



SUSTAINABILITY REPORT

2017

heubach

COMPETENCE IN COLOR

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ABOUT THIS REPORT

› Reporting Period, Scope and Limits

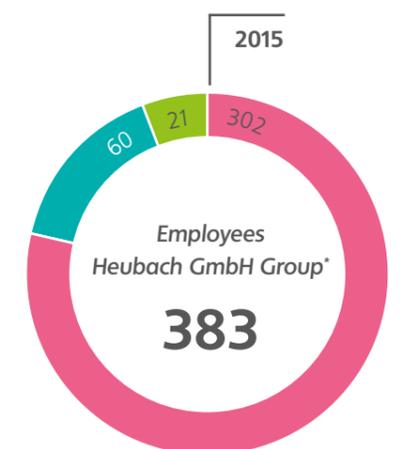
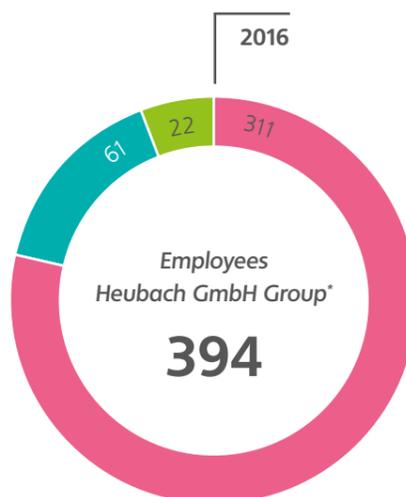
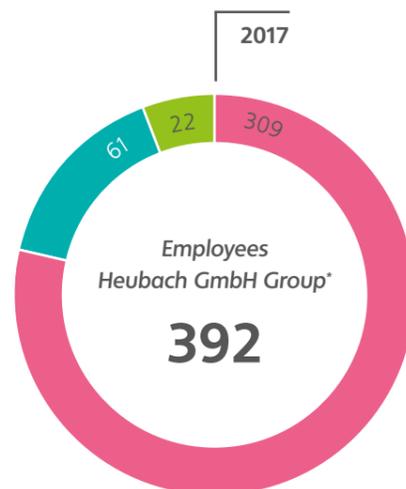
This is the first sustainability report of the Heubach GmbH Group. Key figures and developments in this report generally refer to the 2017 reporting year. Where possible and appropriate, we also present time series for the financial years 2015, 2016 and 2017. The editorial deadline for the sustainability report was July 28, 2018.

Unless otherwise indicated, the information and figures contained in this report refer to the Heubach GmbH Group. This includes Heubach GmbH, located in Germany (Langelsheim and Cologne), and the subsidiary Heubach Pigment Manufacturing GmbH & Co. KG, which has its production facilities at the Langelsheim site. In addition, the North-American production subsidiary Heucotech Ltd., Fairless Hills, USA, and Hangzhou Heubach Pigment Co. Ltd, a sales subsidiary in Hangzhou, China, belong to the Group.

Heubach Color Pvt. Ltd., India, is not part of the Heubach GmbH Group and therefore not included in this sustainability report. However, we will refer to that production site in key passages.

Heubach – including Heubach Color Pvt. Ltd. in India – has 1,093 employees worldwide, with 392 employees working at the Heubach GmbH Group. The employees are distributed across the different sites as follows:

- Germany
- USA
- China



* Effective date: 31.12.2017 without temporary workers.

› Report Content and Practical Information

This sustainability report is published in German and English. For better readability, persons will be referred to in the male form. But this encompasses all people, regardless of gender.

In preparing this report, we observed the following guidelines: the Chemie³ Reporting Guide for SMEs, the Sustainability Report Ranking criteria of future e. V. and the IÖW (Institut für ökologische Wirtschaftsforschung, Institute for Ecological Economy Research), the DNK (Deutscher Nachhaltigkeitskodex, German Sustainability Code, as of 2015) of the RNE (Rat für Nachhaltige Entwicklung, Council for Sustainable Development), and the UN Global Compact guidelines. In addition, we consider selected criteria of the Sustainability Reporting Standards (SRS) of the Global Reporting Initiative (GRI) where this proves beneficial to readers of this report.

As a member of the UN Global Compact, we also present our first progress report (Communication on Progress, CoP) with this sustainability report. We further plan to submit the declaration of conformity in accordance with the DNK (Deutscher Nachhaltigkeitskodex, German Sustainability Code).

Our objective is to inform the stakeholders of our company – customers, employees, business partners, local residents and all other interested parties – about our sustainability activities no later than every three years. These include economic, environmental and social aspects.

Accordingly, we will publish our second sustainability report by 2021 at the latest.



02

KEY PERFORMANCE INDICATORS

We regularly record the key performance indicators (KPIs)¹⁾ that are economically, socially and ecologically decisive for Heubach. On the basis of these indicators, we measure and control the implementation of the focal areas of sustainability, and thus create a basis for forecasts as well as for other objectives. As far as possible we record the KPIs on the same basis and provide transparent information about any changes in order to guarantee a high degree of reliability, comparability and consistency of our data.

A selection of the most important KPIs is shown in the following table. Further key indicators are described in the respective chapters.

	Percentage change 2017 vs. 2016	2017	2016	2015
Total production (t)	+3.7	23,172	22,348	22,205
Sales (t)	+5.9	25,746	24,306	23,646
Sales revenue (€ million)	+8.0	145.6	134.8	132.1
Investments (€ million)	+179	95	8.1	3.3
R&D expenditure (€ million)	+1.3	3.7	3.7	3.6
Employees	-0.5	392	394	383
Share of female employees (%)	-0.3	30.6	30.7	31.9
Share of women in executive positions (%)	+2.1	34.0	33.3	33.3
Percentage of trainees (%) ¹⁾	-24.5	1.9	2.6	2.0
Staff turnover (%)	-4.5	4.8	5.1	8.1
Frequency of accidents ²⁾	-40.9	9.4	15.9	8.1
Environmental protection				
Energy consumption (MWh)	+5.5	60,254	57,105	56,361
Energy intensity ³⁾ (MWh/t)	+1.8	2.6	2.6	2.5
Scope 1-Emissions ⁴⁾ (t)	-3.7	6,050	6,285	6,378
Scope 2-Emissions ⁵⁾ (t)	+16.2	15,412	13,264	12,962
Water input (m ³)	-10.6	152,977	171,202	169,286
Specific water input ⁶⁾ (m ³ /t)	-13.8	6.6	7.7	7.7
Waste (t)	+2.9	3,873	3,765	3,045

¹⁾ As measured against the number of employees in Germany.

²⁾ Number of industrial accidents with at least three days of work missed per 1 million working hours.

³⁾ Ratio of energy consumption and sales volume produced (total production). Commercial products are not included.

⁴⁾ Emissions resulting from own business, that is, from the consumption of natural gas, for example, for steam generation, the operation of production plants, heaters or lift trucks. The emission factors used are based on the report "Emissionsfaktoren für Strom, Fernwärme und Kraftstoffe" (Emission Factors for Electricity, District Heating and Fuels) by the VDA (Verband der Automobilindustrie, German Association of the Automotive Industry) (2018). The stated values for Germany, China East and USA East were used. Our calculations are based on the assumption that only CO₂ is emitted by the complete combustion of all natural-gas components.

⁵⁾ Emissions from the production of energy sourced from outside the company (e.g., electricity). The conversion factor for Germany was specified by the electricity supplier. For the U.S. and China, the regional average emission factors relative to the electricity provided according to the report "Emissionsfaktoren für Strom, Fernwärme und Kraftstoffe" (Emission Factors for Electricity, District Heating and Fuels) by the VDA (Verband der Automobilindustrie, German Association of the Automotive Industry) (2018) were used.

⁶⁾ Ratio of water input and sales volume produced (total production). Commercial products are not included.

¹⁾ Note: The key indicators shown in the report are commercially rounded to a maximum of one decimal place. For the purpose of a more precise representation, however, the calculation of percentages is based on exact, non-rounded numbers. In individual cases, this may lead to them not resulting from the values shown.

03

FOREWORD BY MANAGEMENT

Dear Readers,

That Heubach has grown into a global producer of pigments and pigment preparations is, above all, the result of our staying true to our core values: linking comprehensive chemical know-how, technological competence, internationalization, service, quality and reliability – and combining this with enthusiasm that has stayed alive for generations. It is this force that breeds innovation.

Sustainability and intergenerational thinking have always been a high priority in the 210-plus-year history of our company. Although it must be said also that not all sustainability aspects have always been taken into account equally. Nonetheless, the long-term success of a manufacturing company always requires sustainability-based handling of the needs of customers, vendors, service providers, principals, employees, neighbors and the environment.

Today, sustainability is inseparably linked to our corporate strategy. For the development, production and marketing of chemical products comes with a responsibility that does not only extend to economic aspects. On the contrary, our business also affects the environment and the society in which we operate.

This is why we use the different arrangement options in our business activities and develop solutions that actively address the challenges of climate change, scarcity of resources and environmental protection. We also seek for solutions in the areas of health protection, occupational safety, demographic change or reconciling life and work.

In order to identify the sustainability issues relevant to Heubach and its main stakeholders, we conducted a sustainability check developed by the Chemie³ initiative. Through a cross-departmental workshop, we identified fourteen relevant sustainability areas with the help of this tool. We are already very well positioned in some of the fields of action, and others will have to be filled with further measures in the future.

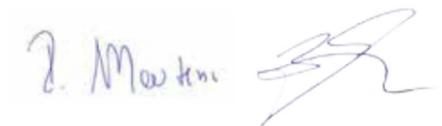
Successful implementation requires the sensitization of individual responsibility and awareness for sustainable actions of each employee. After all, the success of Heubach depends largely on the ingenuity and motivation of our employees. This is why we have integrated the essential aspects of a sustainability strategy into our corporate policy and, through the corresponding management systems, into the respective processes, and set up a sustainability program. By way of continuity and conviction, we will promote the further development of all aspects of sustainability on the solid basis that we have put in place so far.

In addition, with the Heubach GmbH Group joining the UN Global Compact in 2017, we have made a public commitment to upholding human rights and labor standards, preventing discrimination, protecting the environment and combating corruption.

With our first sustainability report, we cordially invite you to get to know Heubach as a responsible manufacturer and supplier of pigments and pigment preparations. In it, we provide a comprehensive picture of our sustainability performance in terms of the "triple bottom line", by reporting on the implementation of sustainability in our core business and detailing the measures taken and planned.

Furthermore, we use the reporting process to focus our sustainability activities in a targeted manner, to strategically align them, to achieve our objectives, and to continuously expand our reporting.

We would like to thank all the employees who, through their commitment, make Heubach a sustainable employer, business partner and neighbor, and we hope you will enjoy reading this report.



Dr. Reiner Martens Birgit Genn

Management of Heubach GmbH

ABOUT HEUBACH

› Organization

For more than 210 years, Heubach has been producing pigments and pigment preparations for numerous applications. Since the 1980s, the company has developed into a global organization with production facilities in Germany, the USA and India. The parent company has its head office in Langelsheim, near Goslar in Lower Saxony. The companies of the Heubach Group are owned by the Heubach family, and are consolidated under the Austrian Heubach Holding GmbH.

The Heubach GmbH Group manufactures inorganic colored pigments and selected pigment preparations for the plastics and coatings industry at the German site in Langelsheim. At our sites in Germany and the USA, we also manufacture anti-corrosive pigments, printing ink concentrates and pigment pastes. Founded in 1994, the affiliated company Heubach Color Pvt. Ltd. based in Ankleshwar, India, produces organic pigments as well as some pigment preparations.

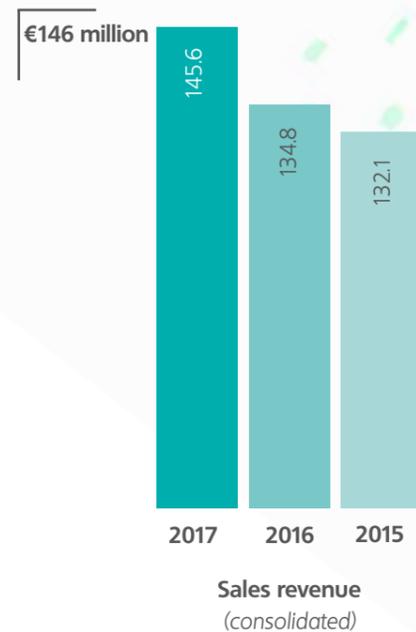
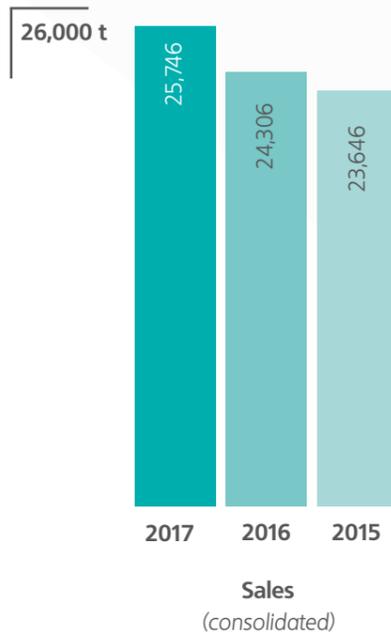
In Asia, the establishment of Hangzhou Heubach Pigment Co. Ltd., Hangzhou, China, in 2009 was another important step of our growth strategy. The focus is on supporting national and international customers in the dynamically developing Chinese market.

An extensive distribution network on six continents supports and advises the customers of all Heubach locations through their respective sales and service organizations, including the laboratory capacities available there. In addition, a global team of experts ensures on-site technical support in the individual national markets.

Our comprehensive product portfolio ranges from high-quality organic and inorganic colored pigments to various pigment preparations and customized color shade solutions. In addition, Heubach produces a variety of so-called corrosion inhibitors to cover the entire performance spectrum of modern protective coating.

The majority of our products are used in printing inks, coatings and plastics industries. The color and protective pigments from Heubach are also suitable for use in many other fields of application, for example, the coloring of latex, seeds, adhesives or building materials.

In 2017, the Heubach GmbH Group generated annual consolidated sales of €145.6 million on a production volume of 23,172 t.



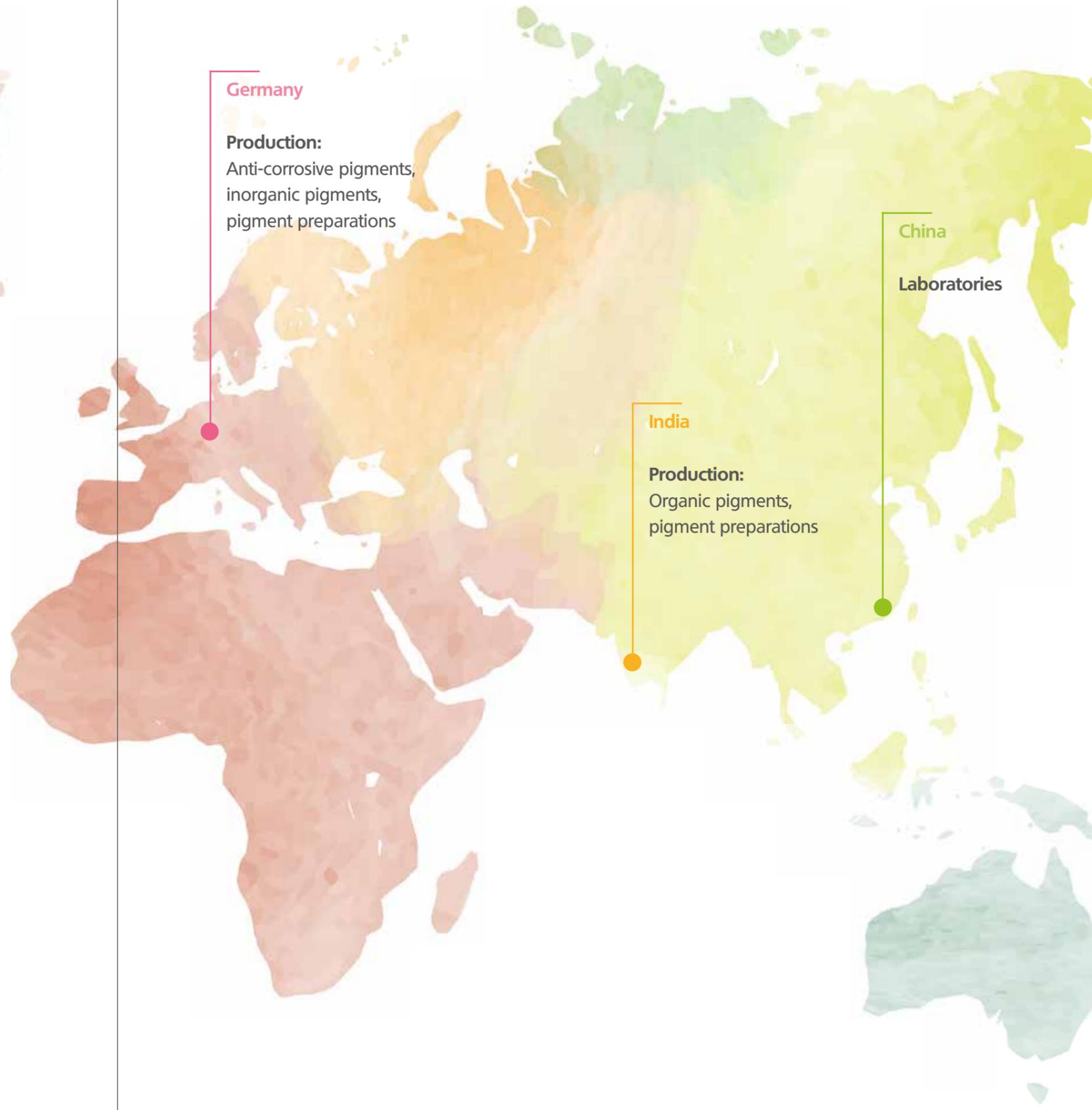


USA

Production:
Anti-corrosive pigments,
pigment preparations

Germany

Production:
Anti-corrosive pigments,
inorganic pigments,
pigment preparations



India

Production:
Organic pigments,
pigment preparations

China

Laboratories

› Milestones

Becoming a globally operating and recognized producer of high-quality color pigments and pigment preparations was accompanied by numerous technical innovations and various strategic acquisitions. As early as in 1984, a link to North America was established through the acquisition of the pigment division of the U.S. company DuPont de Nemours. In Germany, Heubach increased its product portfolio by acquiring the lightfast pigment business of Bayer AG in 2002.

