



Sustainability Report 2015

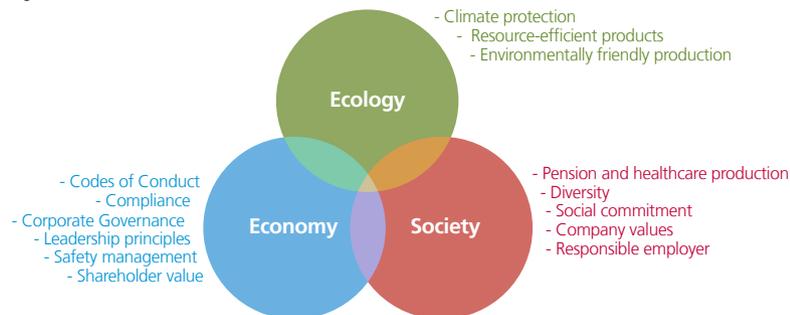
Excerpt from
Annual Report

Sustainability Report

Responsible corporate behavior is integral to the long-term success of a company. As an international technology group and one of the world's largest suppliers of process technology for the food industry, GEA is acutely aware of its distinct economic, social and environmental responsibilities. As a consequence, one of GEA's principal corporate objectives is to offer solutions that ensure environmental protection while delivering substantial benefits to society and a high level of economic efficiency.

To GEA, sustainability means securing a viable future on the basis of a sound social and economic environment as well as unspoilt natural surroundings. Sustainability management also serves the purpose of mitigating economic, social and reputational risks. Megatrends such as continued population growth, rising urbanization and progressing climate change bring the world face to face with mounting challenges: In the future, more and more people will require an adequate supply of food, energy or pharmaceutical products – always on the premise that resources are being conserved. With a footprint in the world's fast-growing regions that comprises distribution and production capabilities allowing GEA to directly supply local markets, the Company offers key solutions on the basis of its product portfolio that ranges from technical components, machinery and systems to a comprehensive set of services. At the same time, the Company regards its commitment to corporate social responsibility (CSR) as an economic, social and environmental investment, and, thus, an investment in its own future commensurate with our corporate claim “engineering for a better world”.

Sustainability at GEA



In the long run, GEA seeks to safeguard the interests of its shareholders, customers and employees while assuming its responsibility towards society by strengthening its international competitiveness and boosting its economic success. Primarily, the Group pursues this objective by proving to be a reliable partner offering appealing and sustainable products to its customers, by acting as an exemplary employer for around 17,500 employees worldwide, by paying taxes and by promoting non-profit projects.

Even though energy consumption and emission levels during production are relatively low in the mechanical engineering sector, GEA regularly checks all areas for potential improvements in efficiency.

Apart from having aligned its value creation processes with ecological principles, the Company also helps its customers protect the environment by providing efficient products and process solutions. As a rule, the technologies and processes they employ are highly energy-intensive, which is why energy savings and reductions in emissions or waste become increasingly important in connection with the capital investment decisions taken by these customers. For years, GEA's solutions have set standards for a successful combination of economic and ecological factors (see page 117 ff.).

Health, Safety & Environment

By issuing the following statement, the Executive Board of GEA Group Aktiengesellschaft has committed itself to a clear corporate policy in terms of health, safety & environment:

We will perform all our business activities in keeping with GEA's values and ethical principles enshrined in the Global Business Conduct Policy and the Codes of Conduct that govern our underlying basic principles of social responsibility.

For the purpose of living up to these aspirations in the fields of health, safety and environment (HSE), we hereby commit ourselves to:

- improving the general well-being of our employees,
- creating an accident- and incident-free working environment and preventing occupational disease,
- complying with all statutory requirements, applicable rules, regulations and national standards,
- identifying, analyzing and efficiently managing HSE risks inherent in our business activities,
- preventing environmental pollution and reducing energy consumption, waste and emissions,
- defining measures designed to prevent incidents and adequately handle emergencies, problems and their aftermath,
- clearly allocating functions and responsibilities and providing training to ensure the required skills,
- continuously monitoring and improving our systems, services and performance by evaluating our objectives, and to implementing appropriate sustainable corrective and preventive action.

These corporate standards are communicated to all individuals acting for or on behalf of GEA, and everybody is to be actively involved in enforcing this policy. The latter is disseminated at all our sites and available to the general public on the corporate website (<http://www.gea.com/global/en/investor-relations/corporate-governance/csr/index.jsp>).

For implementing this policy, numerous organizational units have installed management systems certified in accordance with ISO 14001, OHSAS 18001 and/or ISO 50001.

