to reduce the number of occupational accidents. Consequently, for each year we define upper limits based on our WAI data that apply to all of our companies. Since we began recording this information in 2006, we have been able to lower the number of accidents step by step. In 2015, we nearly reached the targets we had defined for the year under review in all three WAI categories, as the graphics on the side show.

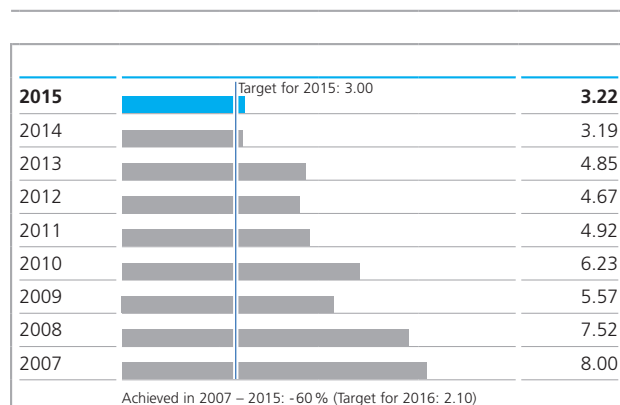
Our Work Accident Indicator is divided into three categories:

- WAI 1: Number of occupational accidents with lost work time of one day or more per million working hours,
- WAI 2: Number of occupational accidents with lost work time of more than three days per million working hours,
- WAI 3: Number of lost work days due to occupational accidents per million working hours.

### WAI 1

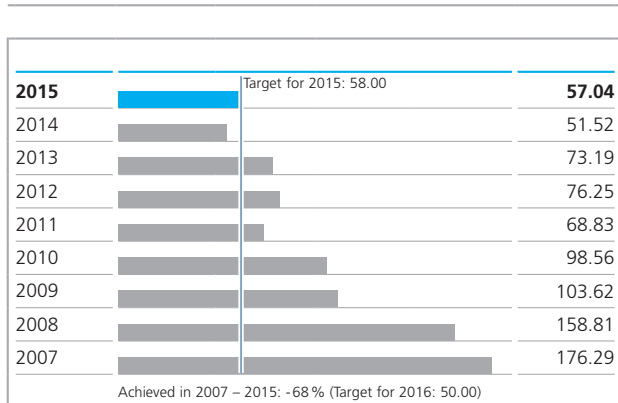


### WAI 2





## WAI 3



In 2015, as in the previous years, there were no fatal accidents in our company. It is particularly noteworthy that a number of our companies have had no lost work time due to accidents for more than six years. Among them are BYK's and ECKART's sites in Tongling and Zhuhai, China, respectively, and ELANTAS' site in Pimpri, India. ECKART in Wackersdorf (Germany), Pori (Finland) and Painesville (U.S.), as well as ACTEGA Rhenacoat (France), and ACTEGA Foshan (China) have been accident-free for more than three years.

This progress is the result of various safety measures implemented by our companies, which they continuously expand and adapt to new knowledge that is gained. A current example are special barriers that we installed on nearly all of our working platforms worldwide to prevent accidents from occurring.

### "Safety with a System" Certification

At its Wesel site, our BYK division was the first company in our group and one of the very first in Germany to have

its occupational health management (OHM) certified by the German Social Accident Insurance Institution for the Raw Materials and Chemical Industry (BG RCI). The audit is a new part of "Safety with a System" certification, which has to be renewed every three years. It is based on quality criteria that the German Social Accident Insurance (DGUV) developed for occupational health management. The auditors analyzed documents and interviewed members of the management board as well as managerial staff. They came to the conclusion that the health management system at the Wesel site is effective.

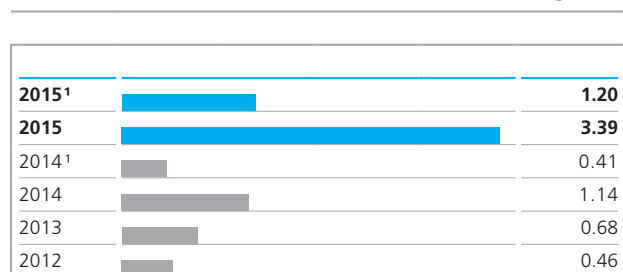
### Incidents

In accordance with the definition of the German Chemical Industry Association (VCI), we had 17 significant incidents in 2015, including two fires, one deflagration, and 14 cases where chemicals were released. Five employees sustained injuries. Residents were not harmed. In eleven cases, no harm was done to any people and there was no environmental damage, as the substances were caught by special sumps or tanks installed expressly for such incidents.

At our U.S. site in Cinnaminson, two employees suffered injuries when 3,000 liters of a product leaked out. At our Hartenstein site in southern Germany, two employees were injured when a fire broke out in a mixer. Another employee was injured in a deflagration of methyldichlorosilane at our Kempen site.

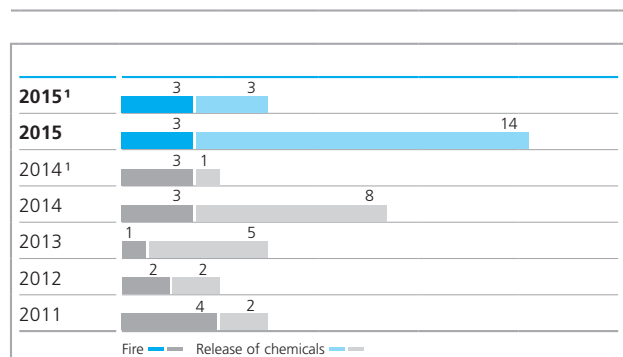
At our U.S. site in Louisville, white spirit was released, contaminating the soil. But we were able to rectify the situation. At our U.S. site in Chester, 1,600 liters of a 27-percent ammonia solution contaminated water, which we subsequently processed in our wastewater treatment facility.

### Number of incidents according to process safety incident (PSI) for 2015/2014/2013/2012 related to one million working hours



<sup>1</sup> According to ALTANA's specific definition of significant incidents.

### Number of incidents in absolute terms for 2015/2014/2013/2012/2011 differentiated according to fire and release of chemicals



<sup>1</sup> According to ALTANA's specific definition of significant incidents.

## Safety Training Measures

Every time technical measures are implemented to heighten occupational safety, employees feel their safety has been enhanced. This can lead to negligent behavior in everyday work. To counteract this development, we implement organizational and training measures. Among them are so-called safety days. To illustrate the importance of the issue, ACTEGA Overlake used playful methods at an information event at our São Paulo site last year. For example, the works fire de-

partment performed a play about first aid and there was a costume competition.

ELANTAS Europe offers employees an interactive, multimedia e-learning program at its Hamburg site. With it, employees can learn about statutory occupational safety issues online at their workplace. In addition to recurring topics, the program also provides current information on occupational safety. The software adapts to the learning speed of the respective user, enables every employee to check his or her success, and subsequently documents the information imparted, thus providing legally required verification. In 2015, employees at the site completed a total of 850 hours of safety training.

## Safety Methodology Advanced

Many of our companies are gradually introducing the internationally proven 5S and 6S methodology to improve their employees' safety behavior. At its U.S. sites in Cinnaminson and Lincolnton, ACTEGA North America launched a uniform safety program based on 5S. An important component are regular behavioral audits that superiors undertake during working hours. As a result, the staff members get feedback on their safety behavior directly in the work situation and can correct it, if required. Furthermore, the EH&S managers improved risk communication and developed special criteria that help them analyze the safety behavior of contractual partners.

At its site in Quattordio, Italy, ELANTAS introduced special checklists enabling it to add the topic of safety to the 5S methodology used there and thus expanding it to become 6S methodology. The lists serve to standardize procedures and at the same time help employees check their work themselves during work time.