The expansion of organic pigment production in India was made possible by the acquisition of the pigments business of Avicia (formerly: ICI) in 2003. We also invested in production facilities for the manufacture of high-quality organic red, yellow and orange pigments, as well as in the plant completed in 2013 for the manufacture of indanthrone blue crude.

At the German and American locations, the following investments have contributed significantly to the growth of our Group in recent years:

2012

- › Expanded production for anti-corrosive pigments by 700 t
- › Implementation of a fully automated calcination technology for the manufacture of inorganic colored pigments

2016

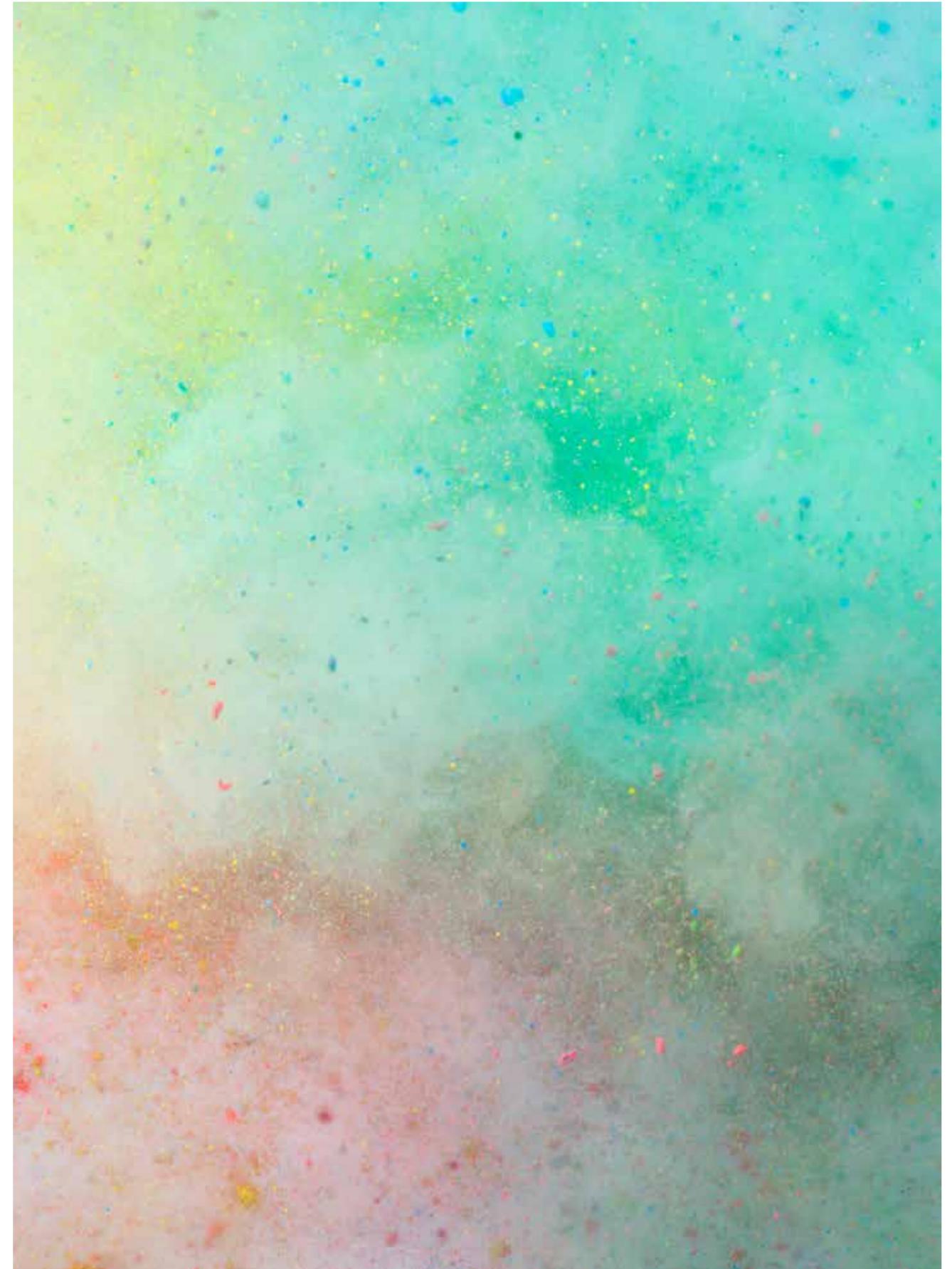
- › Setup of a second, fully automated calcination line to manufacture inorganic colored pigments

2017

- › Launch of an innovative, highly flexible production concept to manufacture pigment pastes in Germany

2018

- › Launch of a new production system for anti-corrosive pigments in the USA (capacity: 4,000 t)



› Stakeholders

Having trusting and cooperative communications with numerous stakeholders is crucial for the future-oriented development of our company. We see this as an opportunity to identify the expectations and needs of the various stakeholders and to respond to new risks, requirements or trends at an early stage.

We re-analyzed the key stakeholders along the value chain as part of the recertification of our quality and environmental management system, and explored their basic requirements and expectations with respect to the company.

The open dialog with the stakeholders regularly takes place both directly – for example, with customers and vendors – and indirectly through advocacy groups and our membership in associations. The individual channels and formats depend on the respective stakeholder group as well as the topics.

Stakeholders	Formats & Channels	Key Topics
Customers	Customer visits Trade shows Satisfaction surveys Website	Product selection / quality / availability Contract-compliant order processing Know-how transfer/service Sustainable alignment of processes with regard to quality standards Socially acceptable production conditions Innovation Competitiveness Global presence
Vendors and Service Providers	Audits Vendor evaluations Trade shows	Purchase of specified quantities / compliance with payment conditions Sustainable partnership / business relationship Solvency
Employees	General meeting Feedback meetings Complaints box Intranet Employee surveys	Motivation Safe workplaces Regulation of tasks / competencies Opportunity for personal development Clear communication structures / leadership Provision of necessary resources Fair and secure income Work-life balance Inclusion
Works Council	Meetings Assemblies	Fulfillment of promised personnel resources Equal treatment of employees Compliance with labor law requirements Respectful way of interacting with employees Inclusion / information regarding personnel management Binding collective bargaining

In order to develop our stakeholder communications further, and to review our assessments, we conducted our first stakeholder survey in the second quarter of 2018.

Heubach invited selected representatives of the following stakeholders to a survey: customers, vendors, employees, financial service providers, authorities, neighbors, cooperation partners, and members of the local public.

The respondents were to assess the relevance of a wide range of sustainability topics as well as which instruments were suitable for dialoging with stakeholders.

The evaluation of this survey and the measures taken in this context will be published in the next sustainability report in 2021.

Stakeholders	Formats & Channels	Key Topics
Owners	General shareholders' meeting	Profitability / cost efficiency Sustainability / growth Livelihood security Profit optimization
Neighbors	Open House Day Neighborhood brochure	No adverse effects due to environmental impacts (e.g., noise, emissions) Information Prevention of accidents (e.g., road traffic, plant damage) Jobs
Banks	Meetings	Liquidity Reserves Company performance / rating Loans / other banking products
Regional Policy	Visits Meetings Networking	Regular exchange Economic success Social/cultural commitment
Auditors	Audits	Compliance with standards and regulations Further development of the M-system Provision of documentation Employee availability
Regulatory Authorities	Meetings Visits	Compliance Transparency in relevant areas / processes / documents Implementation of specific measures identified

› **Materiality Matrix**

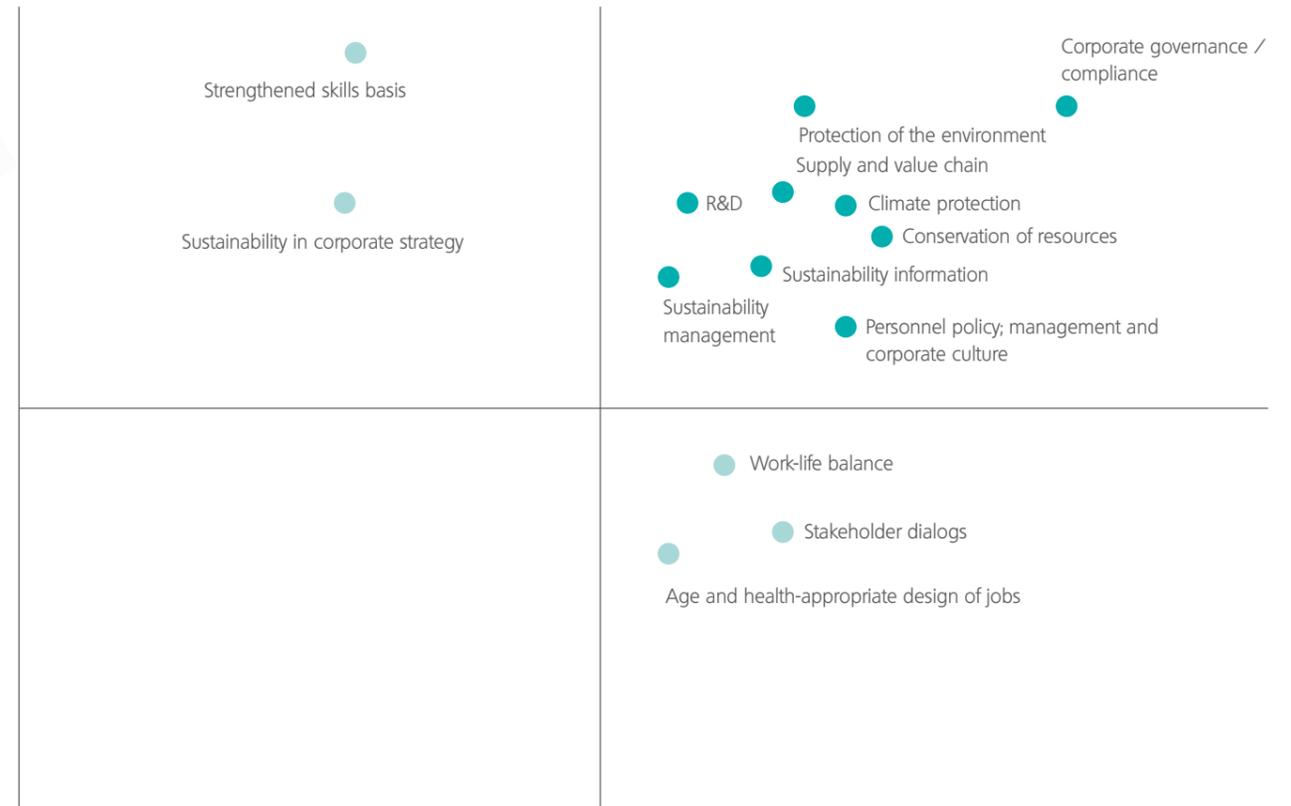
In order to identify the sustainability issues relevant to Heubach and its main stakeholders, we relied on the sustainability check of the Chemie³ initiative. This is a partnership between the VCI (Verband der Chemischen Industrie e. V., Chemical Industry Association), the IG BCE (Industriegewerkschaft Bergbau, Chemie Energie, Industrial Union for Mining, Chemistry, Energy) and the BAVC (Bundesarbeitsgeberverband Chemie, Federal Employers' Federation for the Chemical Industry). The sustainability check covers 31 action areas based on the sustainability guidelines for the chemical industry. These fields of action were developed by the Chemie³ initiative in a comprehensive analysis; in the process, it involved various stakeholders (in the form of surveys) and evaluated studies and literature. Thanks to these thorough preparations, Heubach was able to forego a direct survey of its stakeholders in 2017.

We carried out our own sustainability check in a two-day, in-house workshop. In a first step, the sustainability officer – in close consultation with management – assessed the materiality of the individual action areas, both from the point of view of specific stakeholders and from the point of view of Heubach.

The materiality analysis resulted in the priority areas of action, which we then analyzed, discussed and evaluated in a second step – under the direction of an external consultant. The sustainability officer, management, and the department heads responsible for Purchasing, Sales & Logistics, Production, Environmental and Quality Management, Product Management and Marketing & Communications participated in this evaluation.

The materiality matrix of the Heubach GmbH Group shows – as a result of this sustainability check – all the topics dealt with in this sustainability report. We rated issues as particularly important if they were highly relevant for both stakeholders and Heubach. In addition, we included topics of great significance to Heubach. Among other things, we identified in the analysis the following social and environmental aspects as being essential: energy efficiency, climate and resource protection, compliance, work and family life, occupational health and safety, strengthened skills base, personnel management, procurement and vendor selection.

Strategic significance for Heubach



Materiality from stakeholders' point of view

05

SUSTAINABILITY MANAGEMENT

› Organization of Sustainability Management

Heubach management sets the strategic direction for sustainability. Together with an interdisciplinary team, it coordinates the sustainability-oriented corporate policy and lays down the sustainability program. On the one hand, this team consists of the sustainability officer and, on the other hand, the department heads for Purchasing, Sales & Logistics, Production, Environmental and Quality Management, Product Management and Marketing & Communications.

The sustainability program is implemented together with the specialists in the individual areas – from sustainability-relevant processes to the defined objectives and the associated measures. All parties involved report on the current state of affairs in regular meetings and assess the status achieved.

The tasks of the sustainability officer include the further development, coordination and monitoring of the sustainability activities as well as the preparation of the sustainability report and the implementation of the voluntary commitments.

› Sustainability-Oriented Corporate Policy

For Heubach, economic success and sustainability are inextricably linked. That is why we have integrated the essential aspects of a sustainability strategy into corporate policy and into the respective processes via the corresponding management systems. The company objectives, therefore, include the sustainability targets, which we break down into division and departmental objectives according to the organization.

We are convinced that the satisfaction of our customers is crucial to the success and reputation of our company. Therefore, we rely on customer-specific services as well as long-term cooperation. This is characterized by trusting, open and respectful action in order to recognize the requirements of customers and markets at an early stage and to be able to respond to them promptly.

First and foremost, the quality features of our business policy are the continuous improvement of products, services and processes, taking into account the relevant environmental and safety aspects – secondly, the active commitment and, thirdly, the conscious interaction of employees, executives and management.

To underscore the importance of these values and beliefs, we have formulated three guidelines. They have already shaped Heubach in the past, and are decisive for the sustainable development of our company both over the medium and long term:

› Ensuring a High Standard of Quality



Assuming quality responsibility means for us the obligation to fulfill the requirements demanded of us. This includes the high quality of our products and services, adherence to delivery times, comprehensive advice for our customers, and protecting the interests of our employees.

› Protection of the Environment and Energy-Efficient Action



To avoid environmental impacts, we continuously improve our products and processes. We ensure the monitoring, testing and evaluation of products and processes through comprehensive HSE and quality management.

As part of our energy management, we not only commit ourselves to optimizing the use of energy in our production, but also to increasing energy efficiency in the procurement of new plant and equipment, as well as in product development.

› Safety and Health Protection



We are aware that achieving these quality, environmental and energy objectives is not possible without our employees. For this reason, ensuring occupational safety and health is one of our overarching goals.

› Management Systems

Heubach has introduced an integrated management system (M-system). This supports us in implementing our corporate policy – above all, in the continuous improvement of our processes, increasing customer satisfaction, operational safety, compliance with all relevant legislation, and protecting the environment and resources.

For decades, we have had a certified quality management system in accordance with DIN EN ISO 9001 in Germany, which we also rolled out to our U.S. site a few years ago. In order to determine and steer the environmental impact of our corporate activities, we introduced an environmental management system in accordance with DIN EN ISO 14001 in Germany in 2008.

Furthermore, the German site maintains a safety management system according to the Hazardous Incident Ordinance.

In 2013, we introduced an energy management system in accordance with DIN EN ISO 50001, which systematically records and evaluates our energy consumption, and identifies potential for energy savings. In addition, occupational safety aspects are comprehensively integrated into our management system, so that certification according to DIN ISO 45001 is currently not planned.

In order to ensure a systematic preparation of our sustainability activities, we also plan to integrate sustainability management into the M-system.

Through performance measurement systems, organizational guidelines, process and work instructions, regular internal and external audits, we ensure that our management systems meet specific requirements, and continue to drive the continuous improvement process.

A central document management system (DocMan) has been set up to ensure company-wide access to all valid documents and process descriptions of the M-system.

The planning and supervision of the M-system as well as document maintenance are the responsibility of the management officer. In addition, all managers and employees are encouraged to contribute to the ongoing development of the M-system. Management is responsible for providing appropriate financial and human resources to implement the M-system.

Management Systems by Location

Germany

Quality management	DIN EN ISO 9001 : 2015
Environmental management	DIN EN ISO 14001 : 2015
Energy management	DIN EN ISO 50001 : 2011
Occupational safety	Partially integrated into M-system, but no certification at this time
Construction Products Regulation	DIN EN 12878 : 2005

USA

Quality management	DIN EN ISO 9001 : 2015
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› Memberships in Initiatives and Associations

Our long-term objective is to sustainably increase the business activities of the Heubach GmbH Group and the associated enterprise value. That is why we align our business practices with different principles of responsible corporate governance.

For example, Heubach has been a member of the Ecological and Toxicological Association of Dyes and Organic Pigments Manufacturers (ETAD) since 1998. We are committed to adhering to the ETAD Code of Ethics based on the principles of the Responsible Care Initiative. With this membership, we want to meet the demands made of us for the continuous minimization of possible impairments of health and the environment by way of organic pigments.

In addition, the Heubach GmbH Group has been a member of the UN Global Compact since 2017. The ten principles relating to human rights, labor standards, environmental protection, and the fight against corruption represent another guideline for responsible corporate governance.

We are also involved in working groups or specialist lectures in various specialist and industry associations, including:

- › AGV (Allgemeiner Arbeitgeberverband, General Employers' Federation)
- › ACA (American Coatings Association)
- › Arbeitgeberverband ChemieNord (Employers' Organization Chemistry North)
- › VEA (Bundesverband der Energie-Abnehmer e. V. (German Association of Energy Consumers)
- › ChemieNetzwerk Harz e. V. (Chemistry Network Harz)
- › CPMA (Color Pigment Manufacturers Association), USA, Canada, Mexico
- › DIN (Deutsches Institut für Normung, German Institute for Standardization)
- › DKG (Deutsche Keramische Gesellschaft e. V., German Ceramics Society)
- › Forschungsgesellschaft für Pigmente und Lacke e. V. (Research Institute for Pigments and Paints)
- › Industrieverein Goslar (Industrial Group of Goslar)
- › International Zinc Association
- › MNYCA (Metropolitan NY Coatings Association)
- › NAM (National Association of Manufacturers)
- › NAPIM (National Association of Printing Ink Manufacturers)
- › VCI (Verband der Chemischen Industrie e. V., German Chemical Industry Association)
- › CEFIC (European Chemical Industry Council)
- › VDSI (Verband für Sicherheit, Gesundheit und Umweltschutz bei der Arbeit, Federation of OSH Professionals)
- › Verein zur Förderung der Fachschule für Wirtschaft und Technik e. V. (Association To Promote Colleges of Business and Technology)
- › VILF (Verband der Ingenieure des Lack- und Farbenfaches e. V., Association of Engineers of the Coating and Paint Industry)

› Compliance

It is critical to our business success and reputation that our stakeholders have confidence in the responsible and lawful conduct of all of our employees and managers. As a global company, the highest priority for us is the observance of company-specific and legal rules for the protection of human rights and the environment as well as for the prevention of corruption.

The trust placed in Heubach is based on the integrity of each individual. In our Code of Conduct, we have therefore defined clear and comprehensible guidelines as a behavioral standard. They provide a summary of the key compliance principles based on the UN Global Compact. They also provide the foundation for a common value system that is not only relevant to internal collaboration, but also to our conduct toward external business partners.

› Code of Conduct

As the key compliance element, our Code of Conduct includes commitments to respect human rights, to uphold fair competition, to protect the climate, environment and health in a sustainable manner, to ensure equal opportunities, and to oppose all forms of discrimination.

All employees are called upon to uphold the provisions and ethical principles of the Code of Conduct within their activities.

Special responsibility rests with the management of our company, who are required to convey the meaning of the Code of Conduct to their employees and to support them in its implementation, as well as compliance thereof.

As any breach can have far-reaching consequences for both the company and the employees concerned, anyone who is aware of any violations of laws or this voluntary commitment is required to report them.

During the reporting period, we did not register any reports via the central compliance hotline or the compliance e-mail address.

› Compliance Organization

Within the framework of the materiality analysis carried out for this report, the topic of corporate governance/compliance was ascribed special significance from the stakeholders' point of view as well as from the perspective of Heubach.

This is why we decided to set up an ISO 19600 compliance organization. In a first step, the scope of application covers the German locations of the Heubach GmbH Group. An expansion of the organization to the USA and China will follow in a second step.

› Data Privacy

Maximum care, the utmost in confidentiality and compliance with applicable laws and regulations have the highest priority for Heubach in handling personal data of employees, business partners or other third parties.

In the performance of their tasks, the managers are assisted by both an external data protection officer and an internal data protection coordinator; both report directly to management. In order to be able to better reflect the diverse data protection requirements in the planning, installation and operation of information processing procedures in the future, we plan to introduce a data protection management system by 2022.

SUSTAINABILITY PROGRAM

Field of Action	Objective(s) and Measures	Period
Environmental Protection 		
Energy Efficiency	Improvement of energy efficiency by 4% <ul style="list-style-type: none"> › Establishment of the new calcination technology and introduction of new technologies in wet grinding › Continued switchover to energy-saving lighting (LED) › Development of a heat exchanger strategy for heat recovery › Systematic consideration of energy-saving potential in investment decisions 	by 2020 (Base year: 2015)
Emissions	Reduction of specific dust emissions by more than 5% <ul style="list-style-type: none"> › Installation of new exhaust-air purification technologies Reduction of specific CO₂ emissions by 10% <ul style="list-style-type: none"> › Increased efficiency through new production technologies › Conversion of the energy supply to a power mix with a higher proportion of renewable energies 	by 2020 (Base year: 2017) from 2020
Water	Reduction of specific water requirements by 5% <ul style="list-style-type: none"> › Continued conversion to dry processes › Optimization of the cooling water system 	by 2020 (Base year: 2017)
Waste	Reduction of specific waste by 5% through process optimization	by 2020 (Base year: 2017)
Supply Chain 		
	Greater anchoring of sustainability in supply chain management <ul style="list-style-type: none"> › Expansion of the vendor-audit evaluation sheet to include labor and social standards, human rights, corruption and antitrust law › Check to see to what extent a rating platform of sustainability services can be used and integrated by Heubach 	by 2020
Products 		
	Expanded integration of sustainability into product development <ul style="list-style-type: none"> › Development of a concept for the analysis and evaluation of the most important products/product lines from a sustainability point of view › Creation of a do-not-use list for product development as well as extended specifications/specification descriptions to include quality/energy/environment/sustainability 	by 2020 by 2019

Field of Action	Objective(s) and Measures	Period
Sustainability Management 		
Compliance	Expansion of a systematic protection of the company <ul style="list-style-type: none"> › Setup of a compliance organization › Implementation of a data protection management system 	by 2022
Management and Controlling	Development of a systematic survey of sustainability-relevant data and development of rules for reporting key performance indicators	by 2020
Voluntary Commitment	Development of a concept to support the United Nations Sustainable Development Goals (SDGs)	by 2020
Employee Responsibility 		
Safety	Reduction of accident frequency (occupational accidents with at least three days of work missed per 1 million working hours) to six (interim target 2018: eight).	by 2020 (Base year: 2017)
Health	Promotion of employees' health <ul style="list-style-type: none"> › Decision on the introduction of e-bike leasing › Promotion of physical activity through participation in sporting events (e.g., Business-Run) 	by 2020 from 2019
Personnel Development	Methodological and content-related further development of professional training and development <ul style="list-style-type: none"> › Introduction of the key performance indicator "Average number of hours for training and development per year and per employee" › Evaluation of cooperation with the Technische Universität Clausthal (Clausthal University of Technology) a dual Bachelor's program 	from 2019 by 2019
Demographic Change	Development of a demography concept focusing on health, work and family, qualification, knowledge, employer attractiveness	by 2022
Work-Life Balance	Additional childcare <ul style="list-style-type: none"> › Development of a concept Focus on the topic of care <ul style="list-style-type: none"> › In-house information events; external counseling 	by 2020

07

PRODUCTS

One of our key guidelines is to provide high quality pigments and pigment preparations that incorporate environmental and safety concerns along the entire product lifecycle.

› Sustainable Pigment Solutions

The demands made on pigments and pigment preparations are growing steadily: Our customers expect our products to have an ever longer service life and a qualitative superiority for end products, but at the same time demand the consideration of ecological factors.

The Heubach portfolio includes numerous products that make an important contribution to sustainability. For clarification, we provide some examples below:

› Anti-Corrosive Pigments

Worldwide, around five tons of steel are destroyed by rust every second. In Germany alone, the overall economic loss amounts to more than €90 billion a year.¹⁾

With the development, production and marketing of so-called corrosion inhibitors, our company contributes significantly to the manufacture of long-lasting and resistant coatings, and thus also to the conservation of resources.

› Zinc-Free Pigments

Heubach has been developing zinc-free anti-corrosive pigments for decades. In recent years, zinc has come increasingly under attack, as it is harmful to aquatic organisms. In the course of our long-term development program, we therefore manufactured zinc-free anti-corrosive pigments with ever better long-term protection, which can also be used as universally as possible.

The result is a comprehensive product portfolio of zinc-free ortho- or polyphosphates – based on harmless metals such as calcium, strontium or magnesium, which provide excellent protection for a wide range of applications.

› Water-Based Pigment Preparations

In recent decades, the market share and demand for environmentally-friendly, aqueous paints and varnishes has risen continuously. Heubach has actively helped shape this development by developing and producing aqueous pigment preparations for a wide variety of applications for 30 years. These modern water-based products contain no solvents, and are therefore particularly environmentally-friendly.

› Lead Chromate Replacement

The worldwide use of chrome-yellow or molybdenum-red pigments has dropped significantly in recent decades due to their toxicity. However, these pigments have not completely been replaced due to their good price-performance ratio. So far, their use has only been significantly limited by the REACH Regulation in the European Union (EU), but not completely eliminated.

Heubach has been working intensively for decades to replace these toxic inorganic pigments and developed a product line of high-performance hybrid pigments. These high-quality yellow, orange and red pigments provide excellent coloristic properties such as high color strength, opacity and durability. Easy incorporation and high stability in all common coating systems make this product line an excellent alternative for high-quality applications. In addition, Heubach offers various custom pigment preparations as a direct one-to-one replacement for the chrome-yellow and molybdenum-red pigments.

¹⁾ [Online article in Farbe und Lack: Eine Industrie gibt Auskunft: Korrosionsschutz kann mehr!](#) (An industry Provides Information: Corrosion Protection Can Do More!)

› Product Responsibility

From raw material purchasing as well as research and development to production, storage, transport and further processing to sales and disposal: Product responsibility at Heubach covers the harmless and safe handling of chemical substances and products along the entire product life cycle.

› Chemical Control Regulations

REACH

In the field of chemical safety, the EU Chemicals Regulation for the Registration, Evaluation, Authorization and Restriction of Chemicals (REACH) came into force in 2007. This regulation states that manufacturers, importers and users take responsibility for their chemicals by ensuring their safe use. In due course, Heubach has registered all substances that are produced or imported in quantities of more than one tonne with the European Chemicals Agency (ECHA).

Globally Harmonized System (GHS) / CLP Regulation

In parallel with REACH, Heubach implemented the requirements of the CLP Regulation ((EC) No. 1272/2008), which came into force in 2009, which transfers the United Nations Globally Harmonized System (GHS) to the European regulations. The aim of the GHS is to maximize the standardization of chemical labeling worldwide.

In connection with the CLP Regulation, we have reviewed, reclassified and, if necessary, re-labeled more than 1,800 products.

› Product Information

Of great importance to the responsible handling of pigments and pigment preparations is not only their safe handling, but also the provision of comprehensive information for customers and partners.

Heubach creates safety data sheets (MSDS) for all its products in accordance with Art. 31 REACH. If the creation of an MSDS is not required for products, Heubach will prepare Product Information Sheets (PIS) for the dissemination of information in accordance with Art. 32 REACH. MSDS and PIS are sent either automatically with every first delivery of a new product, or with relevant changes to information or on request. In total, we publish more than 1,800 MSDS per year in up to 27 languages.

To support customers' product development, Heubach provides Technical Data sheets (TDS) containing all application-related information – for example, light and weather fastness, heat and chemical resistance, density or pH. These are available for download on our website, or will be sent on request.

In addition, upon request, we will use our Regulatory Affair Sheets (RAS) to pass on all the regulatory information we have on a product. In this way, we support our customers in complying with the downstream legal regulations, such as when our products are used in toys or food contact materials.

› Research and Development

As part of its research and development, the Heubach GmbH Group is constantly working to make its products more sustainable.

For example, Product Safety regularly informs the R&D department about changes in the status of chemicals, especially if their use is prohibited, restricted, controversial, or otherwise undesirable for the customer. This information flows into our product developments.

Furthermore, we regularly review the use of raw materials from recycling processes or the substitution of water-soluble and (environmentally/aquatically/human-)toxicologically active components. When selecting raw materials, we also evaluate their potential pollutant inputs during the production process in order to minimize them if necessary.

During new product development, we always take into account all regulatory aspects, from the raw materials to the final product (e.g., with regard to the wastewater to be disposed of or cleaned). Of course, we also take into account the energy requirements of the relevant process engineering projects. The aim is, for example, to optimize production steps with high energy requirements energetically, or to avoid energy-consuming process steps.

In the (further) development of liquid pigment preparations, Heubach works continuously to minimize the concentration of additives in the formulation. We, therefore, reduce the levels of volatile organic compounds (VOCs) and biocides to a minimum. When selecting additives, we make sure that as far as possible no polyaromatic hydrocarbons (PAHs), no halogenated compounds, and no formaldehyde are included. Moreover, additives based on renewable raw materials are becoming increasingly important.

In addition to the aforementioned aspects of health and environmental protection, we also consider all other safety aspects along the entire product life cycle.

Expenditure for research and development (R&D) amounted to approximately €3.7 million in 2017 and 2016, respectively. R&D expenditures in 2017 accounted for 2.6% of sales, just below the previous year (2016: 2.7%). The majority of these expenditures accounted for the (energetic and resource-saving) optimization of inorganic pigments as well as the development of water-based pigment pastes for the production of decorative paints and the coloring of paints.

› Partnerships in Product Development

Through our collaboration with universities, research institutes, customers and vendors, we ensure a comprehensive and efficient development of pigment innovations that not only improve the performance of end products, but are also safe in terms of health and the environment.

The following three examples illustrate our collaborative development partnerships:

1. Together with an external partner, our specialists develop pigment preparations for coloring plastics. Thanks to an innovative production technology, we can produce highly concentrated pigment granules that are dust-reduced, low-dusting and easy to disperse – they are characterized by their universal compatibility. The preparations can be applied to plastics of all kinds (polyolefins (PO), polyvinyl chloride (PVC) or engineering plastics). Due to the highly concentrated pigment content of our product, we were able to reduce its input quantity compared to conventional products.

These properties provide our customers with maximum flexibility, significantly reduced stock levels, and thus a cost advantage.

2. Heubach has been working together with the Technische Universität Clausthal (Clausthal University of Technology) for decades, and has further intensified the cooperation through a very closely networked partnership. The two cooperation partners jointly operate a high-performance X-ray diffraction device. This analysis method is used to determine crystal structures and so-called secondary phases, which can arise in the production process. The combined know-how enables us to meet the requirements of the lowest detection limits. With the X-ray diffraction device, we have a tool at our disposal to optimize processes, on the one hand, in research and development and, on the other hand, to issue product certificates attesting that the products are free of by-products.

3. Furthermore, Heucotech Ltd. has developed bio-based printing ink concentrates as part of a cooperation project with customers. Thanks to the successful substitution of petroleum-based raw materials, the selected dispersions contain about 38% of renewable materials – and that with the same or even better application properties.

ENVIRONMENTAL PROTECTION

As a manufacturer of chemical raw materials, we cannot completely avoid environmental impacts, as our company uses up resources, and the production process produces emissions, wastewater and waste. However, we can continuously minimize the risk of polluting factors and, thus, ensure careful and respectful action with respect to the environment. We have committed ourselves to this goal, and have therefore incorporated resource conservation and climate protection in our corporate policy.

› Energy and Climate

The main impacts of our production activities include energy consumption and the emission of climate-damaging greenhouse gases.

For this reason, we have focused in recent years on developing and implementing measures to increase energy efficiency and optimize production processes.

The energy sources that we mainly use are electricity and natural gas. About 75% of natural gas is used to generate steam in our own steam boilers and 20% for directly fired calcination units for the production of colored pigments at a temperature of up to 1250°C. The remaining 5% is consumed in the heating of buildings.

The majority of the electricity consumption is for the operation of additional calcination units for colored pigment manufacturing. The balance of the electricity is used for the generation of compressed air, the secondary energy driving various production equipment such as grinding, drying, precipitation processes and cleaning filters.