At its Indian sites in Pimpri and Ankleshwar, the company set up special safety committees whose members include

employee representatives. The committees define appropriate measures. In addition, a special suggestion scheme and annual safety weeks help anchor the subject of safety firmly in employees' minds.

## Occupational Health Promotion

Prevention is better than healing: ALTANA companies worldwide gear their occupational health-protection activities to this principle. The most important goal is to reduce absenteeism. Furthermore, we seek to enhance the wellbeing of staff at the workplace.

In spite of the various measures that have been implemented, the sickness rate at our German sites increased slightly last year. It amounted to 4.8 percent. This trend is comparable with the data of the chemical industry as a whole. The chemical industry also registered a slight increase. Experts assume that this development has to do with the growing average age of the workforce.

## Health Offers in Germany

In Germany, representatives of all of our companies exchange information on a regular basis in order to develop best-practice models for health promotion. In 2015, this led to more and more of ALTANA's companies offering their staff a health day in which they could participate during work hours. BYK's sites in Moosburg and Schkopau held such events for the first time. Together with external partners, they provided information on the topic of back health, among other things.

The health day at our Wesel site has a tradition. In 2015, the lobby of ALTANA's building served as the venue of this event for the first time. More than 30 percent of the employees came to gather information – much more than in

the previous years. Aside from lectures and health check-ups, the visitors could attend preview courses in which sports, fitness, and nutrition programs were presented.

At its Hartenstein site, ECKART and external partners developed a "health sensitization" module expressly for trainees. It serves to convey important knowledge on nutrition, sports, and movement to young people as they embark on their careers, thus enabling them to deal responsibly with their health.

## Worldwide Health Management

In the Netherlands, BYK-Cera offers a comprehensive program on sports, nutrition, and lifestyle at its Deventer and Denekamp sites. It consists of training sessions and workshops. The highlight of the health promotion activities are individual and group training activities with an occupational therapist, permitting employees to deal in depth with their own movement sequences and their ergonomics at work.

In India, ELANTAS expanded its occupational health management at its Pimpri and Ankleshwar sites. Production staff at these sites can now undergo medical checks every six months, and all other employees once a year.



# Environment

Environmentally friendly management is a key component of ALTANA's corporate strategy. Our goal is to steadily reduce the energy consumption at all sites and in all areas, for example with sustainable thermal energy that heats up reaction containers for production and other processes. We also implement this objective in other environmentally relevant areas, such as waste.

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# PERMANENT YET RENEWABLE

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**One of our ambitious climate objectives** is to reduce our CO<sub>2</sub> emissions, in relation to gross added value, by 30 percent by 2020 compared to 2007. To this end, ELANTAS has taken an extremely sustainable path at its site in Ascoli Piceno, Italy. The manufacturer of wire enamels combines renewable energies with an especially efficient technology: cogeneration. In this way, the company covers 85 percent of its energy needs on a sustained basis. "Environmental protection is a question of resolve," says plant manager Giorgio Monni.

## CLIMATE PROTECTION IS NOT ONLY TECHNICALLY FEASIBLE, BUT ALSO ECONOMICALLY EFFICIENT. ELANTAS IN ITALY IS AN EXAMPLE.

### Like a Forest with 180,000 Trees

A chemical plant that almost completely generates its own energy needs in a sustainable way? Skeptics wrinkle their brows. But the Ascoli site in central Italy proves that this is possible. Environmentally friendly, nearly one-hundred-percent self-generated energy for an annual production of 20,000 tons of insulation coatings is technically feasible and economically efficient.

"If we had planted a 180-hectare forest, it would have had the same positive climate effect," says Giorgio Monni, summing up the energy concept. The plant manager bases this comparison on the following calculation: One hectare of forest binds around ten tons of CO<sub>2</sub>. If at its Ascoli site ELANTAS obtained its energy solely from the Italian power grid, its CO<sub>2</sub> emissions would amount to almost 2,000 tons. Due to its environmentally friendly energy generation, the plant's emissions amount to 1,800 tons less than that,

corresponding to the ecological performance of 180,000 trees.

But a great deal of persistence was needed to achieve this aim, the engineer recalls. "We suffered some setbacks and had to adapt our original plans." The first step was uncomplicated. In 2009, the company began operating a photovoltaic system. It produces around 880 kilowatts – about a sixth of the plant's total energy needs.

### Cogeneration

Subsequently, planning began for the cogeneration or combined heat and power (CHP) plant. The advantage: "Thanks to the possibility of recovering thermal energy during electricity generation – that's why it's called cogeneration – the plant's yield is particularly high, which makes it extremely efficient," says Monni. In Ascoli, ELANTAS utilizes this sustainable thermal energy to heat reaction vessels for production and for other processes.





The original plan was to operate the plant using especially climate-friendly bio-oil. "But on account of rising bio-oil prices, the operation would not have been economical," says Monni. "That's why we use natural gas today."

### CO<sub>2</sub> Reduced by More Than 60 Percent

The CHP plant has a capacity of 3,500 megawatt hours (MWh) a year. Together with the solar power plant, 4,380 MWh are produced by the company itself, with annual energy needs totaling 4,800 MWh. "Thus, our CO<sub>2</sub> emissions have decreased by more than 60 percent compared to 2008," Monni calculates, "from around 2,500 tons to about 905 tons." They are produced when the natural gas is burned to generate electricity.

The plant's environmentally friendly production for its energy needs is just one way of protecting the climate. Highly efficient and intelligent usage of energy is

an integral part of our entrepreneurial self-image. ELANTAS is setting standards here too. "When we converted our former warehouse into a laboratory, we made sure that the energy consumption in the building was as low as possible," says Monni.

The 1,500-square-meter building has LED lighting. In addition, cylindrical solar tubes with reflectors on the building's ceiling feed sunlight into the interior during the daytime. At the same time, special coatings on the windows block out the sun's warming infrared rays, thus ensuring a pleasant room temperature during the hot Italian summer. All in all, this leads to excellent working conditions for the laboratory team, which consequently can concentrate solely on developing new solutions for its customers.

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"Those who have big aims can bring about changes in small steps," says plant manager Giorgio Monni, who has headed the Ascoli plant for 28 years.

His conclusion: "The ecological conversion of the energy supply in Ascoli has been the company's most sustainable project during my career so far."

## Facts on Environmental Protection

Our environmental-protection measures are closely linked with our understanding of sustainable and efficient management. We work continuously on reducing our use of energy and resources as well the amount of waste produced by our operations.

To this end, we have set ourselves clear goals. By 2020, we seek to reduce our CO<sub>2</sub> emissions by 30 percent compared to 2007. By 2017, we intend to cut our water consumption by five percent in comparison with 2012. To achieve these long-term goals, for each calendar year we define key performance indicators that set our consumption in relation to gross added value. We gather the necessary data continuously in our companies.

In recent years, our companies have made good progress in all areas relevant to the environment. We have been able to reduce the respective consumption Group-wide in accordance with our specifications. Since we acquired Rockwood's rheology business in 2013, this development has no longer been uniform. The companies that belonged to ALTANA prior to 2013 continue to make very good progress. They have palpably reduced their effects on the environment, and in 2015 had values considerably lower than the key performance indicators defined for that year. But the Group as a whole cannot meet all of the objectives.

The reason for this are the production processes in the rheology additives operations we acquired in 2013. They require more energy and produce more waste. On the other hand, they have a lower impact on the environment in the supply chain, as they process non-fossil raw materials that, especially in the U.S., are extracted in the immediate vicinity of our sites.

In 2015, ALTANA manufactured around 512,000 tons of finished goods, for which it needed some 550,000 tons of raw materials. The raw materials are divided into three

groups. More than 85 percent (around 468,000 tons) are fossil raw materials. Renewable raw materials comprise around 23,000 tons, and non-fossil and non-renewable raw materials around 58,500 tons. Additionally, we used some 47,500 tons of water as a raw material.

According to a survey at all manufacturing sites, a total of 86 percent fulfill the ISO 14001 standard (BYK: 83 percent; ECKART: 88 percent; ELANTAS: 90 percent; ACTEGA: 83 percent).

## Resource Consumption and Waste

The table of environmental performance indicators on the opposite page shows the progress ALTANA made last year based on the absolute figures and sets them in relation to 2007, the first year they were compiled. They concern energy consumption (divided up into electricity, gas, oil, and coal), water consumption, and the amount of waste produced, divided up into hazardous and non-hazardous waste.

The diagrams on page 40 illustrate the development from 2007 to 2015 based on our key performance indicators. They show that we have reached our goal of reducing the amount of hazardous waste we produce Group-wide. But only the companies that belonged to ALTANA prior to 2013 reduced their CO<sub>2</sub> emissions and water consumption as well as the amount of non-hazardous waste they produced.

Nevertheless, we expect to reach the environmental goals we set for 2020, because we will undertake the necessary optimizations in the coming years. Water consumption remains an exception. We will not be able to reduce our consumption of water to the extent originally sought by 2017.

# Environmental data ALTANA 2007–2015

	2007	2014	2015
in € million			
Production of finished goods (t)	350,797	504,927	511,632
Natural gas (MWh)	169,035	404,130	418,464
Oil	39,588	17,731	10,741
Coal	0	0	0
Power consumption (purchased) (MWh)	198,416	258,144	251,360
Drinking water (m³)	737,126	1,368,130	1,472,924
Ground/surface water (m³)	419,805	1,181,952	1,014,098
CO <sub>2</sub> emissions (t)			
total	146,131	219,165	210,858
internal (Scope 1) <sup>1</sup>	47,084	91,487	93,006
external (Scope 2) <sup>2</sup>	99,046	127,679	117,852
CSB <sup>3</sup> (t)			
direct <sup>4</sup>	0	12.4	13.7
indirect <sup>5</sup>	0	22.1	11.1
Hazardous waste (t)			
total	17,988	18,712	18,571
recycling	3,248	3,597	3,418
thermal utilization	8,260	10,718	9,700
disposal	6,480	4,397	5,453
Non-hazardous waste (t)			
total	8,717	9,303	10,418
recycling	2,934	3,929	4,324
thermal utilization	849	848	1,080
disposal	4,935	4,525	5,014
Inert waste (t)	0	7,728	6,559
Ozone	0	0	0
Locations near nature reserves	0	1	1

<sup>1</sup> Emissions from ALTANA's own energy generation, e.g. for heat.







<sup>2</sup> Emissions from third parties due to purchased energy, e.g. electricity.

<sup>3</sup> Chemical oxygen demand: pollution of wastewater with organic chemicals.

<sup>4</sup> Discharge in rivers, lakes, etc. after purification.

<sup>5</sup> Discharge in the public sewage system and the corresponding treatment plants.







### Drinking water (without water as raw material) per gross value added

in l/€			
<b>2015<sup>1</sup></b>		Target for 2015: 1.02	<b>0.71</b>
<b>2015<sup>2</sup></b>			<b>1.87</b>
2014 <sup>1</sup>			0.78
2014 <sup>2</sup>			1.85
2013			0.89
2007			1.53

<sup>1</sup> Data excluding the companies acquired in 2013.

<sup>2</sup> Data including the companies acquired in 2013.





### CO<sub>2</sub> energy total per gross value added

in kg/€			
<b>2015<sup>1</sup></b>		Target for 2015: 0.25	<b>0.21</b>
<b>2015<sup>2</sup></b>			<b>0.27</b>
2014 <sup>1</sup>			0.23
2014 <sup>2</sup>			0.30
2013			0.23
2007			0.30

<sup>1</sup> Data excluding the companies acquired in 2013.







<sup>2</sup> Data including the companies acquired in 2013.

### Hazardous waste total per gross value added

in g/€			
<b>2015<sup>1</sup></b>		Target for 2015: 30.80	<b>23.57</b>
2014 <sup>1</sup>			25.32
2013			29.32
2007			37.33

<sup>1</sup> Data including the companies acquired in 2013.





### Non-hazardous waste total per gross value added

in g/€			
<b>2015<sup>1</sup></b>		Target for 2015: 11.86	<b>9.12</b>
<b>2015<sup>2</sup></b>			<b>13.22</b>
2014 <sup>1</sup>			7.94
2014 <sup>2</sup>			12.59
2013			9.81
2007			18.09

<sup>1</sup> Data excluding the companies acquired in 2013.







<sup>2</sup> Data including the companies acquired in 2013.

### Hazardous waste disposal per gross value added

in g/€			
<b>2015<sup>1</sup></b>		Target for 2015: 8.29	<b>6.92</b>
2014 <sup>1</sup>			5.95
2013			7.91
2007			13.45

<sup>1</sup> Data including the companies acquired in 2013.

### Non-hazardous waste disposal per gross value added

in g/€			
<b>2015<sup>1</sup></b>		Target for 2015: 5.44	<b>3.13</b>
<b>2015<sup>2</sup></b>			<b>6.36</b>
2014 <sup>1</sup>			3.14
2014 <sup>2</sup>			6.12
2013			3.40
2007			10.24

<sup>1</sup> Data excluding the companies acquired in 2013.

<sup>2</sup> Data including the companies acquired in 2013.

## Protecting the Climate with the Help of Energy Generation

Our companies work continuously on reducing their energy consumption, for this cuts costs as well as CO<sub>2</sub> emissions.

Combined heat and power (CHP) is the focus of our efforts to modernize our plants for energy generation because it is especially efficient. In 2015, we not only installed a CHP unit at our site in Ascoli, Italy, but also undertook corresponding modernizations in Germany and pushed ahead planning for further such units. Three CHP plants are in operation Group-wide (Ascoli and Hartenstein).

In December of the year under review, ECKART began operating two gas-powered CHP units, each with an electrical performance of 499 kilowatts (kW), at its Hartenstein site. The volume of energy generated by the two units amounts to 7.5 gigawatt hours a year. As a result, the site can reduce its CO<sub>2</sub> emissions by 1,100 tons a year. ECKART uses the waste heat of the generators for three different tasks. Nearly half serves as a heat source for distillation. The other half is used to heat buildings in the winter and for an absorption cooler in the summer.

At its Kempen site, BYK has largely completed its plans for building a new energy supply system. A gas-powered cogeneration unit will not only supply power for the site (performance: 50 kW). The company will also use the resulting waste heat generated (performance: 100 kW) for heating buildings and for generating process heat. In addition, the energy center will contain new compressed air systems that obtain part of the power from the cogeneration unit. The center is slated for completion by the end of 2016.

Independently of these developments, BYK commissioned a feasibility study to examine how else the company can harness renewable energies at all four of its German locations to help further reduce CO<sub>2</sub> emissions. The results

showed that the Kempen and Wesel-Emelsum sites would both be particularly suitable to achieve this goal. With a combination of photovoltaics and wind energy, around 3,500 and 5,500 tons of CO<sub>2</sub> could be saved, respectively.

## Investments for Climate Protection

Site-related integrated optimization programs can bundle measures and investments that reduce energy consumption in the long run and thus help protect the climate. Good examples are ECKART's sustainability program at its Hartenstein and Wackersdorf sites, and the energy management projects of ELANTAS Europe at its Hamburg site and ACTEGA DS at its site in Bremen.

ECKART's sustainability program, which runs over several years, contains around 50 improvement measures. Among them are a number of energy-related improvements, ranging from switching to LED technology for factory lighting to optimization of manufacturing plants, for example, the mills and screen washing units, as well as batch management and distillation.