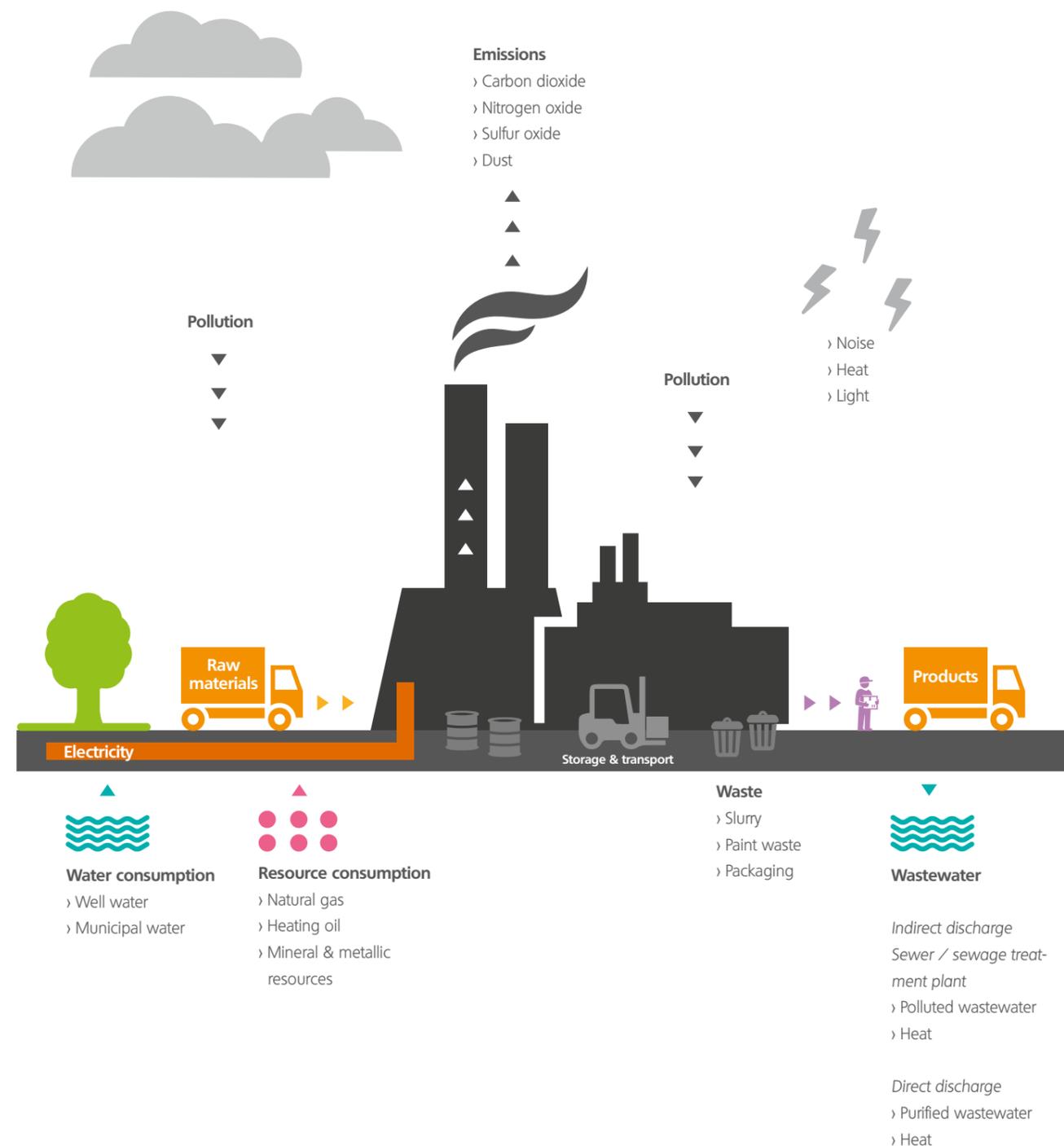
The increased energy demand in 2017 is exclusively attributable to strong growth in production volumes in the energy-intensive production area of inorganic colored pigments. This is associated with a plant-related capacity expansion at the German site.

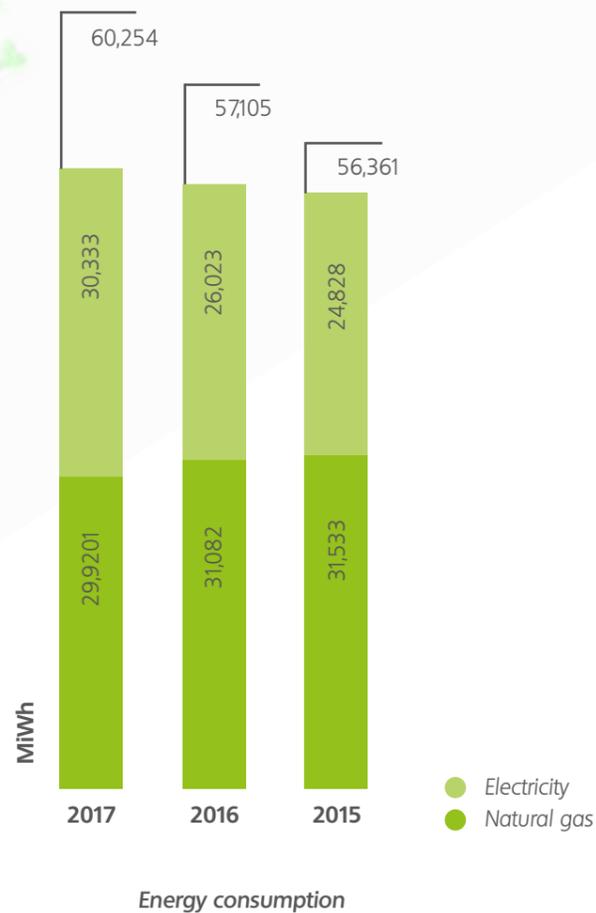
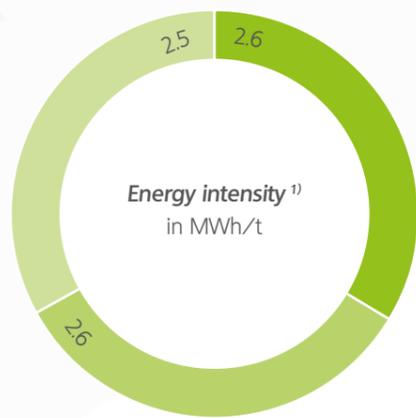
After some directly fired calcination units were replaced by electrically heated production processes back in 2013, a similar second plant was put into operation at the end of October 2016. During the reporting period, however, it was only used in trial operation for up-scaling purposes. This led to a reduction in natural gas consumption, while increasing the required electricity input. But the specially developed process allows for a considerable increase in throughput: At full capacity utilization of both systems, we expect a reduction of the specific energy requirement for the high-temperature processes by up to 3% (about 700 MWh/year).

At our U.S. facility, we produced only water-based pigment preparations in the reporting period. The energy requirement for the corresponding process steps (grinding, dispersion) is small compared to the German facility. The first production plant for anti-corrosion pigments with a capacity of 4,000 t was commissioned in early 2018. Due to this capacity increase, we expect energy demand to increase in the future, especially for the grinding and drying processes.

› Energy Consumption

Heubach uses energy in different ways. On the one hand, the company converts heat and kinetic energy to chemical energy via endothermic chemical processes. On the other hand, Heubach operates exothermic chemical processes in which heat is released by chemical reactions, which requires appropriate cooling. In addition, energy is spent on numerous ancillary processes, such as for compressed-air generation, for the operation of heating systems and steam generators, for the in-house transport of raw materials and products, as well as for laboratory and office operations.





¹⁾ Ratio of energy consumption and sales volume produced (total production). Commercial products are not included.

› Energy Efficiency

Heubach works continuously to improve energy efficiency and reduce energy intensity.

In 2013, we introduced an energy management system in accordance with DIN ISO 50001 at the German site. As part of this, in addition to the measures described above, we planned and implemented numerous actions – for example, the installation of solenoid valves in compressed-air lines to minimize the risk of leakage, or the conversion of lighting in the warehouses from HQL luminaires to LEDs. Especially in the latter, we achieved an annual saving of 88.9 MWh²⁾. In order to further expand on this success, we will develop a concept for equipping all lighting with energy-efficient LED light sources over the next few years.

With the setup of an energy team we provided further necessary human resources to continuously evaluate and institute options for the most efficient utilization of energy in order to ensure the effectiveness of the energy management system.

To raise employees' awareness, the voluntary commitment to energy efficiency has been included officially in the company's goals.

We developed an energy strategy for the production area at the German site by 2020 (base year: 2015). The goal is to improve energy efficiency by around 4% by 2020 using the latest technologies.

The focus here is on the energy-intensive production of inorganic pigments, as well as on the optimization of the process technology, which is used in wet grinding and in almost all production areas.

An example would be the new calcination technology which described above guarantees highly efficient, quality-optimized process control in the production of inorganic colored pigments. Thanks to this, we have already reduced the specific energy consumption of some product lines by up to 50%.

In addition, a development partnership was entered into to optimize horizontal bead mills. The potential energy-saving potential due to shorter process time is estimated at 10 to 15%.

As a next step, we plan to increase efficiency in the production of anti-corrosive pigments as well. Based on the operating experience of the state-of-the-art plant installed in the USA, we would like to introduce various measures for increasing energy efficiency in individual process steps or units in Germany from 2020 onwards.

As the implementation of the energy strategy is still in its initial phase, only the individual value considerations already mentioned are currently available. In the Sustainability Report 2021, however, we will report in detail on the achievement of the planned targets and objectives.

²⁾ Extrapolated to one year.

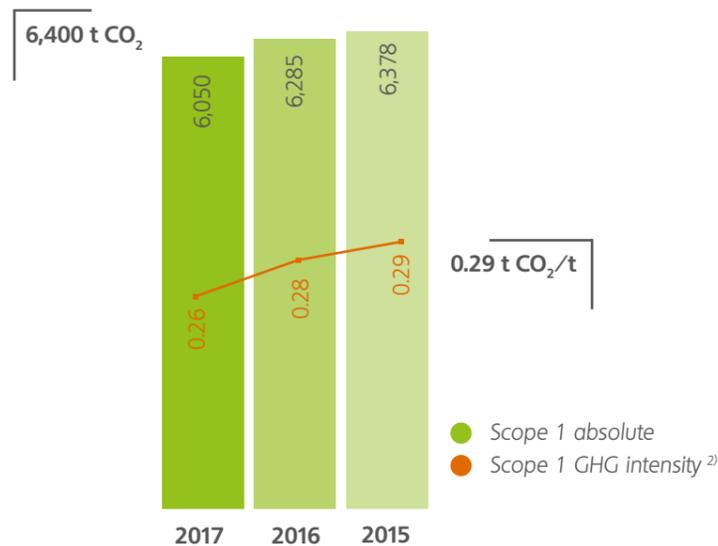
› Emissions

› Greenhouse Gas Emissions

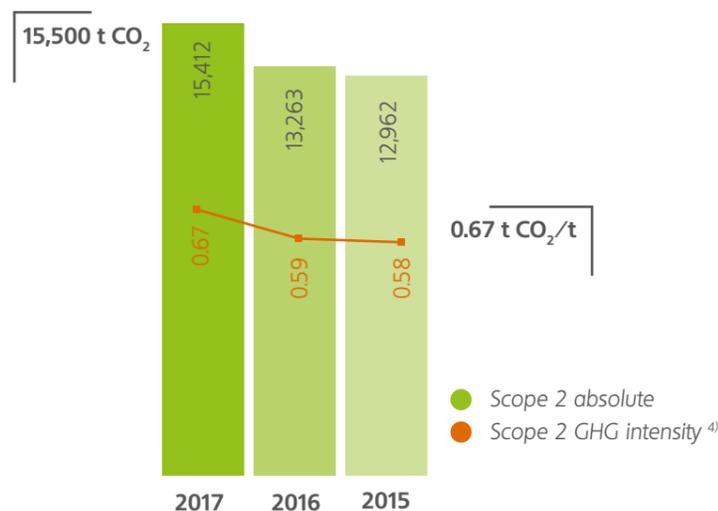
The chemical processes for the manufacture of pigments and pigment preparations themselves release no greenhouse gases. Rather, these are energy-related emissions. Direct CO₂ emissions include, for example, steam generation (60-68%), the operation of gas-fired calcination units (24-30%), some drying units and heating systems. Indirect CO₂ emissions are caused by the electricity purchased.

Greenhouse gases other than CO₂ are not emitted. Even though methane (CH₄) is the main constituent of natural gas, it is incinerated and emitted as CO₂. This assumes complete combustion.

Our CO₂ emissions increased by around 9.8% in 2017. Although the share of direct emissions (Scope 1) fell by just under 3.7%, we recorded an increase of around 16.2% in the case of indirect emissions (Scope 2). This is due, on the one hand, to the increased capacity of the calcination technology and, on the other hand, to the partial replacement of gas by electricity in the calcination processes.



Greenhouse gas emissions Scope 1 ¹⁾



Greenhouse gas emissions Scope 2 ³⁾

¹⁾ Emissions resulting from own business, that is, from the consumption of natural gas, for example, for steam generation, the operation of production plants, heaters or lift trucks. The emission factors used are based on the report "Emissionsfaktoren für Strom, Fernwärme und Kraftstoffe" (Emission Factors for Electricity, District Heating and Fuels) by the VDA (Verband der Automobilindustrie, German Association of the Automotive Industry) (2018). The stated values for Germany, China East and USA East were used. Our calculations are based on the assumption that only CO₂ is emitted by the complete combustion of all natural-gas components.

²⁾ Relative to sales volume produced (total production). Commercial products are not included.

³⁾ Emissions from the production of energy sourced from outside the company (e.g., electricity). The conversion factor for Germany was specified by the electricity supplier. For the U.S. and China, the regional average emission factors relative to the electricity provided according to the report "Emissionsfaktoren für Strom, Fernwärme und Kraftstoffe" (Emission Factors for Electricity, District Heating and Fuels) by the VDA (Verband der Automobilindustrie, German Association of the Automotive Industry) (2018) were used.

⁴⁾ Relative to sales volume produced (total production). Commercial products are not included.

› Pollutant Emissions into the Air

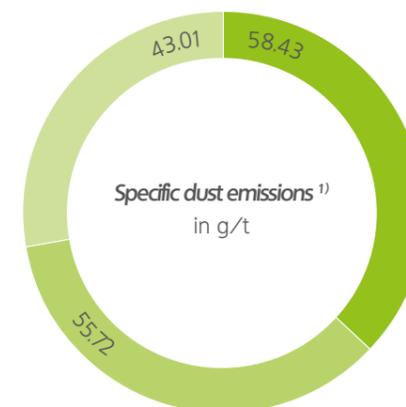
The manufacture of inorganic pigments produces dust emissions. The permits for our production areas, therefore, contain limits for dust as well as for metals, which are used in the form of metal oxides. Depending on the particular raw materials used for the manufacture of the pigments and the pigments handled, these involve primarily zinc (Zn), titanium (Ti), bismuth (Bi), cobalt (Co), nickel (Ni), antimony (Sb), chromium (Cr), copper (Cu), manganese (Mn), calcium (Ca), iron (Fe) and vanadium (V). There are emissions, to a low degree, of both raw materials, such as the corresponding metal oxide, and the product manufactured, that is, the pigment.

The manufacture of some products also creates sulfur oxides (SO_x).

By switching from gas to electricity-powered calcination units, we reduced emissions of nitrogen oxides (NO_x) and carbon monoxide (CO). In the case of the latter, a further favorable trend in 2017 was the fact that the oil-based operation of steam boilers – as backup in the event of natural gas failure – hardly needed to be used.

The increase in dust emissions results from the two-stage expansion of production capacities; this is accompanied by additional emission sources with high air volumes. In 2017, we planned additional extensive measures to further reduce dust emissions; we already installed a corresponding exhaust-air filter in the first half of 2018. We plan to invest a total of around €1.5 million in the 2018 financial year to implement these measures in order to reduce specific dust emissions by more than 5% by 2020.

SO₂ emissions increased during the reporting period, as the raw material used for some of the more highly demanded product lines contains sulfate, which causes SO₂ emissions during subsequent calcination. The use of this raw material is essential due to quality standards. Nevertheless, teams in R&D projects are working on minimizing the use of this raw material or, at best, substituting the substance.



- 2017
- 2016
- 2015

› Noise Emissions

The German factory site is located in a commercial area with predominantly industrial use and is adjacent to a mixed area with residential buildings. Accordingly, the minimization of noise emissions for the protection of the neighborhood has a very high priority for Heubach. We have already successfully implemented a multi-year soundproofing program.

In order to achieve the necessary reduction of noise emissions, we installed sound absorbers on all relevant noise sources. In addition, we pay close attention to the strict observance of various nocturnal measures. For example, there are no truck movements at night; forklifts may operate only inside the buildings, and doors and windows must be closed.

Furthermore, we have sound measurements taken by an external expert after every new construction of a plant or every significant change to existing plants.

The last noise measurement (October 2017) at the relevant affected location (a residential building in the adjacent street) showed that the exposure reference values (45 dB(A)) were clearly undershot with 42.5 dB(A).

Air emissions in kg	2017	2016	2015
Sulfur oxide (SO _x /SO ₂)	1,341	1,286	1,184
Nitrogen oxide (NO _x)	7,050	8,356	8,061
Carbon monoxide (CO)	569	740	881
Volatile organic compounds without methane (NM-VOCs)	0	0	0
Dust	1,354	1,245	955

²⁾ Relative to sales volume produced (total production). Commercial products are not included.

Water consumption at Heubach 2017 (in m³)

Water withdrawal

Industrial water	120,514
Drinking water	32,463

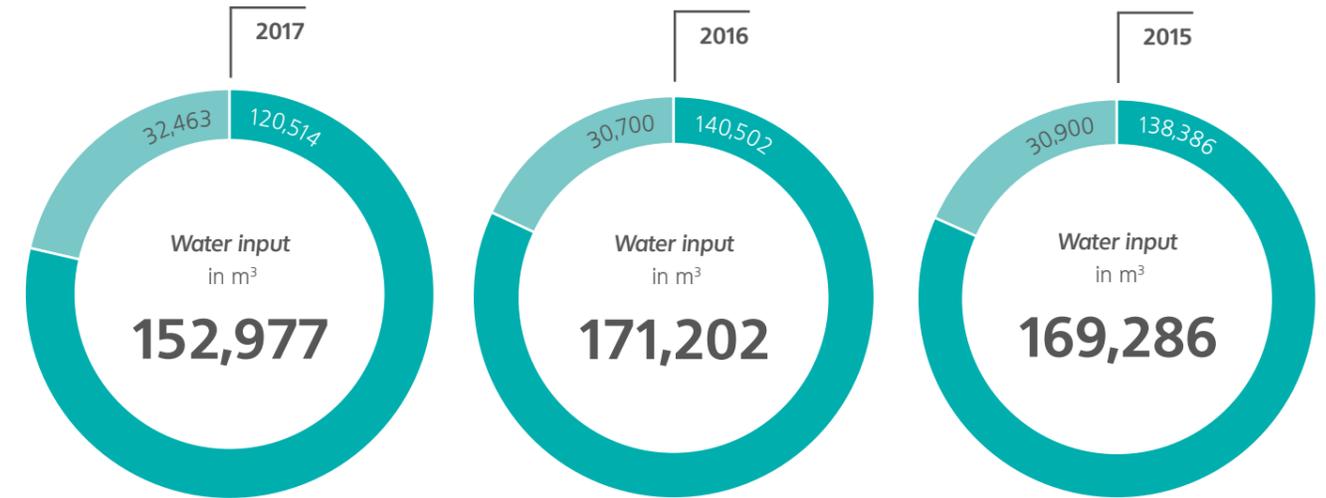
Water use

Cooling water (11% reuse)	62,300
Production* <small>(*Total production, laboratory, cleaning, sanitary wastewater)</small>	90,677

Wastewater

Wastewater treatment <small>(91.5% direct discharge into water, 8.5% discharge to municipal treatment plants)</small>	121,591
Water losses ¹⁾ (19%)	29,113
Disposal (1.8%)	2,273

¹⁾ Losses resulting from evaporation, leaks, quantities of water remaining in the product as raw material



● Industrial water
● Drinking water

Water

Water is an essential resource for the production of pigments and pigment preparations.

However, since the availability of water cannot be taken for granted in all parts of the world, the most efficient and sustainable use is also of particular importance for Heubach.

Most of the water used for production at the German site is industrial water (2017: 88%), which we extract from our own wells. We cover the remaining 12% of our water needs with drinking water, which we use in sanitary and laboratory areas, and on a smaller scale to produce individual product lines (e.g., aqueous pigment preparations). The water used for these product lines remains to a significant extent in the product (up to the end user), and cannot be replaced by service water for quality reasons.

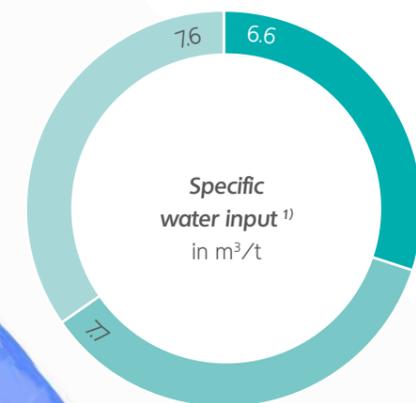
In the U.S., only drinking water is available for production. Since we produced only aqueous pigment preparations in the USA during the reporting period, the use of drinking water is also indispensable for guaranteeing product quality there. Again, some of the water remains in the product.

Despite increased production volumes, our water consumption in 2017 fell by almost 11% compared to the previous year. This significant decrease is attributable to the lower proportion of industrial water at the German site. The water savings resulted from the increased use of dry processes (e.g., in the grinding processes), as well as from optimized individual precipitation processes in production.

In addition, the closed-circuit cooling system introduced at the American site contributed significantly to this pleasant development.

The increase in drinking water consumption is due to the increased production volumes of aqueous pigment preparations.

Through the implementation of closed-circuit cooling, it was possible during the reporting period to reduce the specific water input in the USA by 17.6%. Overall, a reduction of 13.4% was achieved.



● 2017
● 2016
● 2015

¹⁾ Relative to sales volume produced (total production). Commercial products are not included.

› Wastewater

The wastewater produced by the German plant is taken in collection tanks to our wastewater treatment plant. There, we first analyze the constituents, and evaluate them before we process the wastewater chemically and physically in accordance with the legal and regulatory requirements for the elimination of inorganic pollutants. After our wastewater treatment, we can discharge 91.5% of the treated wastewater directly into surface waters.

After removal of mineral pollutants, we collect nitrate-containing wastewater and wastewater containing organic components separately and feed it to municipal sewage treatment plants as indirect discharges. There, potential nitrogen and nutrient inputs and, thus, water risks are eliminated.

The increase in the nitrogen and TOC emissions of our wastewater results from the increased production and the implemented process optimization of our precipitation and grinding processes and the accompanying wastewater prevention.

Our U.S. site also collects and processes the production wastewater to eliminate solids, organic matter, metals, and discoloration as much as possible using chemical and physical processes. Subsequently, the wastewater is fed to the municipal wastewater treatment plant in compliance with specified limit values.

The German site is located in an area with legacy soil contamination caused by mining activities in the past. The increased emissions of metals in the wastewater, according to detailed investigations, were attributable to the leaks in the sewage system on the factory site; the contaminated sites release zinc into the groundwater. By 2022, we will have the entire sewage system on the factory site fully refurbished.

Wastewater loads in kg	2017	2016	2015
TOC ¹⁾	5,106	4,363	8,404
Nitrogen (N)	25,721	21,681	16,565
Phosphorus (P)	34.3	36.7	38.4
Adsorbable organically bound halogens (AOX)	0.3	0.3	0.5
Metals	120	83	60
Persistent organic pollutants (POPs)	0.16	0.15	0.17

¹⁾ Total Organic Carbon

› Materials

For the manufacture of pigments and pigment preparations, Heubach relies on numerous raw materials and supplies. Essential feedstocks include metal oxides, phosphoric acid, binders, additives, PVC, sewage chemicals, lubricating oils and greases. We do not publish exact weight or volume information on our materials used, since we consider this information proprietary.

The use of renewable raw materials does not currently play any role in the production of inorganic pigments. The extraction of pigments directly from nature is currently not a meaningful alternative either, because such pigments do not meet the required high standards on light fastness, temperature and weather resistance as well as chemical resistance while ensuring high color intensity.

In the case of aqueous pigment preparations, on the other hand, we achieved initial success in the development project for bio-based printing inks. Through the successful substitution of petroleum-based raw materials, we developed a dispersion that consists of around 38% renewable materials with the same or better properties.

› Waste

Thanks to the many years of experience in production and the numerous findings from research and development, we are able to operate very sustainable processes. There are only few production wastes, which we do not process within the plant and return to the value stream.

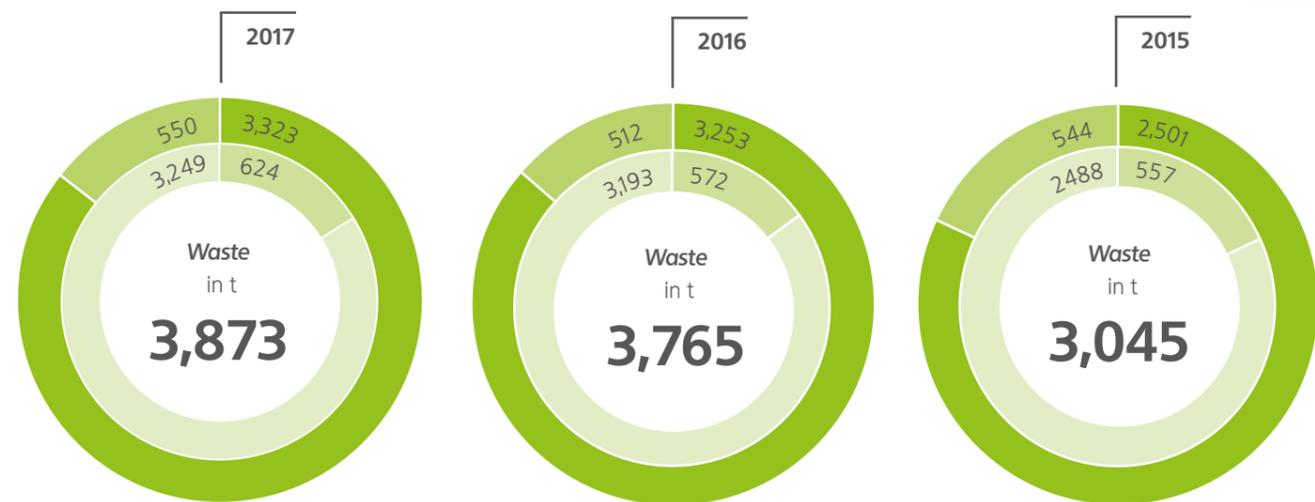
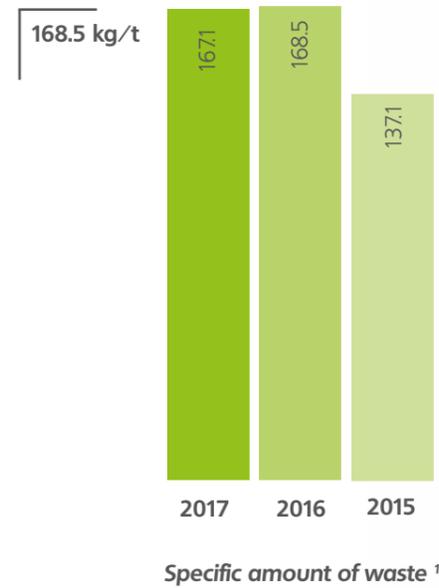
For example, particulate raw materials from the filter cleaning are sucked off, deposited and automatically returned to the manufacturing process proportionally in as many places as possible. In addition, we also reintegrate – if technically possible – material that does not comply with specifications.

We distinguish waste that cannot be recycled at the site according to its material properties and collect it separately. The wastes are classified as “hazardous” and “not hazardous”, as well as according to the criteria “for recycling” and “for disposal”.

By far the most waste is in the form of slurry in the production of aqueous pigment preparations as well as in wastewater treatment. In addition, aqueous waste and packaging are significant.

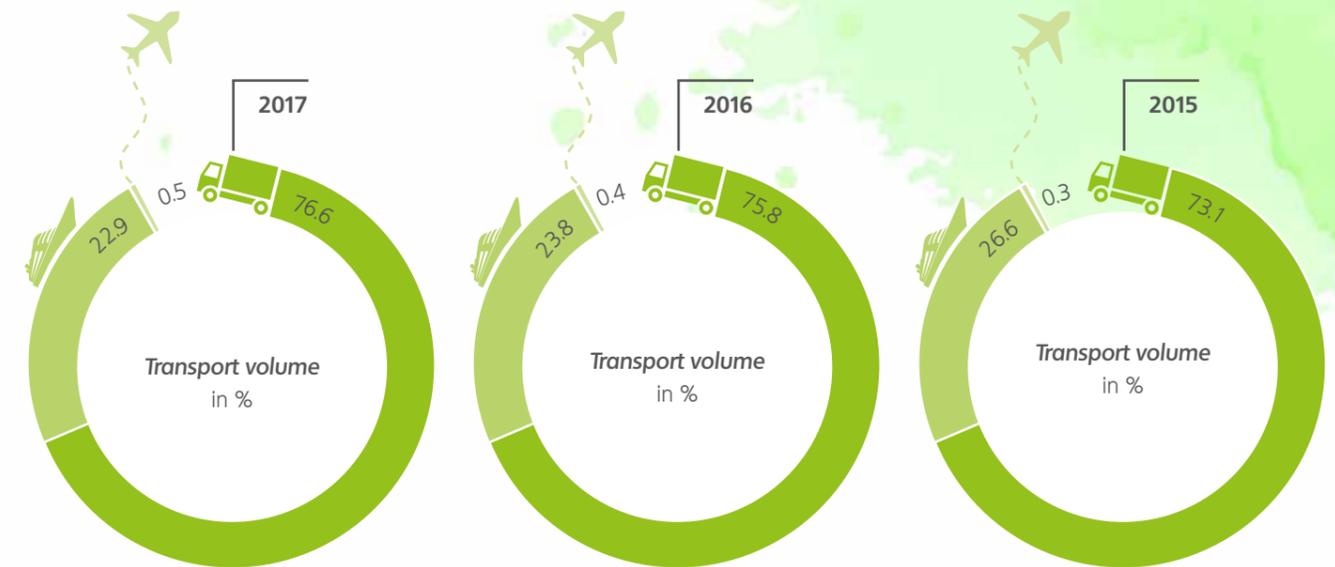
Paper and plastic waste is recycled by specialist companies using standard procedures. The wood of the discarded pallets is shredded and energetically utilized, since the required material quality for reuse is usually not obtained (such as through treatment of the wood or adhering impurities). The unsorted residual waste goes into thermal recycling.

The total amount of waste, in line with the increase in production in 2017, increased slightly compared to the previous year. The decisive factor is slurry, which is primarily produced during wastewater treatment. The specific amount of waste is, however, slightly decreasing.



- Waste disposal
- Waste recycling
- Hazardous waste
- Non-hazardous waste

¹⁾ Relative to sales volume produced (total production). Commercial products are not included.



› Logistics and Transportation

Most of the transports of Heubach pigments and pigment preparations are by road (76.6%). The rest is 22.9% by sea and 0.5% by air. Due to the structure of the consignment, lack of infrastructure and insufficient flexibility, transport by rail is logistically and economically inefficient.

In order to minimize the environmental impact of inbound and outbound transport, we want to reduce the number of vehicles and transports to be dispatched in the future.

To this end, we optimize the use of the cargo space for outbound shipments: on the one hand, by combining orders for the same consignee and, on the other hand, by bundling consignments of different consignees.

In addition, if possible, we use packaging that is recyclable in its life cycle. These include, for example, paper sacks, so-called big bags (flexible bulk goods containers), reusable pallets (EURO), reconditioned IBCs, as well as refillable returnable containers.

› Damage Events

Although the focus of all safety-related measures is on prevention, damage events cannot always be ruled out. Heubach defines damage events as all occurrences in production or on the company premises (incident reports) as well as in connection with the transport of the products (transport incidents).

› Incident Reports

In accordance with a new internal voluntary commitment, Heubach has recorded since 2017 any kind of business interruption in the company, that is, all events that deviate from normal operations. These range from the smallest general technical disruption to events with material leakage, power failures, or even fires.

The aim of this modified reporting system is to make employees even more aware of operational disruptions and to identify potential for improvement more quickly. In order to be able to establish suitable measures for the future avoidance of damaging events, we analyze and evaluate all incidents in detail.

The increase in the total number of reported disruptions in 2017 compared to 2016 is primarily due to the change in the reporting system described above. In addition, the commissioning of a new production facility – as in 2017 – is always associated with some additional disruption until regular operation can be ensured.

In 2017, we recorded a total of 18 events with chemical leakage. In 15 cases, it was material leakage inside the building, for example, due to defective screw connections, seals or peristaltic pumps. In all cases, only very small amounts of materials have leaked out. We have collected these in the retention areas within production, picked them up and thus either returned them to the process or disposed of them properly.

There were only three safety and environmentally relevant events in 2017, as listed below.

At no time was there any risk to employees, local residents or the environment.

Event	Measure
Occurrence of "blue clouds" after exhaust air purification in the gas scrubbing	Installation of a super-fine droplet separator for additional exhaust air purification following gas scrubbing to avoid the purely visual phenomenon (installation by the end of 2018)
Smoldering fire on a filter due to overheating	The smoldering fire in the filter was extinguished within minutes by the immediate intervention of the production staff. A precautionary examination of the exhaust air filters by the fire department helped rule out glowing embers.
Fuel leak on a defective truck of a vendor	The spilled fuel was collected and disposed of properly.

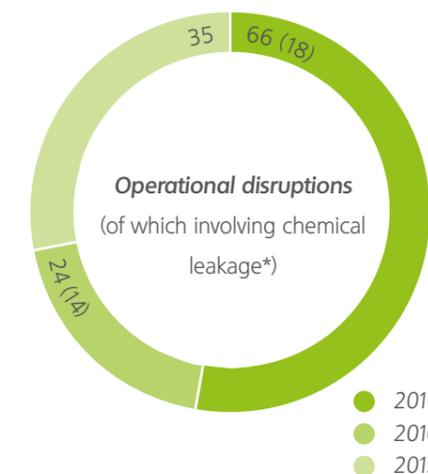
In order to ensure the safety of employees and local residents, Heubach has developed a comprehensive concept for the prevention of major accidents. For example, the Safety Report and the Operational Alarm and Hazard Prevention Plan (BAGAP, Betrieblicher Alarm- und Gefahrenabwehrplan) describe in detail our facilities, various alarm scenarios, the organization of hazard prevention, including cooperation with external emergency services, and the communication process for contacting the authorities, the public and the media.

Furthermore, around-the-clock processing of plant malfunctions and incidents by in-house bodies, especially the plant's standby emergency service, is guaranteed.

In emergencies, in case of major damage events and at the request of the plant's standby emergency service, a crisis team is assembled, consisting of managers and company representatives. The tasks of the crisis team include:

- › Initiation and continuation of measures to protect people, the environment and property,
- › Coordination of operations with external emergency-response teams,
- › Evaluation of events and analysis of the causes.

An external service provider also operates an emergency hotline in the event of a chemical leak.



* A systematic evaluation of fault messages on systems has only been available since 2016. Until then, only the total number of fault messages had been counted, but not categorized.

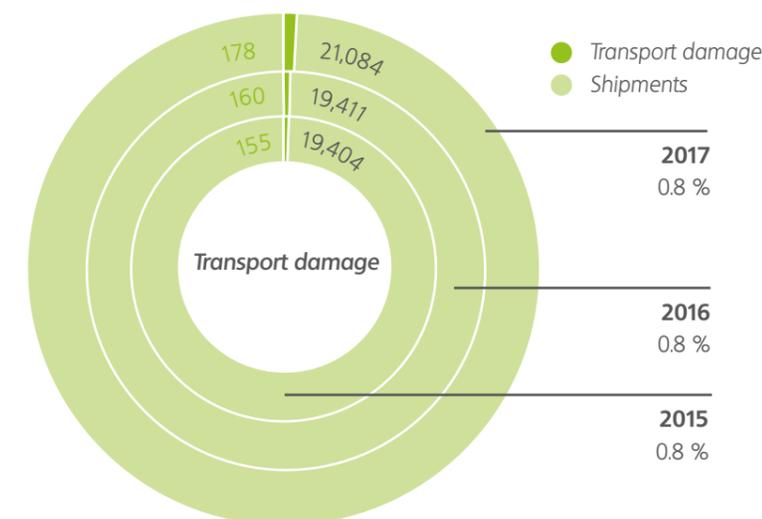
› Transport Incidents

We split the reporting of transport incidents into transport accidents and transport damage. Heubach records as accidents all critical events that occur during the distribution of our pigments and pigment preparations commissioned by us. This includes all events that are associated with personal injury or property damage as well as environmental damage due to chemical spills or released substances.