Thanks to the measures implemented in 2015, the company reduced its energy consumption by 2,700 megawatts. That represents savings of 1,100 tons of CO<sub>2</sub> emissions. With this development, the company has reached its goals in this area.

As a result of its ISO 50001 certification, at its Hamburg site ELANTAS developed a concept for energy optimization that consists of various technical measures. Apart from the conversion to LED technology and the installation of motion sensors for the lighting, a number of measures were implemented in production plants. Among other things, the pump used to pump heat-transfer oil into the production plants now operates intermittently. In addition, the pressure in the compressed air systems was reduced.

An employee campaign to save energy rounds out the package of measures. With it, the company explains to staff under which conditions motors and pumps become energy gobblers and encourages the employees to save energy.

In 2015, technical optimizations alone reduced CO<sub>2</sub> emissions by 640 tons a year. With investments of around 75,000 euros, a total of 190,000 euros are saved each year.

At ACTEGA DS, ISO 50001 certification also forms the basis for the energy improvements that the company is making over several years until 2017. With the measures implemented in 2015 – including the optimization of cooling towers and pumps as well as compressors – the company reduced energy consumption by two percent compared to the previous year and thus achieved the goal it set itself.

Individual measures can also make a significant contribution to climate protection. This is evidenced by the optimization measure ECKART implemented at its U.S. site in Schererville. The new thermal post-combustion (TPC) of volatile organic substances (VOC) not only uses less primary energy, but also can reduce CO<sub>2</sub> emissions by around 4,000 tons a year.

## Vehicle Fleet Supports Climate Goals

Company vehicles are the third possibility of reducing the Group's emissions. About 270 ALTANA Group employees in Germany are entitled to a company car. They can choose a leased vehicle in keeping with their function whose performance is defined not only by the amount of horsepower, but also by an upper limit for CO<sub>2</sub> emissions.

To reduce the emissions of our fleet, since 2007 we have rewarded employees opting for lower motorization by paying them an additional monthly contribution. Many employees take advantage of this offer and use the financial assistance to purchase better special accessories for their

cars. In the last few years, we have continuously reduced the CO<sub>2</sub> limit for the additional funding. While in 2007 the limit was 150 grams of CO<sub>2</sub> per kilometer, in 2015 it was only 125 grams per kilometer.

Furthermore, we offer employees who opt for electric cars financial assistance. As a result, this fleet is also growing slowly but surely.

## Further Emissions

In line with our aim of keeping the environmental effects of our production processes as low as possible, we make an effort to reduce further emissions. At its U.S. site in Painesville, ECKART optimized the atomizer the company uses to grind copper and copper alloys for pigment manufacture. The aim of the optimization was to reduce energy consumption, on the one hand, and to cut dust emissions in the air, on the other. For this purpose, a special filter is now used that catches the copper dust and thus prevents it from getting into the nearby Grand River when it rains. With this filter, around 1,800 lbs (816 kg) of copper dust a year can be disposed of properly.

In Deventer in the Netherlands, BYK-Cera took measures to reduce VOC emissions. The company equipped the reactors and containers in which solvent-aided production is carried out with special condensers. The latter have water coolers that ensure that the solvent vapors become liquid. Thus, they can flow back into the containers and reactors.

45 percent of all manufacturing sites have a wastewater treatment facility. The figures for the divisions are as follows: BYK: 67 percent, ECKART: 50 percent, ELANTAS: 60 percent, ACTEGA: 8 percent.

## Environmental Protection When Using Hazardous Substances

Sulfuric acid is needed for additives production at BYK's Widnes site in Great Britain, and the company stores it in special tanks. In the interest of environmental protection, in 2015 the company invested in a new facility whose concept was agreed on with the authorities. The new tanks are surrounded by a wall covered with an acid-resistant coating. This prevents environmental damage if acid ran out of the tank despite all the safety measures taken. Further advantages: Special pumps ensure there is less waste air when the tanks are filled, and automated unloading makes operation safer.





## Human Resources

Our employees are our most important resource. Therefore, ALTANA promotes their professional development and prepares them for positions of leadership. We put particular emphasis on recruitment of young talent, specialists, and managers. With special offers, including the Social Week for trainees at ECKART, we strengthen our employees' social skills.

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# CONSTANT YET DIFFERENT

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**The world is in flux**, which impacts the working world. Thus, a good education provides more than just expertise. It strengthens the social skills of young people and hence their ability to constantly master different situations. ECKART offers trainees the opportunity to get a taste of a completely different kind of work environment during a so-called Social Week. Franziska Bertl spent this week at a daycare center and learned one thing above all: success hinges on interaction.

## SOCIAL SKILLS CAN BE LEARNED AND DEVELOPED FURTHER THROUGHOUT ONE'S LIFE. ECKART CONVEYS THIS ATTITUDE TO TRAINEES, AMONG OTHER THINGS, WITH THE SOCIAL WEEK.

### Learning from Children

Spending five days at a daycare center rather than in an office means being confronted with pure energy in the form of 60 different personalities aged two to ten, including children with a migration background. Some posed great challenges to the trainees, while others simply sought affection; some were talkative, while others were reserved.

Despite having different character traits, at some point all of the children learn a little more about the world, things that are a matter of course for adults. "That was the nicest thing during those turbulent days," says Franziska Bertl. "Working with children, you can experience how they conquer the world step by step."

The prospective industrial clerk helped the kids put things together and supervised their homework. She fed the youngest ones and oversaw ball games, answered questions and sang songs. She settled

disputes and dried tears. "All in all, the Social Week was an experience I wouldn't want to have missed," says the 21-year-old. "I learned things that I can pass on at work."

### Expertise Is Not the Only Thing That Counts

That is exactly what this offer is about, says Michael Pöhringer, the training manager at ECKART. "The young people should improve their social skills and become aware of how important this ability is, alongside expertise, for advancing their careers and for everyday life," says the training manager.

That's why the company offers all trainees the opportunity to voluntarily spend a week in a different work environment. In addition to two daycare centers, a rescue service, a retirement home, a facility for the disabled, and a farm have expressed their willingness to cooperate with the pigment manufacturer.



### Reflecting Experiences

The Social Week is accompanied by a preliminary and a follow-up talk that ECKART trainer Julia Müller holds with the young adults focusing on social skills.

"In the preliminary talks, we clarify the skill targets that the trainees associate with their stay at the location in question," explains the trainer. "In the follow-up talks, we reflect on all of the experience gained and analyze how it can be transferred to work life."

In the case of Franziska Bertl, the main goal was to be able to cope with conflict.

"How do you de-escalate conflicts?" Another topic was nonverbal communication. "How do you communicate with children who neither speak nor understand German?" For both situations, the trainee says, she found successful strategies. "Overall, the week brought it home to me again how important it is to offer compromises when you want to settle a dispute," she says.

Franziska Bertl was one of the first trainees to take advantage of ECKART's unusual educational offer, and her example caught on. The company's offer has been extremely well received by the young women and men, observes training manager Pöhringer. Almost all of them want to take part. The concept also met with a positive response in the rest of the company. "The colleagues are happy when the trainees bring their newly acquired skills into the teams."

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How unusual! That was Franziska Bertl's first thought when she found out about the offer of the Social Week. She gathered many new impressions and experiences during her foray into an unknown work environment.

The soon-to-be industrial clerk's most important realization: the Social Week made another important contribution to her ability to cope with change.

## Our Employees: ALTANA's Most Important Capital

Around 6,000 women and men work for ALTANA's companies around the world. Owing to their above-average qualifications and their commitment, they are our most important capital as a technology company. Our employees' working relationships with ALTANA are based on four central values: openness, trust, empowerment to act, and appreciation.

We offer our staff further training possibilities, promote their professional development in a targeted way, and support their health by means of special preventative measures. All of this helps make us a more attractive employer.

## Regular Dialog for Assessing Performance

Regular staff appraisals are an integral part of our employees' positive working relationship with ALTANA. We carry out a so-called "progress dialog" with each employee individually at least once a year. It serves to assess the employee's performance and constitutes the basis for individual target agreements that we reach with our employees every year.

Not all of our employees' contracts stipulate that the target agreements have an effect on compensation. If they do, we supplement the target agreement dialog with a target achievement dialog. We carry out the latter talks also at least once a year. The three dialogs together constitute the ALTANA compass dialog.

## Sustainability Campaign

"Big ideas wanted for our small planet" was the motto of our internal sustainability campaign in 2015 within the framework of our employee suggestion system. All staff members worldwide were asked to develop ideas to further

improve our processes and products. The campaign, supported by posters, Intranet contributions, and our staff magazine "Faces," ran throughout the year and was divided up into three waves devoted to ecology, economy, and society, respectively.

In Germany alone, the employees made around 700 suggestions. Their ideas for improvement focused, for example, on how their respective company can save resources and energy, as well as on health and safety.

## Recruitment Harnesses Storytelling

On the basis of the Group's new image campaign in 2015, a new personnel advertising campaign was developed in the year under review. It is also based on the "plus" concept. In the campaign, we show employees at different sites and in different capacities. The goal is to convey our group's unique competence and great dedication in a vivid way. All of our companies worldwide can use the campaign for recruitment, for example in job ads.

In Germany, we additionally use motifs from the campaign for communication directed to university graduates and junior staff. Prior to recruitment fairs and events staged by the Young Chemists Forum (JCF), we place ads selectively to communicate our attractiveness as an employer.

We used the launch of our new advertising campaign to make our online job portal and our diverse social media activities even more target group specific and user friendly. We received important impetus from a project to which we invited media management and advertising psychology students from Pforzheim University. The aim of the project was to gear our Internet communication to the behavior and usage habits of a generation whose members are dubbed "digital natives." As a result, we can now shed more light on the work spheres of individual employees by means of words, images, and sounds, in keeping with Internet "storytelling."



## Human Resources Development Programs

ALTANA offers employees Group-wide various programs that promote their personal and professional developments. They include regional and local development programs (DP) consisting of several modules lasting a total of 18 months.

In 2015, "DP Americas" was launched at our U.S. site in Wallingford. There were 14 participants. "DP Europe," with eleven participants from various European companies, had begun a year previously. At its Hartenstein site, ECKART offered employees without managerial responsibilities the opportunity to take part in the local EDP program for the second time.

The international Management Development Program is directed to managers. In the summer of 2015, 13 staff members successfully completed this 18-month program. We developed the Cross Divisional Development Program (CDDP) especially for up-and-coming professionals, including trainees. The young talents have the opportunity to heighten their expertise in a number of different companies or the holding company, for example in the Research or Human Resources department.

## Women in Leadership Positions

Promoting women in management positions was a special focus in the 2015 fiscal year. By intensifying measures that had been introduced in the past, and with new instruments, we further anchored the promotion of gender diversity in our human-resources management. One focus was promoting women in human-resources development. The proportion of women in ALTANA's various national and international management development programs was increased significantly in recent years. In addition, our further education program includes special offers for women.

With the initiative LEADING WOMEN@ALTANA, we aim to increase the number of women in management posi-

tions in Germany. This initiative includes our mentoring program for women whose pilot phase began at our Wesel site in the year under review. Seven tandems, each consisting of a mentee and a mentor, work in one-on-one meetings continually for a period of 18 months on advancing the individual personal skills of the mentees.

Members of ALTANA's and BYK's management, including two managing directors, are available as sparring partners. Once the pilot phase is finished, we will use the evaluation of the project to decide how to expand the mentoring program at other Group sites in 2016. We also initiated a forum enabling women managers and a female member of the Supervisory Board to exchange views. Furthermore, various informal platforms were created to intensify dialog on this issue. Among them are regular meetings of women in management positions that focus on strengthening the network, and workshops for further development of family-friendly employment models intended to contribute to the continual improvement of the general working conditions at ALTANA.

ALTANA's medium- to long-term goal is to increase the share of women in management positions to 30 percent. That roughly corresponds to the percentage of women in the entire workforce.

In accordance with the requirements of the Law on Equal Participation of Women and Men in Leadership Positions in the Private and Public Sector that went into effect in April 2015, ALTANA specified target figures for the share of women in its Supervisory and Management Boards as well as the two management levels below these boards. Target figures were also set down for the company's German subsidiaries that are subject to codetermination. Detailed information is provided in ALTANA's Annual Report and on our website.

We do not calculate the ratio of women in our foreign companies due to the different hierarchical and contract structures. However, we set our companies business-related targets that serve to increase the number of women in disciplinary management positions.

## Vocational Training at ALTANA

In the year under review, around 140 young women and men completed training at an ALTANA company in Germany. As a result, our training ratio is 4.3 percent. A total of 17 industrial, commercial, and IT professions can be chosen from. During this period, the young people receive support and guidance at the site from trainers for the respective profession, as well as from deputy trainers in the respective departments.

To ensure that the training is at the same high quality throughout the Group, we support trainers and deputy trainers in their activities. In the year under review, for example, we invited the trainers to a meeting in Wesel, where they could exchange thoughts about current and future challenges and learn from one another. The topics discussed by the 23 participants included best-practice occupational safety models and how to deal with difficult situations.

For their part, the deputy trainers had the opportunity to complete external further training. The workshop in which the eleven deputy trainers from several companies took part conveyed, for instance, useful information on didactic methods.

Like the works council, the trainees at our German companies choose representatives. In 2015, nine Group-wide youth training representatives met for the first time. At the meeting, they exchanged ideas about training at ALTANA and talked with representatives of the Human Resources department. In 2016, the trainees will continue to engage in exchange.

## Support for Young Families

It is important for our staff to reconcile their profession with their family in order to perform well and attain satisfaction. Therefore, in Germany, ECKART offers single parents and

couples who both work a monthly allowance for after-noon care of elementary school children amounting to 50 euros. This also applies during the employee's probationary period, in cases of temporary employment contracts, and when wages are paid on sick leave. In 2015, 28 employees took advantage of the offer.

## Awards

ALTANA's recruitment achieved an outstanding result in the Germany-wide Career's Best Recruiters employer study. We not only finished in first place in the chemical industry, but also in the employer ranking, receiving 89 out of 100 points.

In the study, Koblenz University of Applied Sciences for Human Resources and Education examined the recruitment qualities of 500 renowned employers in Germany. Among other things, scientists analyzed the companies' job ads as well as the online activities on the website and in the social media. In addition, they evaluated the feedback the applicants received with the help of test applications.

In the annual study conducted by the market research company Potentialpark, we improved considerably. In the Potentialpark OTaC ranking in 2015, ALTANA finished in 16th place (previous year: 27th place). In this ranking, more than a thousand students and university graduates in Germany evaluated the online activities of their employer.

In the U.S., our company ELANTAS PDG was voted the top employer in the St. Louis area for the third time. Every year, the daily newspaper St. Louis Post-Dispatch invites employees of the region's 100 largest companies to take part in the competition. A key evaluation criterion, apart from career possibilities and the performance of the company as an employer, is the businesses' social commitment in the region.



## Social Commitment

As a good corporate citizen, ALTANA supports and sponsors social projects focusing on education, science, and research. To strengthen our local environments and to be a good neighbor, we especially promote initiatives near our sites in Germany and abroad.