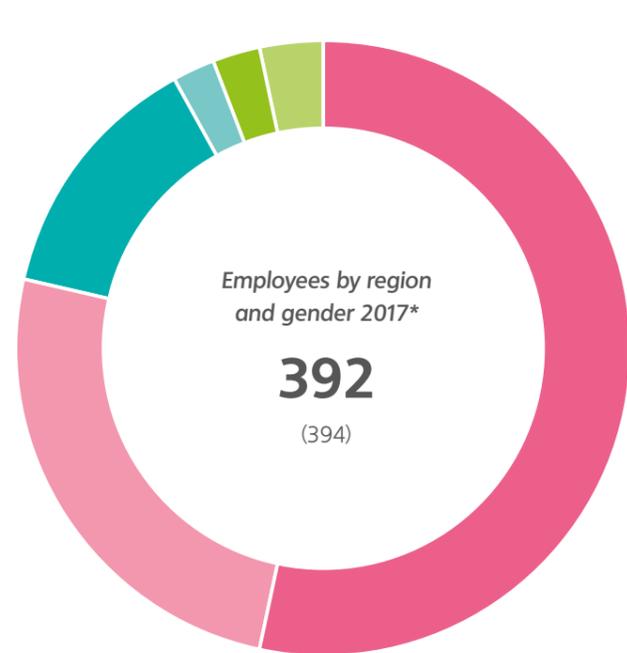
Looking at the statistics on transport accidents, we are fortunate to find that in recent years, with an average of around 20,000 deliveries per year, no accidents have occurred in connection with transports commissioned by us.

The number of transport damages, calculated for the number of deliveries, has increased by a minimal 0.02 percentage points compared to the previous year, but is still at a low level of 0.8%. This includes all events without any impact on people and the environment, in particular packaging damage

Safety measures for internal and external transport include, for example, regular training for forklift operators with respect to load securing and forklift handling, as well as general safety instructions.



EMPLOYEE RESPONSIBILITY



Germany
309 (311)
 210 (211) Men **68%**
 99 (100) Women **32%**

USA
61 (61)
 52 (52) Men **85%**
 9 (9) Women **15%**

China
22 (22)
 10 (10) Men **45%**
 12 (12) Women **55%**

* Numbers for previous year in parentheses.



Qualified and motivated employees are critical to the success and reputation of any business. For this reason, we see it as our major responsibility to offer our employees a safe and attractive working environment, and to create opportunities for professional and personal development.

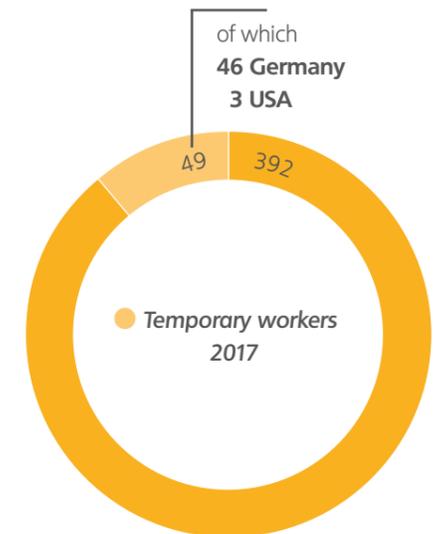
› Employment

At the end of 2017, the Heubach GmbH Group had 392 employees worldwide ¹⁾ (2016: 394). This includes all employees with permanent or temporary contracts, as well as trainees and apprentices.

The vast majority of employees (89%) are employed on permanent contracts. Fixed-term employment contracts are issued only for reasons of fact and as part of an internship, training or temporary tasks.

In order to flexibly cushion unexpected production peaks/large number of incoming orders, sickness, holiday periods and cyclical downturns, we rely primarily on temporary employees leasing for the production and laboratory. In doing so, we exclusively contract temporary employment agencies that apply collective agreements and adhere to the minimum standards of socially acceptable employment.

In 2017, we employed 12.5% ²⁾ temporary workers. In case of a successful collaboration, Heubach checks whether the temporary agency worker in question can be taken on at the respective workplace or in another position at the company. In 2017, for example, we hired eleven temporary workers. Further hirings have already been made and planned in 2018, so that the proportion of temporary agency workers will decrease to around 8%.



Employees by type of contract	2017	2016	2015
Employees, total	392	394	383
Employees with permanent contracts	350	356	348
Employees with fixed-term contracts	42	38	35

¹⁾ Figures without temporary workers; as of 31.12. of the year.

²⁾ Ratio of temporary workers to total number of employees

› Remuneration Policy and Employee Benefits

As a company in the chemical industry, Heubach grants its non-exempt employees (89.7%) above-average benefits in terms of salary, vacation or additional payments. Of course, we comply with the regulations set out in the collective agreements of "Chemie West". There are no differences due to gender, religion, origin, age, disability, or sexual orientation.

For temporary agency workers, we pay sector allowances and adhere to the principles of Equal Pay.

Managers, exempt employees, and special occupational groups receive – in addition to a contractually agreed basic salary – one-off bonuses partially based on performance and agreed targets. These targets, which are based on the respective area of responsibility, are negotiated by the employees in the annual employee appraisal with their respective supervisors. Such agreements include both quantitative targets, such as increasing sales, revenue or profits, and qualitative targets, such as improving customer satisfaction. Although special sustainability-related targets have not been included in the agreements so far, the close integration of sustainability and corporate strategy ensures that positive effects are achieved indirectly.

In order to facilitate a gradual transition to retirement, Heubach makes an annual demographic contribution to the collective old-age pension scheme in accordance with the collective agreement "Lebensarbeitszeit und Demografie" (Working Life and Demography). The current maximum employer contribution is around €1,500.

Heubach also guarantees minimum social security at foreign locations by paying attention to fair and competitive pay and social benefits. In order to ensure a fair standard of living for employees, these are always based at least according to local laws and standards.

For example, all employees employed by Hangzhou Heubach Pigment Co. Ltd. in China receive a base salary that is well above the legal minimum wage. For performance-related occupational groups, a performance-based, variable annual remuneration is also paid. On average, employees at Hangzhou Heubach Pigment earn three times the statutory minimum wage.

Individual occupational groups also receive performance-based one-time payments at our U.S. location. In addition, we grant all employees a Christmas bonus as well as paid vacation days. Furthermore, Heucotech Ltd. assumes part of the health insurance contributions, and – as part of a healthcare program – shares in the deductible of the health-insured. Every employee can also participate in a FSA program (Flexible Spending Account): This offers free disability, accident, life and dental insurance. To safeguard old-age pensions, employees also have the option, under a so-called 401(k) savings plan, of paying part of their income tax-free into a pension fund in which our company participates.

› Job Satisfaction and Employee Retention

Our employees identify with the company to an extremely high degree. This is borne out by the long employment with the company of many employees and low turnover.

Nearly 60% of the total workforce has been employed by Heubach for more than ten years, while 29% of employees have been contributing to the company's success for more than 20 years. The average duration of employment at Heubach is 16 years (2016: 15 years).

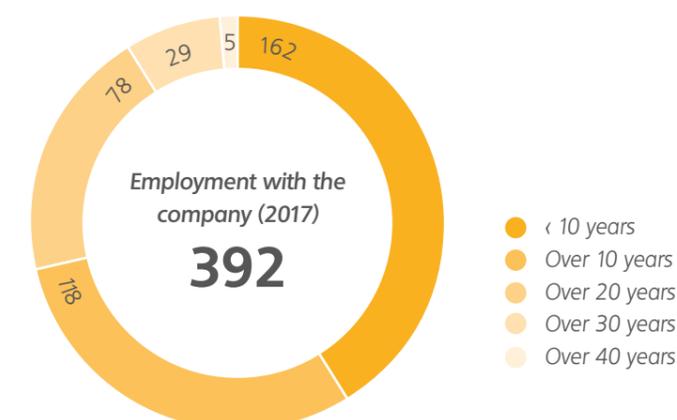
However, we do not take such years of service for granted. For this reason, every employee of Heubach GmbH and Heubach Pigment Manufacturing GmbH & Co. KG receives a monthly loyalty bonus after full five years of service, which automatically increases every three years. For service anniversaries, employees are personally honored by their respective supervisor with an individual certificate and a gift in kind. In 2017 alone, 23 employees received such an award for their more than 20 years of service.

In addition to a long period of employment, the steadily declining turnover rate is clear evidence of the attractiveness of Heubach as an employer.

The voluntary turnover rate (proportion of employees giving notice) has been between 2% and 4% for years (2016: 2.5%, 2015: 4.2%), and is at a favorably low level of 1.0% in 2017.

The total turnover rate includes all terminations – by the employee and by the employer – and retirements. It stood at just under 5% in 2017, and thus fell by more than three percentage points compared to 2015.

Employee turnover	2017	2016	2015
Total turnover	19	20	31
Men	14	11	15
Women	5	9	16
Total turnover rate	4.8%	5.1%	8.1%
Voluntary turnover	4	10	16
Men	2	5	9
Women	2	5	7
Voluntary turnover rate	1.0%	2.5%	4.2%



› **Co-Determination and Feedback**

To ensure that Heubach takes sufficient account of the rights and interests of all employees in their day-to-day work, management in Germany works closely with the works council.

The works council is an important partner, for example, in the event of changes to operational procedure, in the assessment of proposed improvement, in the further development of occupational pension schemes, or in occupational health and safety. In addition, there are numerous company agreements on personnel, IT, and occupational safety, which were worked out and approved together with the works council.

As a representative body, the works council accepts suggestions of both employees and the youth and trainee representatives, and discusses them in regular meetings with management.

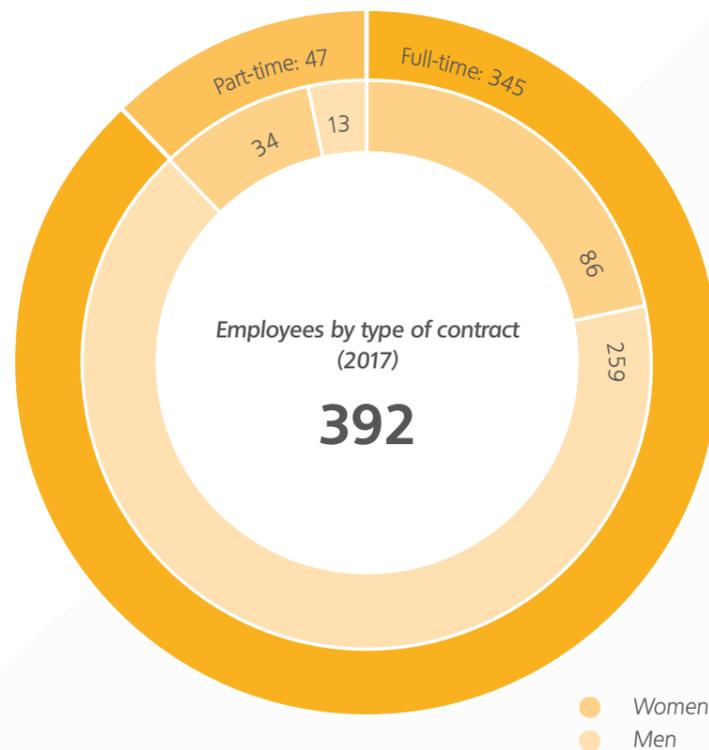
To maintain its attractiveness as an employer, however, not only indirect feedback from the works council or shop stewards is crucial for Heubach, but also direct feedback from employees.

To this end, we conducted a survey on psychosocial factors at work in 2015. After intensive analysis of the results, we identified and implemented various individual technical measures. These led to further optimization of the direct working environment (noise protection, air-conditioning measures, etc.) in individual production areas and offices. In addition, employees identified a significant potential for improvement in the leadership behavior of their supervisors. In leadership seminars lasting several days, we, therefore, had the majority of our managers trained; we also developed a leadership model and rolled it out across the company.

At locations where no employee representation is required or established, participation in the company's business is governed by local associations.

In China, for example, all Heubach employees are also members of a "Worker Union". Their task – in contrast to Germany – focuses exclusively on improving employee satisfaction through social activities, such as patient visits or New Year's festivities.

In addition, the staff of the personnel department look after the concerns of the employees.



› **Suggestion Scheme**

We see our employees as important innovators: Each one of them has knowledge and experience that extends far beyond his or her actual area of responsibility.

The goal of our ideas management is to drive the development of Heubach forward. This means promoting creative potential, improving cooperation and communication, and creating a climate that encourages innovation.

To recognize each individual's commitment appropriately, we have developed a bonus system that includes both monetary and non-cash bonuses. We determine the respective bonus amount on the basis of a defined valuation scheme. It is geared to the benefits created by the submitted improvement proposal.

› **Work-Life-Balance**

Whether family planning or dealing with relatives in need of care – compatibility of family and work is increasingly becoming a challenge in today's world.

To counter this trend, Heubach offers its employees flexible working hours. On the one hand, there is an internal flextime system, and on the other hand, employees – of course, depending on operational requirements – choose different part-time models, such as the 3- or 4-day week, or a reduction in daily working hours.

Those returning from parental leave can get back into work flexibly through their preferred working time model. Change requests at a later date can be discussed at any time in consultation with the supervisor, and are usually accommodated.

The majority of our employees (88%) are full-time. The offer of part-time employment is mainly taken up by women (72%). In 2017, 28% of men worked part-time. The return rate from parental leave is 100%.

In coming years, we will continue to promote a better reconciliation of work and personal life. As a next step, we are planning to assess various solutions regarding "children and work", as well as "care and work". The goal is to provide even better support to our employees in their personal lives in the future, and to promote compatibility of personal concerns with work.

› Personnel Development

An essential prerequisite for quality, know-how and innovative strength is the personal and professional development of our employees. In-company training and continuous advanced training are, therefore, important components of our personnel development.

› Training

Against the background of social responsibility and securing of the future of the company, Heubach wants to make it easier for young people to enter working life through an apprenticeship.

In order to be able to give a long-term and secure perspective right from the start, the number of apprenticeship places is based on actual personnel requirements. In addition, we ensure that trainees who perform well and successfully complete their training can usually be offered employment with the company.

There are four training occupations in natural science, technical and commercial areas: We train chemical laboratory technicians, industrial mechanics, warehouse specialists and industrial clerks.

In 2017, six young men and women were being training at Heubach's German locations. The apprenticeship rate (number of apprentices compared to the total number of employees at the German locations) was 1.9% below the level of the previous year (2.6%).

Heubach offers students the opportunity to gain interesting experience through internships and working student activities, and to write bachelor's or master's theses in cooperation with us.

› Further Training

To ensure the further qualification of our employees and a constant increase in the level of knowledge in the various specialist areas, we provide a broad range of training courses. In addition to subject-related training courses, this also includes language courses, IT and personal development training.

Specialized training on occupational safety as well as health protection represents another pillar of our further training measures.



¹⁾ As measured against the number of employees in Germany

In order to determine the training requirements, we use both organizational and individual requirements: legal requirements and risk assessments, changes in the area of responsibility, findings from qualification matrices or agreed targets and assessment interviews, requests from employees for personal development.

In 2017, 289 (2016: 292) employees took part in 627 (2016: 503) training sessions.

› Management Training and Talent Management

Identification and development of managers play a crucial role in entrepreneurial success, because it is also the result of successful leadership and motivation of employees. Heubach offers both individual, external further training courses as well as in-house training and team development measures – on the one hand, to prepare junior managers for leadership tasks and on the other hand, to systematically and continuously develop executives.

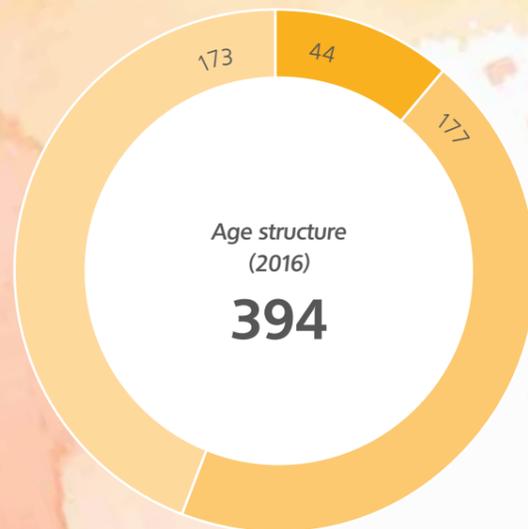
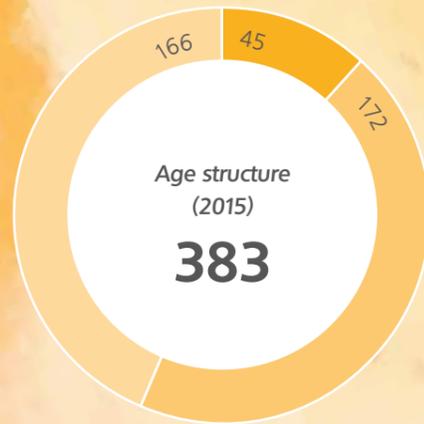
In 2017, we organized a training course for most managers – based on an employee survey and tailored to the company's needs. For example, this led to the joint development of a leadership mission statement, which unit and department heads jointly developed in a workshop over several days.