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# BASIC YET PASSIONATE

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**As a specialty chemicals company,** we engage in dialog with all kinds of social groups, for example with customers, neighbors, schoolchildren, and students. Exchanging ideas with the young generation is particularly close to our heart. That's why we offer young people many opportunities to get to know our company and our work. At BYK, so-called school ambassadors give children and adolescents insight into the world of additives – a task that basically requires one thing: passion.

# CHEMISTRY, PRACTICAL AND COMPREHENSIBLE. IN HANDS-ON EXPERIMENTS, THE BYK SCHOOL AMBASSADORS SHOW WHAT CHEMICAL PRODUCTS CAN DO IN DAY-TO-DAY LIFE.

## Specialty Chemistry – Often Unknown

Chemistry accompanies us in life and makes our daily routines more pleasant. Easy-to-grip toothbrushes and easy-to-open yogurt containers, shiny car paint, non-slip flooring, and energy-efficient motors. All of these objects contain ALTANA products – additives, effect pigments, specialty coatings, or insulating materials.

But who knows this? Hardly anyone. The school ambassadors are there to change this situation. This is the name BYK gave to a group of nine dedicated staff members who, apart from their tasks in the company, regularly stage information events at schools and kindergartens.

## Six Education Partners

Jörg Forstmann is one of them. Twice a year, he spends a day with 9th- and 11th-graders at Euregio High School in Bocholt. The school is one of six education partners of the additives manufacturer. On the agenda are uncomplicated table-

top experiments, laboratory visits, and a tour of BYK's manufacturing facilities. "I never cease to be amazed at how disciplined, alert, and interested the students are," says Forstmann. The best proof: they keep their smartphones in their pockets except during the lunch break.

## Recruitment Campaigns

There are several reasons for BYK's involvement. First, the company wants to give young people practical insight into the importance of the chemical industry and the function of additives, thus kindling their enthusiasm for the natural sciences. Second, the events serve as recruitment campaigns. "I often run into young people I met as a school ambassador," says Forstmann. "Some are initially only interns, while others immediately decide to embark on a career at BYK."

The fact that they return is due not least to Forstmann's personal commitment and his passion for chemistry. "I'm a practical



person," says the school ambassador. "I want to know how a material works and why." His passion spurs him on during his daily work in BYK's plastics laboratory. And it transfers to his listeners, for example during a tabletop experiment on viscosity. Under his guidance, students in small groups learn how to thicken water with a rheology agent that contains a BYK additive.

To the students' great surprise, the mixture becomes solid. When shaken, it becomes liquid briefly and then solid again. The young people look on in amazement. "Those are the moments in which key knowledge is acquired," says the school ambassador. And he uses this knowledge for the next learning step.

Forstmann explains to the students that this behavior is an important prerequisite for being able to process paints or coatings well. This leads to a second piece of knowledge: every material has to fit the

application exactly – that is the art of specialty chemistry.

The school ambassador has observed that such simple experiments usually suffice to arouse the young people's interest. At the very least, they provide food for thought and provoke intense discussion. "Such exchange is beneficial for the company as a whole," Forstmann says, summing up. "Only in this way can we learn what moves the young generation."

From this perspective, these school days also serve a third purpose. The exchange with young people gives us an impression of how consumers change – and along with them the markets of the future.

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Jörg Forstmann worked in various industries before coming to BYK, including pyrotechnics and aircraft construction. The most important insight he has gained during his multifaceted career: being passionate about a task is the key to success. His students understand this intuitively, without big words.

## Our Social Commitment

We are convinced that the natural sciences, informatics, mathematics, and technology are important drivers of social progress. We seek to arouse the enthusiasm of young people, in particular, for these disciplines. That's why supporting educational projects is at the center of our involvement as a good corporate citizen. In the interest of having a lasting impact, we promote most projects over a period of several years, often in the immediate vicinity of our sites.

### "Educational Coaching" of Elementary School Children

The focus of our so-called "educational coaching" program is 18 elementary school children from Wesel. Some of them have a migration background, while others live in socially adverse conditions. The aim of the project is to promote the individual potential of girls and boys in order to improve their educational opportunities in the long run.

Since 2014, ALTANA has enabled educational coaching in conjunction with the nonprofit Klausenhof Academy and the Elementary School GGS Innenstadt in Wesel. For a period of three years, we finance the personnel and material costs for a socio-educational expert, who trains the volunteer mentors and coordinates their activities. The mentors personally supervise the elementary school kids. They accompany the children when they engage in extracurricular activities that promote their personalities, including visits to the library, excursions to the countryside, and music class.

Apart from these individualized activities, in 2015 we invited all of the children and their mentors to a research afternoon in our company. Under the guidance of application technologists, they playfully conducted technical experiments at BYK and simulated a volcanic eruption, among other things.

## House of Junior Researchers

For many years now, we have participated as a regional network partner in the promotion of a new generation of scientists in cooperation with the Germany-wide foundation House of Junior Researchers. Our school ambassadors support special project weeks at two elementary schools in Wesel and at the German Red Cross (DRK) daycare center Abenteuerland, respectively. The project weeks serve to kindle the children's interest in scientific phenomena and to train their problem-solving skills.

In addition, we traditionally invite the little researchers along with their parents, teachers, and educators to our group headquarters once a year. At our premises, they can present their experiments and research results from the project weeks in the course of an afternoon. In the year under review, their experiments focused on the topics of air, water, and communications technology. In May 2015, 300 children took up this invitation with great enthusiasm.

### "Jugend gründet" (Youth Startups) Competition

A windshield that tints automatically when the sun is low offers optimal protection against accidents. With this business idea, Photocromic GmbH, a "company" established by a group of high-school students from Baden-Württemberg, won the special prize in chemistry, which was first offered by ALTANA in 2014, in the nationwide "Jugend gründet" (Youth Startups) competition. As a reward, the five young people and their chemistry teacher could travel for five days along the East Coast of the U.S. During their travels, they visited BYK USA in Wallingford, one of the ALTANA Group's largest research and production sites.

The Steinbeis Innovation Center in Pforzheim conceives and organizes the competition, which in the year under review received the "Werkstatt N" seal of approval for "par-



ticularly sustainable behaviour" ("N" stands for "Nachhaltigkeit," the German word for sustainability). The seal is conferred by the German Council for Sustainable Development called into being by the German Chancellor Angela Merkel.

## Training of Sustainability Ambassadors

As in the previous year, in 2015 we again enabled a two-member team to travel to Antarctica within the framework of the 2041 project launched by the British polar researcher Robert Swan. This time, the team consisted of an employee of our site in Zhuhai, China, and a high-school teacher from Wesel.

During the expedition, they acquired first-hand knowledge about the fragile eco system of Antarctica and its significance for global climate and environmental protection. This knowledge enables them to subsequently serve as sustainability ambassadors and give the people in their professional environment suggestions for responsible, sustainable action in everyday life. The internal initiatives that arose from this are presented in the Management chapter of this report on page 11.

Externally, our sustainability ambassadors are primarily involved at schools. Our staff member who traveled to Antarctica in 2014 initiated a painting competition for students at our Collecchio site in Italy devoted to the topic of climate protection. In Wesel, the high-school teacher launched a work group called "Climate Detectives" at her school in 2015 and developed teaching material on the subject of upcycling.

## Educational Projects Outside of Germany

For several years, we have supported the nonprofit association Passo Fundo e.V., which grants university scholarships

to talented young people who cannot afford to pay for their studies. Previously, the association had solely promoted students in Brazil. Since 2015, it has also been active in Kenya and Malawi.

In the year under review, ALTANA contributed a total of 8,000 euros for scholarships for five students, three in Brazil and one in Kenya and Malawi, respectively. In exchange, the scholarship recipients agreed to become involved in a social project.