The goal of this mission statement is to define binding behavioral corridors for managers and employees, as well as to shape values and action standards for future leadership behavior. Furthermore, our mission statement is to actively shape and promote change processes within the company. Our new leadership mission statement consists of the following six guiding principles:

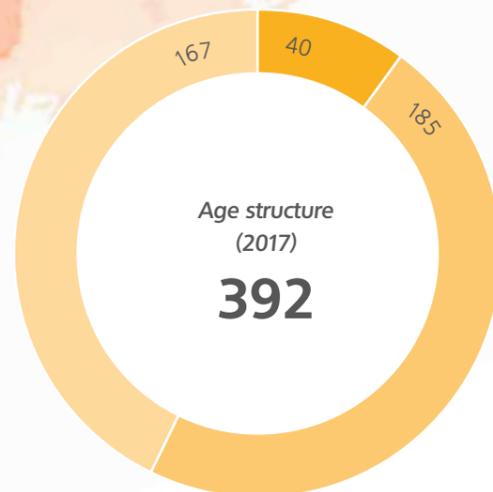
- › Clear structures will move us forward.
- › Our objective is profitable growth.
- › We communicate our objectives and expectations clearly.
- › We ensure clear feedback on work performance.
- › We contribute praise and criticism in a constructive and objective manner.
- › We support decisions taken and implement them together.

The scope of the leadership mission statement is currently limited to the parts of companies based in Germany. In the near future, we will examine the extent to which this can be applied to our foreign locations and, where appropriate, will implement it – taking into account the cultural circumstances in each case.

In addition to the further development of existing managers, the identification and development of junior managers plays a major role. This is why Heubach increasingly invests in their training and further education. For example, production employees can apply for a talent pool. We have the selected participants qualified for future leadership positions through special training. In the commercial, scientific and technical areas (e.g., laboratories), we focus on the individual promotion of young, talented junior employees via external and internal training measures. In this way, in addition to recruiting from outside the company, we also offer employees within our own ranks very good career opportunities.



- < = 30 years
- 30 - 50 years
- > = 50 years



Demographic Change

In the coming years, demographic change – as a new factor – will impact the economic success of companies and the employment situation of workers.

Thus, Heubach has analyzed, through demographics management, the age structure of the workforce and the demographic developments, and worked out initial measures.

The average age of employees of the Heubach GmbH Group was 43 years as of the 2017 balance sheet date. The workforce in China (32 years on average) is significantly younger than in Germany (46 years) and in the U.S. (50 years).

Among the measures developed there are programs to maintain the health of employees – e.g., ergonomic workplaces in production and administration, health courses and days (see also: Health Protection) – as well as education and training available to them (see also: Personnel Development).

What is more, the group of companies is constantly working to maintain and expand the attractiveness of individual companies for potential employees, because the competition for qualified junior managers is also steadily increasing. Already today, the adequate filling of positions, above all with engineers and chemical technicians, poses major challenges in view of falling numbers of applicants.

We know that the efforts made so far are not yet sufficient at all sites to meet the challenge of an increasing average age and a simultaneous decline in young talent. That is why we want to gradually develop a systematic demographics concept by 2022.

Diversity and Equal Opportunities

To succeed as an international company, Heubach relies on the skills and motivated commitment of each employee. We see diversity as an enrichment, and equal opportunities as an indispensable prerequisite.

In line with our Code of Conduct, we are committed to excluding any form of discrimination based on gender, racial or ethnic origin, religion, belief, disability, age, sexual identity or other personal characteristics during the recruitment, employment, promotion and development of our employees.

Anyone who becomes aware of any violations is required to report them to supervisors, specialist departments, the works council, the HR department, or our complaints office using the contact information available to all. Complaints are immediately checked in terms of content and, if necessary, measures are taken to avert or limit possible damage.

There were no reports of discrimination during the reporting period.

› **Women at Heubach**

The chemical industry traditionally has a high proportion of men. At Heubach, more than two-thirds of employees are male (69%). Most of our female employees work in the lab and in administration.

Looking at the distribution of managers, the proportion of female executives in senior management is 27% in Germany, and 59% in lower and middle management.

In the USA and China, management is predominantly male. Only 16% of managers (upper, middle and lower management) are female there.

Equality between women and men also applies to remuneration. Thus, the collective agreement "Chemie West" forms the basis of remuneration for the majority of German employees. Assignment to the respective pay groups is based on the actual activities of the employees. Differences in salaries are essentially based on length of service or degree of professional experience.

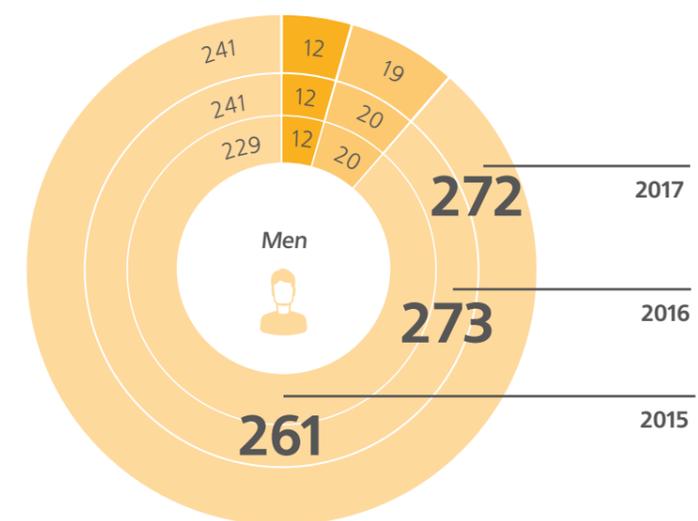
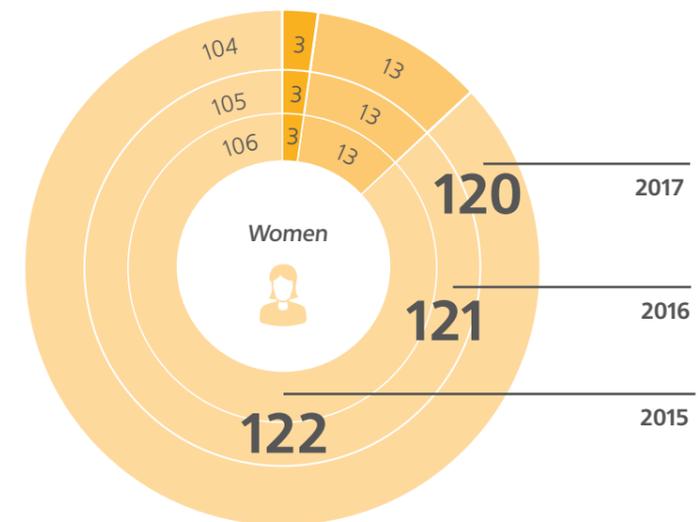
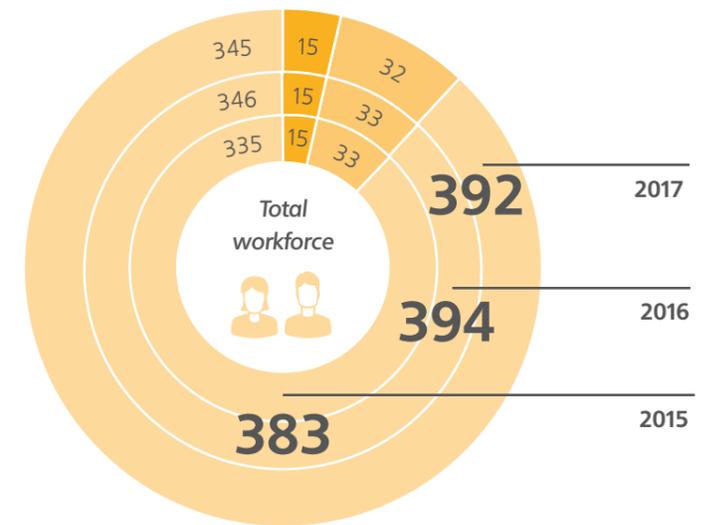
At our foreign locations and in occupational groups that are not covered by the provisions of the collective agreement, the top remuneration criteria are qualification, performance and responsibility. Women and men in the same positions are, thus, remunerated equally.

› **Severely Disabled People**

As a socially responsible organization, it is our responsibility to specifically protect and promote employees with disabilities.

As part of our integration agreement, we have therefore made numerous provisions for the integration of severely disabled people – especially for personnel planning, workplace design, arrangement of the working environment, work organization, working hours, and regulations on implementation in companies and departments.

In 2017, an average of ten people with severe disabilities worked for the Heubach-GmbH Group.



- Senior management
- Lower & middle management
- Further employees

› Safety and Health

The protection of employees is a basic requirement for entrepreneurial success. Only together with our employees do we reach the company goals. Occupational safety and health protection are therefore a high priority at Heubach.

› Occupational Safety

All employees are required to comply with the adopted occupational safety regulations contained in our safety agreement. Management must lead by example: It has the particular responsibility of sensitizing employees to proper conduct, as well as to provide them with instruction and supporting them in this regard.

Occupational accidents	2017	2016	2015
Total occupational accidents	32	29	25
Occupational accidents (with at least three days of work missed)	6	10	5
Frequency of accidents ¹⁾	9.4	15.9	8.1
Fatal occupational accidents	0	0	0

Training Measures/Prevention

Heubach attaches particular importance to increasing employees' sense of safety.

This is why we offer targeted training on operational safety, regular fire extinguisher training, and training for first responders. There are also instructions for action, for example, a safety agreement or the Operational Alarm and Hazard Prevention Plan (BAGAP, Betrieblicher Alarm- und Gefahrenabwehrplan).

In addition, safety measures sharpen the eye for accident hazards. For example, on a "tripping path" organized by the BG RCI (Berufsgenossenschaft Rohstoffe und chemische Industrie, German Trade Association for Raw Materials and the Chemical Industry), employees were able to gain a clear idea of the dangers that lurk on uneven surfaces, for example, during day-to-day operations, such as climbing stairs or walking.

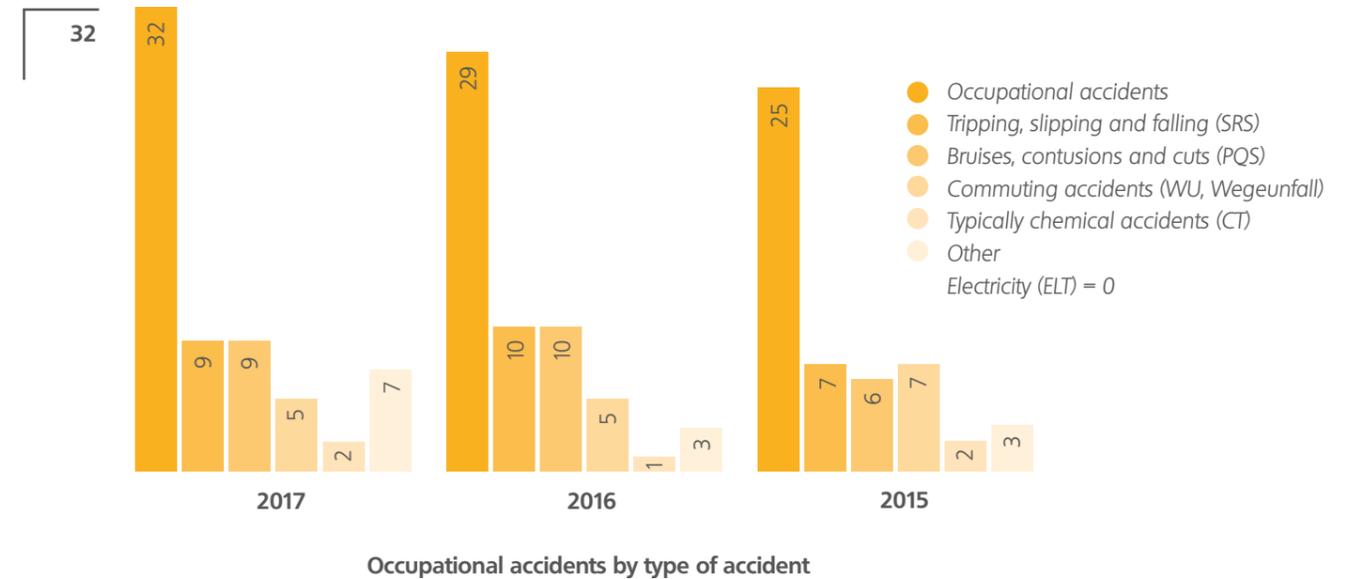
The annual safety instruction can be designed individually and flexibly by each employee: An electronic instruction system makes it possible to carry out the necessary training independently. Each employee is assigned the training topics that are important to him or her at the PCs provided or at his or her own PC. Anyone can do the recurrent training within a set period, but according to the person's individual availability.

Occupational Safety Committee

To ensure continuous and, above all, safe operations, the Occupational Safety Committee (ASA, Arbeitssicherheitsausschuss) advises on essential issues relating to occupational health and safety. For this purpose, the safety officers and the respective safety experts work closely with management as well as with representatives of the works council, occupational medicine and works engineering.

At the regular Occupational Safety Committee meetings, among other things, the accident situation is analyzed, solutions for occupational health and safety are worked out, and the effectiveness of measures implemented is examined. Furthermore, parts of the company are visited and inspected with regard to occupational safety, accident prevention and environmental safety.

¹⁾ Number of industrial accidents with at least three days of work missed per 1 million working hours



Heubach records and evaluates every incident, from work accident to minor injury, in order to derive measures for all incidents, as far as possible, on how to prevent them. The frequency of accidents in 2017 fell by 40.9% year-on-year to 9.4.

As a result, the Heubach GmbH Group is in the median range of the figures published by the BG RCI (Berufsgenossenschaft Rohstoffe und chemische Industrie, German Trade Association for Raw Materials and Chemicals) (2017: 9.3). However, we are not going to be satisfied with this result, and will work continuously to improve occupational safety and reduce the frequency of accidents.

The evaluation of accident events shows that "typically chemical" (CT, chemietypisch) accidents are the exception. Rather, tripping, slipping and falling accidents (SRS, Stolpern, Rutschen, Stürzen) as well as bruises, contusions and cuts (PQS, Prellungen, Quetschungen, Schnittwunden) are at the top of accident statistics – often due to carelessness.

It is our goal to reduce the accident frequency to a maximum of six by 2020. To achieve this, we continue to rely on the measures already introduced. These include, for example, sensitization of our workforce through safety actions and instructions, as well as the use of all other available prevention tools, such as risk and hazard assessments or safety inspections. In addition, we continue to fully record every accident and injury event.

What is more, we work with other chemical companies on a safety-at-work initiative as part of a regional network.

Health Protection

Our health management makes an active contribution to maintaining the health and performance of our employees. This includes the ergonomic adaptation of workplaces, the implementation of necessary measures, as suggested by the risk assessment for mental stress, and various other health-related services.

Risk area	Description
1	Minimal impact. A health risk from excessive physical strain is unlikely.
2	Elevated impact. Excessive physical strain is possible in less resilient persons. Putting in place special measure for such people makes sense.
3	Significantly elevated impact. Excessive physical strain is possible also in normally resilient persons. Special measures are indicated.
4	High impact. Excessive physical strain is likely. Countermeasures are required.

Ergonomic Workplaces

Over the past five years, we have improved working ergonomics for ascents, as well as lifting and loading processes. For example, we analyzed the lifting and loading operations in production and divided them into four risk areas. Through various measures, we achieved a shift from risk area 3 to risk area 2.

Furthermore, we minimized noise pollution and further expanded the air conditioning of our premises.

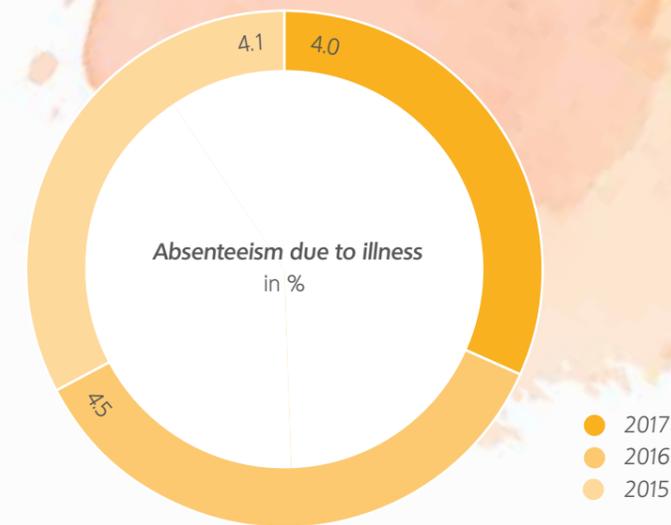
Health Courses

For several years now, Heubach has offered physiotherapeutic advice during working hours. In addition, there are weekly back-training courses and autogenic training under professional guidance. Both courses were each utilized at around 60% in 2017.

Employees who are exposed to special physical stress during their daily work can also take part in special back-training courses and strength training in the gym.

Heubach pays the course fees, and 50% of the training time is credited as working time.

Similarly, we use the offers of various health insurance companies to participate in health days. Just as self-evident for us is the travel-medical support of our sales representatives and the offer to our employees to participate in flu vaccinations.



Reintegration Management

After lengthy periods of incapacity for work, the respective supervisors conduct return interviews with affected employees. In doing so, they coordinate individual measures to restore health and fitness for work as quickly as possible. In individual cases, the company doctor sits in on these interviews.

For example, after lengthy illnesses, employees can return to work through gradual integration. An appropriate adaptation at the workplace is also possible, as is a permanent transfer within the company.

That is to say, Heubach assumes responsibility for its employees, and tries everything to make it possible for them to return to work in a way that is conducive to their health.

Despite a variety of measures, the rate of illness-related time missed has fallen only slightly compared to previous years. However, it is 4% below the target for the chemical industry in 2017 (≠ 5.0%).

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SUPPLY CHAIN MANAGEMENT

As a global company and reliable partner for our customers and business partners, we are aware of the responsibility along the entire supply chain. We understand the need to manage environmental, social and economic impacts along the supply chain, and are constantly working to secure the sourcing of high quality raw materials. In order to adequately take into account sustainable aspects in the procurement process, we require a comprehensive knowledge of the individual raw material extraction and processing. The size and complexity of our raw materials portfolio present us with major challenges. Ultimately, these can only be mastered with systematic supplier management in order to achieve sustainable procurement goals.