After the devastating earthquake in Nepal in April 2015, ALTANA, in cooperation with Germany's Relief Coalition "Aktion Deutschland Hilft," asked employees to make donations. More than 25,000 euros were collected, which the Group doubled. With this amount, we were able to help the particularly hard-hit and difficult-to-reach Himalayan community of Ghyangphedi quickly and unbureaucratically.

Among other things, the money was used to refurbish two schools and to build new classrooms. In addition, the schools received new rainwater collection systems. In special training sessions, the students learned the essentials about hygiene and health.

## Our Commitment to Refugees

Via "Aktion Deutschland Hilft," we donated 250,000 euros to support the refugee work of the Malteser Werke.

"Deutschunterricht von Anfang an" (German Language Lessons from the Very Beginning), a unique pilot project, is directed to around 100,000 refugees in ten reception facilities operated by the Malteser Werke in Germany. With our donation, we finance the hiring of qualified German teachers at six facilities in North Rhine-Westphalia. Furthermore, the money is being used to equip classrooms, to print teaching materials, and for an academic evaluation of the entire project.

## Our Volunteer Commitment

Our two American ACTEGA companies that since January 1, 2016, have formed the organizational unit ACTEGA North America, used their first joint management meeting in Williamsburg, Virginia, in the spring of 2015 to work for a good cause. During a team-building measure, the participants built play houses for the local children's protection program Child Development Resources, which according to ACTEGA North America every year provides some 1,000 families with counseling and care services.

At our St. Louis site, employees of our company ELANTAS PDG have continuously supported various social projects in the region for years. Among other things, they donate food, clothing, and money to nonprofit organizations every month, for example the aid organization United Way Greater St. Louis.

In Germany, ECKART again refrained from giving Christmas presents to customers and business partners in 2015. The pigment manufacturer donated the 20,000 euros that were saved to the regional aid organization "Lebenshilfe im Nürnberger Land" and the international organization Save the Children.



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## Highlights and Lowlights

### Highlights

- ALTANA / BYK in Wesel had its supplier performance audited by the international EcoVadis group and received the silver rating.
- ALTANA received the bronze medal of the German Stevie Awards in the category “Company of the Year – Other industries.”
- In the Germany-wide employer study Career’s Best Recruiters, ALTANA finished in first place in the general rating and in first place in the chemical industry.
- ELANTAS PDG was voted the top employer in the St. Louis region by the readers of a regional newspaper for the third time.
- ALTANA made further progress in climate protection. The Group almost reached the CO<sub>2</sub> reduction target it set itself for 2015 despite acquisitions of companies with energy-intensive production processes.
- ALTANA almost reached the occupational safety targets it set itself. Three companies have had no work-related accidents for more than six years: BYK Tongling, ECKART Zhuhai, and ELANTAS Pimpri. ECKART in Painesville, Pori, and Wackersdorf, ACTEGA Foshan, and ACTEGA Rhenacoat have not had any accidents for more than three years.
- With the ProvaMed brand, ACTEGA advanced its portfolio of plasticizer-free thermoplastic elastomers for medical and cosmetics packaging.
- ELANTAS Europe is now offering its customers a benzopinacol product as an alternative to peroxide. The material initiates curing of coatings.
- As a replacement for the solvent N-Methylpyrrolidone (NMP), which is toxic to reproduction, BYK has used amide esters and amide ethers in a group of rheology additives since 2015. The development was awarded the in-house BYK Advance innovation prize.
- ELANTAS Europe gained OHSAS 18001 certification at all three of its Italian sites.
- BYK in Wesel was the first Group company to achieve Operational Health Management certification (OHM), receiving the “Excellent” seal.
- ELANTAS Beck India offers its employees in production a health check every six months; all other employees can undergo the examination once a year.
- Within the framework of its Vital Program, BYK-Cera enables employees at both of its sites to undergo group and individual training with an ergotherapist.
- In the year under review, ALTANA began operating three environmentally friendly CHP plants, at its Ascoli and Hartenstein sites.
- ECKART’s new thermal afterburning facility at its U.S. site in Schererville reduces CO<sub>2</sub> emissions by 4,000 tons a year.

### Lowlights

- Based on the definition of the German Chemical Industry Association (VCI), ALTANA had 17 significant incidents in 2015, including two fires, a deflagration, and 14 cases where chemicals were released. Five employees sustained injuries. In eleven cases, no harm was done to people or the environment because the substances were caught in sumps or tanks installed specifically for such incidents (“secondary containment”).
- Due to an acquisition in 2013, the company’s water consumption is well above the forecast in relation to gross value added.
- In the Netherlands, ALTANA was fined 50,000 euros. The reason was an incident in 2011.

## Programs/Goals

Core management tools for increasing performance include the measurement of performance indicators, the definition of goals, the development and implementation of action plans, and the review of goal attainment. The latter is part of the target evaluation that determines the variable income components of executive managers.

The list below shows our goals for performance indicators and important measures. The individual ALTANA companies also have detailed action plans in the context of their respective management systems.

### Management

Certification of additional non-certified companies in accordance with ISO 14001 or similar standards	Ongoing
Implementation of an energy management system in accordance with ISO 50001 at all manufacturing sites in Germany.	End of 2016
Open House event at all German companies	Sept. 2018
Safety summaries for the substances to be registered in 2018 to support the Global Product Strategy	End of 2018
Continued communication of ALTANA requirements for cooperation with suppliers in the context of supplier visits and audits (Global Compact)	Ongoing
Further development of the performance indicator system based on GRI	Ongoing
Evaluation of ALTANA's sustainability performance by an external rating company	in 2015
Need for action and implementation of measures derived from the evaluation of the sustainability performance	Ongoing
Introduction and establishment of expert platforms	in 2015

### Products

Expanded development of water-based coatings, especially at ACTEGA	Ongoing
Use of renewable raw materials (without quantification)	Ongoing
Additional lifecycle assessments (LCA)	Ongoing
Development of further additives and pigments for waterborne coatings	Ongoing
Development of further VOC-reduced and/or water-based coatings	Ongoing
Development of products for resource efficiency	Ongoing
Development of products for energy efficiency	Ongoing
Development of additional products with FoodSafe seal	Ongoing

### Safety

WAI 1 below 3 or WAI 2 below 2.1 occupational accidents per million working hours	End of 2016
WAI 3 below 50 lost work days per million working hours	End of 2016
Reduction of significant incidents; no significant incidents in the long run	Ongoing
Safety improvement measures from best practice examples	End of 2016

## Environment

Reduction of specific environmental impact (in terms of gross value added):

CO <sub>2</sub> emissions	-30 %	2007 – 2020
Water; worldwide water management replaces previous targets		End of 2016
Hazardous waste	-5 %	2012 – 2017
Non-hazardous waste	-5 %	2012 – 2017
Hazardous waste for disposal	-5 %	2012 – 2017
Non-hazardous waste for disposal	-5 %	2012 – 2017
Various measures to conserve water		Ongoing
Various measures to reduce waste		Ongoing
Various measures for energy efficiency and using renewable energies		Ongoing
Further expansion of cogeneration plant depending on feasibility		Ongoing
Renewable energies: feasibility studies and stronger use		Ongoing

## Human Resources

Increase in percentage of women managers	Ongoing
Sickness absence recording for preventive health care worldwide	End of 2016
Additional measures to further establish new Guiding Principles	Ongoing
Compliance seminars	Ongoing
Audits on compliance-relevant topics around the world	Ongoing
Enhancement of the health management systems	Ongoing
Anonymous counseling for employees in Germany	End of 2016

## Global Compact: Communication on Progress (COP)

By participating in the U.N. initiative Global Compact, we commit to respecting human rights, creating socially compatible working conditions, promoting environmental protection, and fighting corruption.

Principle	Page	Measure taken
<b>Human Rights</b>		
<b>Principle 1</b> Businesses should support and respect the protection of internationally proclaimed human rights	28 – 31, 51 – 52	Health management, performance indicators, occupational safety, women in leadership positions
<b>Principle 2</b> Make sure that they are not complicit in human rights abuses	11 – 14	Search for suppliers, supplier agreements, audits, sustainability assessments
<b>Labor</b>		
<b>Principle 3</b> Businesses should uphold the freedom of association and the effective recognition of the right to collective bargaining	13 – 14, 50 – 51 GRI Index LA4	Responsible Care
<b>Principle 4</b> The elimination of all forms of forced and compulsory labor	13	Compliance management system
<b>Principle 5</b> The abolition of child labor	13 – 14, 48 – 52	Compliance management system, support of education initiatives
<b>Principle 6</b> The elimination of discrimination in respect of employment and occupation	13 – 14, GRI Index HR4	Fair treatment, compliance management system, training, surveys
<b>Environment</b>		
<b>Principle 7</b> Businesses should support a precautionary approach to environmental challenges	18 – 22, 36 – 43	Sustainable product development, energy and environmental management system, goals
<b>Principle 8</b> Undertake initiatives to promote greater environmental responsibility	10 – 22, 36 – 43	Process optimizations, technical updates, programs and goals, performance indicators
<b>Principle 9</b> Encourage the development and diffusion of environmentally friendly technologies	18 – 22	Alternatives to critical materials, product innovations
<b>Anti-Corruption</b>		
<b>Principle 10</b> Businesses should work against corruption in all its forms, including extortion and bribery	13 – 14, GRI Index SO2, SO3	Training, audits and performance indicators

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## GRI Index (Excerpt)

























The ALTANA Sustainability Report 2015 is geared to the G3 international guidelines of the Global Reporting Initiative (GRI). The short overview lists the respective status and references for the indicators relevant to ALTANA.



















 Completely covered
  Partly covered
  Not covered

N = Notes Sustainability Report 2015

C = Cover

AR = ALTANA Annual Report 2015

	GRI standard disclosure	Reference	Status
<b>1.</b>	<b>Strategy and analysis</b>		
1.1	Preface of the CEO	SR, p. 10	
1.2	Description of key impacts, risks, and opportunities		
<b>2.</b>	<b>Organizational profile</b>		
2.1	Name of the organization	C	
2.2	Primary brands, products and/or services	C; AR, pp. 35–39	
2.3	Divisions and operational structure	C; AR, pp. 35–39	
2.4	Location of organization's headquarters	C	
2.5	Countries with major operations	C; AR, pp. 44–45	
2.6	Nature of ownership and legal form	C; AR, pp. 69–71	
2.7	Markets served	AR, pp. 35–39	
2.8	Scale of the organization	AR	
2.9	Significant changes during the reporting period	SR, p. 10	
2.10	Awards received in the reporting period	SR, p. 13	
<b>3.</b>	<b>Report parameters</b>		
3.1	Reporting period	C	
3.2	Date of most recent previous report	C	
3.3	Reporting cycle	C	
3.4	Contact point for questions regarding the report	C	
3.5	Process for defining report content	N	
3.6	Boundary of the report	C	
3.7	Limitations on the scope of the report	N	
3.8	Joint ventures, subsidiaries, outsourcing	N	
3.9	Data measurement	N	
3.10	Re-statements of information provided in earlier reports	N	
3.11	Changes in the scope, boundary, or measurement methods applied	N	
3.12	GRI Content index	C; N	

	GRI standard disclosure	Reference	Status
3.13	External assurance of the report	N	
<b>4.</b>	<b>Governance, commitments, and engagement</b>		
4.1	Governance structure	SR, p. 10; AR, pp. 69–71	
4.2	Independence of supervisory board chairman	N	
4.3	Supervisory board or independent members of the executive board	AR, p. 8	
4.4	Mechanisms for shareholders and employees to provide recommendations or direction to the executive/supervisory board	AR, p. 8	
4.5	Linkage between executive compensation and company performance	AR, pp. 144–146	
4.6	Mechanisms to ensure conflicts of interest are avoided	AR, p. 71	
4.7	Qualification of executive bodies in sustainability issues	N	
4.8	Guiding principles, company values and codes of conduct	SR, pp. 12–13	
4.9	Procedures of the executive/supervisory board level for overseeing the organization's sustainability performance	N	
4.10	Process for evaluating the sustainability performance of the executive board	AR, pp. 9–11	
4.11	Implementation of the precautionary principle	SR, pp. 10–11, 22–23; N	
4.12	Support for external initiatives	SR, pp. 11, 13–14	
4.13	Memberships in associations and interest groups	SR, pp. 13–14	
4.14	List of stakeholder groups engaged by the organization	SR, p. 14; N	
4.15	Stakeholder selection	SR, p. 14; N	
4.16	Approaches to stakeholder engagement	SR, p. 14; N	
4.17	Key topics of stakeholders	C	



	GRI standard disclosure	Reference	Status
<b>5.</b>	<b>Management approach and performance indicators</b>		
	<b>Economic</b>		
EC	Management approach	AR, pp. 35–42, 70–71	■
EC1	Direct economic value generated and distributed	C; AR, pp. 77–146	■
EC2	Financial implications of climate change	SR, p. 10	■
EC3	Benefit plan obligations	AR, pp. 104–105, 121–123	■
EC4	Financial assistance received from government	AR, p. 94	■
	<b>Environmental</b>		
EN	Management approach	N	■
EN1	Materials used by weight or volume	SR, p. 40; N	■
EN3	Direct energy consumption by primary energy source	SR, p. 41; N	■
EN4	Indirect energy consumption by primary energy source	SR, p. 41; N	■
EN5	Energy saved	SR, pp. 43–44; N	■
EN8	Total water withdrawal by source	SR, p. 41; N	■
EN11	Use of land in protected areas	SR, p. 41; N	■
EN16	Total direct and indirect greenhouse gas emissions	SR, p. 41; N	■
EN19	Emissions of ozone-depleting substances by weight	SR, p. 41; N	■
EN21	Water discharge by quality and destination	SR, p. 41; N	■
EN22	Waste by type and disposal method	SR, pp. 41–42; N	■
EN23	Number and volume of significant spills	SR, pp. 31–32	■
EN28	Fines and sanctions for non-compliance with environmental laws and regulations	SR, p. 13	■
	<b>Labor practices and decent work</b>		
LA	Management approach	N	■

	GRI standard disclosure	Reference	Status
LA7	Injuries, absenteeism, and work-related fatalities	SR, pp. 30–31	■
LA8	Risk control and programs with respect to serious diseases	SR, p. 33	■
LA13	Composition of senior management and employee structure (e.g. age/ gender/culture)	SR, pp. 53–54; AR, p. 56	■
	<b>Human rights</b>		
HR	Management approach	N	■
	<b>Society</b>		
SO	Management approach	N	■
SO2	Percentage and total number of business units analyzed for risks related to corruption	N	■
SO3	Percentage of employees trained in anti-corruption policies and procedures	SR, p. 13	■
SO5	Public policy positions and participation in public policy development and lobbying	SR, pp. 22–23	■
SO8	Fines and sanctions for non-compliance with laws and regulations	SR, p. 13	■
	<b>Product responsibility</b>		
PR	Management approach	N	■
PR9	Significant fines for non-compliance with laws and regulations concerning the use of products and services	SR, pp. 62–63; N	■

Our explanations and comments on all of the GRI indicators can be found in the notes to this sustainability report. We provide this information on the Internet at [www.altana.com/gri-index](http://www.altana.com/gri-index).



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