› Procurement

Purchasing at Heubach involves the procurement of raw materials (including auxiliary materials), merchandise, packaging, consumables, spare parts, technical devices and equipment, as well as general goods and services.

In the reporting year 2017, Heubach purchased from 986 vendors (2016: 955) goods worth €98.3 million (2016: €91.2 million). Most of our vendors are based in one of the OECD member states. In addition, we work with selected vendors, for example, from India, China or Peru.

The share of local vendors averages 68% (Germany: 76%, USA: 48%, China: 81%).¹⁾

› Vendor Selection and Evaluation

The qualification and evaluation of vendors and the analysis of risk factors are the central instruments for systematic and careful supply chain management. Only in this way can we guarantee the supply of raw materials and goods to our company, and secure competitive advantages.

The vendor selection starts with the qualification. In addition to their offer, potential vendors must answer a general questionnaire on ISO certification, REACH, GHS, and specific product safety issues. The information will be included in the subsequent selection process.

We also expect our vendors to conduct their business in an ethical, law-abiding and socially responsible manner, regardless of legal and cultural differences.

With our Supplier Code of Conduct, we have, thus, defined corresponding basic requirements that must be met by all our vendors as well as their employees, representatives and subcontractors in conducting business with Heubach GmbH. They are bound by it.

- › Vendors must conduct their businesses in accordance with the highest standards of ethical behavior and in accordance with applicable laws and regulations
- › Comply with environmental protection laws and regulations
- › Implement solid labor practices
- › Treat their employees fairly and provide them with a safe and healthy working environment, as well as
- › Comply with all economic sanctions and trade embargoes.

In the regular review of vendors, we assess their performance in terms of quality, delivery reliability and service, as well as the existing management systems.

Our 50 main vendors met the aforementioned criteria at 90% to 100% according to the vendor evaluation.

In addition, we carry out on-site audits of our main vendors. We inspect purchasing processes, production, quality assurance, product responsibility, customer communications and service, environmental and climate protection.

Apart from the aforementioned measures for the qualification and evaluation of vendor, we conduct a systematic risk analysis once a year, taking into account selected countries, vendors and substances on the basis of our existing supply relationships.

The most recent analysis identified India, China, Peru and Slovakia as the countries most exposed to the following risks:

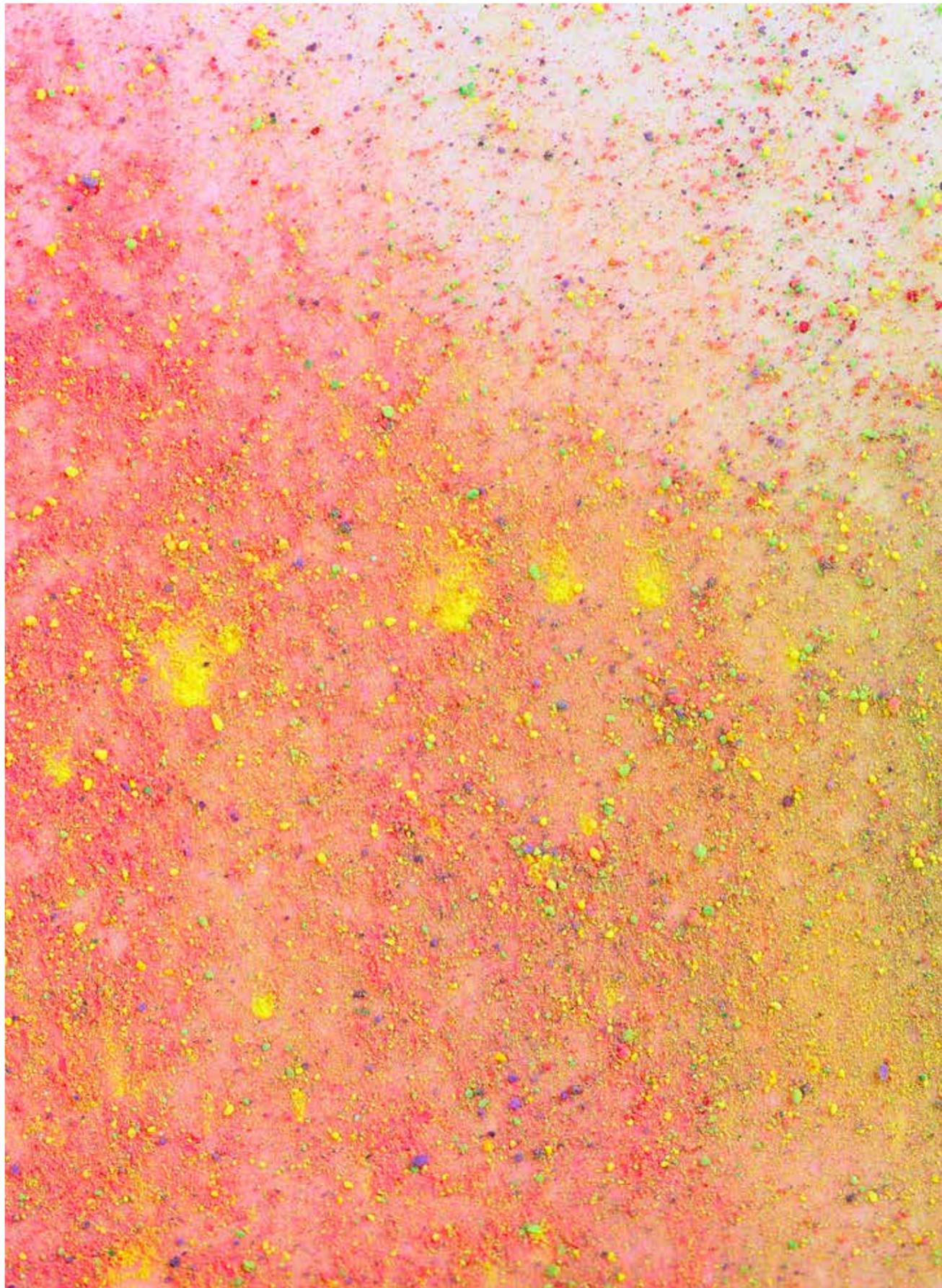
- › Availability problems due to production shutdowns in China, resulting in lack of raw materials
- › Poor condition of production facilities

- › Inadequate infrastructure
- › Long transport routes (harbor strikes, shortage of containers)
- › Climatic conditions (monsoon, droughts)
- › Unreliability due to cultural differences
- › Violations of human rights and labor standards

In the future, we will revise the process of vendor evaluation with regard to the targeted evaluation of sustainability aspects and make it more efficient. To this end, we will examine to what extent we can use and integrate a rating platform for sustainability services. In addition, we will look into ways of dealing with a higher number of vendor audits efficiently.

Moreover, we will expand the evaluation sheet for vendor audits to include labor and social standards, human rights as well as corruption and antitrust law.

¹⁾Local vendors in Germany are from all over the Federal Republic; USA radius: 100 miles; China radius: 300 km.



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SOCIAL COMMITMENT

Our role as an employer and client results in opportunities and obligations to actively shape our social environment. Heubach is in close contact with regional stakeholders.

Heubach is involved in the initiatives "pro Goslar" and "ChemieNetzwerk Harz" (Chemistry Network). The goal of these associations is to shape the framework conditions of the economic and living area of the West Harz and Goslar regions, and to promote development there: Synergy potentials are to be exploited and cooperative partnerships struck in terms of recruiting and securing skilled workers, occupational safety or energy.

Furthermore, Heubach participates in a regional project to identify and evaluate – as part of an overall perspective – the water pollution from actual and suspected contaminated sites and, on such basis, to identify alternative courses of action.

Heubach also promotes scientific and technical education in the region. Every year pupils from the 5th grade and up are given an opportunity to get an insight into the company as well as the profession of a chemical laboratory assistant during the so-called "Girls and Boys Day". In addition, we offer young people places for student internships.

In addition, Heubach supports the volunteer fire department in Langelsheim: We make our company premises available for exercises and release our employees for deployments during working hours.

In terms of fundraisers, the focus is on the regional environment of the respective location.

In Germany, for example, we mainly support social institutions and projects in the district of Goslar, as well as cultural events and institutions. Above all, the promotion of Steinway concerts¹⁾ is a major concern for Heubach GmbH.

The funds raised at our site in the United States go primarily to local emergency services such as police, fire and ambulance services.

¹⁾The Steinway concerts are a festival in honor of Heinrich Engelhard Steinweg – piano maker and founder of Steinway & Sons – who was born in Wolfshagen, near Goslar, in February 1797. For more information: <https://steinway-wolfshagen.com/>

REFERENCE TABLE FOR THE GERMAN SUSTAINABILITY CODE

Area	German Sustainability Code criteria	UN Global Compact	Chapter in the report	Page	GRI SRS	Comments and online additions
General information						
	Business purpose, services and products, business results, financial situation of the company, impact of business activities		About Heubach	8		https://www.heubachcolor.com/products/ https://www.heubachcolor.com/about-heubach/contact/
Strategy						
	1. Strategic Analysis & Measures		Foreword, Sustainability-Oriented Corporate Policy, Management Systems, Memberships in Initiatives and Associations	6, 18, 19, 20		
	2. Materiality		Foreword, Sustainability-Oriented Corporate Policy, Management Systems, Memberships in Initiatives and Associations	6, 18, 19, 20		
	3. Objectives		Sustainability Program	22		
	4. Depth of the Value Chain		About Heubach, Supply Chain Management	8, 58		
Process Management						
	5. Responsibility		Organization of Sustainability Management	18	102-16	
	6. Regulations and Processes	1-10	Management Systems, Compliance	19, 20	102-16	
	7. Oversight		Key Parameters	4	102-16	
	8. Incentive Systems	6	Remuneration Policy and Employee Benefits	44	102-35a 102-38	This indicator is currently not being surveyed
	9. Participation of Stakeholder Groups		Stakeholders	14	102-44	
	10. Innovation and Product Management	9	Research and Development, Job Satisfaction and Employee Retention › Suggestion Scheme	27 45	G4-FS11	This indicator is currently not being surveyed
Environment						
	11. Use of Natural Resources	7-9	Environmental Protection	28	301-1 302-1 302-4, 303-1, 306-2	We do not publish exact weight or volume information on our materials used, since we consider this information proprietary.
	12. Resource Management	7-9	Environmental Protection, Sustainability Program	28, 22	301-1 302-1 302-4, 303-1, 306-2	We do not publish exact weight or volume information on our materials used, since we consider this information proprietary.
	13. Climate-Relevant Resources	7-9	Emissions, Sustainability Program	32, 22	305-1, 305-2 305-3 305-5	This indicator is currently not being surveyed

Area	German Sustainability Code criteria	UN Global Compact	Chapter in the report	Page	GRI SRS	Comments and online additions
Society						
	14. Rights of Employees	3	Job Satisfaction and Employee Retention › Co-Determination & Feedback › Suggestion Scheme Safety and Health Protection Compliance › Code of Conduct Supply Chain Management › Vendor Selection and Evaluation	45 54 22 58	403-2, 403-4	
	15. Equal Opportunities	6	Remuneration Policy and Employee Benefits Diversity and Equal Opportunities Job Satisfaction and Employee Retention › Work-Life-Balance Safety and Health	44 51 45 54	405-1, 406-1	
	16. Qualification		Demographic Change Personnel Development Safety and Health	50 48 54	404-1	This indicator is currently not being surveyed.
	17. Human Rights	1, 2, 4, 5	Supply Chain Management Compliance › Code of Conduct	58 20	412-3 412-1 414-1 414-2	This indicator is currently not being surveyed. So far, no explicit review has taken place, as the risk of human rights violations at the sites is considered to be very low. This indicator is currently not being surveyed, because social criteria have not yet been considered in our vendor assessment. For the future, we plan to expand the evaluation sheet for vendor audits and, by way of a standard, include the issues of labor and social standards, human rights, corruption and antitrust law. There are no known negative human rights implications in the supply chain, so no action has been taken.
	18. Community		Key Performance Indicators Social Commitment	5 60	201-1	
	19. Political Influence		Memberships in Initiatives and Associations Social Commitment	20 60	415-1	Heubach makes no direct or indirect financial or material contributions to political parties or persons.
	20. Compliance with Statutory and Regulatory Requirements	1-10	Compliance	20	205-1 205-3 419-1	There is currently no systematic review of business locations for corruption risks. There are no known confirmed corruption cases. No fines or penalties have been paid for non-compliance with laws and regulations.

GLOSSARY AND ABBREVIATIONS

Additives	Auxiliary or additional substances added to products in small quantities (usually less than 1% of the total formulation) to achieve or improve positive effects, for example, with respect to the production, storage, processing or the product properties during and after the use phase.
Chemie³	Initiative of the VCI (Verband der chemischen Industrie, Chemical Industry Association), the IG BCE (Industriegewerkschaft Bergbau, Chemie und Energie, Industrial Union for Mining, Chemistry, Energy) and the BAVC (Bundesarbeitgeberverband Chemie, Federal Employers' Federation for the Chemical Industry) to drive the sustainable development of the chemical industry at a national level.
Corrosion inhibitors	Pigments that are used to formulate protective coatings and serve to substantially reduce the corrosion rate of metal.
Demographic contribution	On the basis of the collective agreement on "Demografie und Lebensarbeitszeit" (Working Life and Demography), Heubach contributes an annual demographic amount to the company's demographic fund for each eligible employee. There are various options for using these funds, such as long-term account or collective old-age provision.
Equal pay	Under the equal pay approach, temporary workers during their time working at Heubach receive a pay equal to that of comparable employees in direct employment.
ETAD Ecological and Toxicological Association of Dyes and Organic Pigments Manufacturers	An international organization that encourages paint manufacturers to continue minimizing potential environmental and health impacts of organic pigments.
Globally Harmonized System (GHS) / CLP Regulation	The CLP Regulation ((EC) No. 1272/2008) transfers the United Nations Globally Harmonized System (GHS) to the European regulations. The aim of the GHS is to maximize the standardization of chemical labeling worldwide.
GRI Global Reporting Initiative	The GRI was founded in 1997 by the Coalition of Environmentally Responsible Economies (CERES) in partnership with the Tellus Institute. The guidelines, published for the first time in 2000 and continuously revised, represent the internationally best-known and most comprehensive standard for sustainability reporting.
HQL High-pressure mercury vapor lamp	Light sources which, under an EU-wide legal ban, may no longer be marketed or sold or re-installed due to their high electricity consumption and amount of dangerous mercury.

IBC Intermediate Bulk Container	Packaging used for the transport and storage of liquid and free-flowing materials.
LED Light-emitting diode	Electric bulbs that use light-emitting diodes to generate light. Unlike HQL, they consume only a fraction of the energy and last much longer.
M-system	Integrated management system based on DIN EN ISO 9001 for quality, DIN EN ISO 14001 for the environment, DIN EN ISO 50001 for energy, and the implementation of a safety concept according to Section 8 StörfallV (Hazardous Incident Ordinance) in conjunction with Annex III in the currently valid version. In addition, aspects of occupational safety are comprehensively integrated in the M-system.
REACH	Chemicals Regulation for the Registration, Evaluation, Authorization and Restriction of Chemicals. It is based on the principle that manufacturers, importers and users take responsibility for their chemicals by ensuring their safe use.
Scope 1 emissions	Emissions resulting from own business, that is, from the consumption of primary energy sources, for example, for steam generation, the operation of production plants, heaters or lift trucks.
Scope 2 emissions	Emissions from the production of energy sourced from outside the company (e.g., electricity).
SRS Sustainability Reporting Standards	New guidelines on sustainability reporting published under the title "GRI Standards" in October 2016 by the Global Reporting Initiative.
Stakeholders	Individuals or groups that can influence the achievement of corporate goals or are affected by company decisions.
State-of-the-art plant	A modern and advanced plant.
TOC Total Organic Carbon	One of the most important aggregate parameters for the assessment of the organic load of a water, soil or air sample.
Triple Bottom Line	Based on the idea that the dimensions of ecological, economic and social issues should be given equal consideration for sustainable development.



ASA	Arbeitssicherheitsausschuss (Occupational Safety Committee)
BAGAP	Betrieblicher Alarm- und Gefahrenabwehrplan (Operational Alarm and Hazard Prevention Plan)
BAVC	Bundesarbeitgeberverband Chemie (Federal Employers' Federation for the Chemical Industry in Germany)
BG RCI	Berufsgenossenschaft Rohstoffe und chemische Industrie (German Trade Association for Raw Materials and Chemicals)
DNK	Deutscher Nachhaltigkeitskodex (German Sustainability Code)
ECHA	European Chemicals Agency
EU	European Union
GHG	Greenhouse gas
IG BCE	Industriegewerkschaft Bergbau, Chemie, Energie (Industrial Union for Mining, Chemistry, Energy)
HSE	Health, Safety, Environment
IÖW	Institut für ökologische Wirtschaftsforschung (Institute for Ecological Economy Research)
KPI	Key performance indicator
MSDS	Material safety datasheet
OECD	Organization for Economic Co-operation and Development
PAHs	Polycyclic aromatic hydrocarbons
PIS	Product information sheet
PO	Polyolefin
POPs	Persistent organic pollutants
PVC	Polyvinyl chloride
R&D	Research and Development
RAS	Regulatory affair sheet
RNE	Rat für Nachhaltige Entwicklung (Council for Sustainable Development)
SME	Small and medium-sized enterprises
TDS	Technical data sheet
VCI	Verband der Chemischen Industrie e. V. (German Chemical Industry Association)
VOCs	Volatile Organic Compounds

Acknowledgment

A sustainability report is always a joint project. In particular, the collection of key figures, facts and processes can only be realized with the support of the various departments. At this point, we would like to express our sincere gratitude to all employees who have worked on the preparation of this first sustainability report with great dedication.

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