Economically sustainable

The production of processed foods and beverages represents one of the world's most stable growth markets that is expected to enjoy continuous growth over the coming decades. As a technology leader, GEA offers these markets machinery, components, systems and process plants that guarantee safe process control as well as highest efficiency and hygiene standards.

Detailed information on GEA's guiding principles, organizational structure and business orientation can be found in the chapter entitled "Organization and Structure" (see page 22 ff.).

Corporate Governance

GEA places a high priority on transparent and responsible corporate governance and management aimed at long-term value enhancement. Thus, GEA aligns its activities with the recognized principles of corporate governance and nearly fully complies with the recommendations of the German Corporate Governance Code.

A detailed presentation of corporate governance matters can be found in the Corporate Governance Report included in this Annual Report (see page 64 ff.).

Compliance

Compliance is GEA's top priority. This is why all GEA managers and employees must comply with the law and the relevant guidelines. Wrongful or even criminal actions as well as violations of internal corporate guidelines will not be tolerated. GEA has drawn up detailed guidelines – in particular an Anti-Corruption and a Competition Guideline – that come with binding guidelines for action. Periodic training and monitoring help avoid or detect non-compliant conduct at an early stage. In this context, employees may be instrumental in drawing attention to potential compliance violations.

By means of the so-called Integrity System employees – including external third parties, for instance business partners – are given the possibility of directly reporting severe compliance issues or violations of the "Codes of Conduct – principles of social responsibility" via an internet-based system. In this respect, GEA attaches importance to an open corporate culture.

The Integrity System offers an additional communication channel if the standard reporting lines fail to apply. For instance, this may be the case if immediate action is required in the event of gross misconduct. This system also allows anonymous reporting as far as this is permitted in the country in question. Nonetheless, this system shall not constitute a general platform for complaints. Therefore, it only comprises reporting categories that embrace a substantial risk to the Company, its employees and all other stakeholders.

Further compliance-related information can be found in the Corporate Governance Report included in this Annual Report (see page 64 ff.).

Codes of Conduct – principles of social responsibility

Together with its European Works Council, GEA Group Aktiengesellschaft adopted Codes of Conduct (principles of social responsibility) back in October 2007. They outline a binding set of values, principles and modes of behavior that govern corporate conduct at GEA Group level. With these ethical and legal standards, GEA has made a clear commitment to free and fair global trade as a vital precondition for sustained global economic growth. Wherever possible, the Group supports measures designed to combat underdevelopment in Third World countries while fully accepting its corporate social responsibility. Likewise, GEA welcomes the principles of the UN Global Compact initiative and endorses all internal and external corporate social responsibility (CSR) initiatives taking place within the framework of the advancing process of internationalization. The Group has pledged to respect

human rights and the core labor standards developed by the International Labour Organization (ILO). In addition, GEA fully complies with the OECD guidelines for multinational enterprises.

Incorporation into the organizational structure

Aside from the compliance organization described in the separate Corporate Governance Report, the Group management level includes areas of responsibility, which are dedicated to diversity, company values and crisis management. In addition, the Health, Safety & Environment (HSE) organization is also embedded in the Company.

Socially sustainable

GEA fully accepts its obligation to make a contribution to the sustainable development of society – both at a corporate level by acting as a responsible employer and in a wider social context.

Responsible employer

In 2015, GEA was once again awarded the “Fair Company“ seal for its responsible and transparent interaction with students and job starters. When distinguishing GEA’s Graduate (Trainee) Program, ABSOLVENTA called it career enhancing and fair. In the year 2015, the Universum Professional Ranking listed GEA amongst the 100 most popular employers in Germany.



Awards received by GEA in its capacity as a responsible employer

For more detailed information on talent management and human resources development at GEA, please refer to the chapter on Employees (see page 54 f.).

Leadership@GEA

The 12 leadership qualities defined by GEA have been integrated in all processes governing executive development programs and, thus, constitute the key pillars for basic and advanced training as well as succession planning. Specifically, these qualities include a down-to-earth mentality/respect for others, integrity/authenticity, vitality, drive, empathy, intuition, good communication skills, the ability to see the big picture, an appreciation of the efforts of others, a commitment to sustainably developing our management culture, the ability to reason as well as resilience. Each of these qualities was defined in detail and is easy to grasp, with the definitions conveying the requirements stipulated by the Company in this particular field.

Diversity

GEA operates in a challenging international market environment with a large number of players who influence the Company in many different ways – ranging from customers, competitors and employees down to the government and society in general. Companies may meet this multitude of challenges arising in this extremely diverse cultural environment by being aware of diversity and by actively creating it within their own ranks.

In this context, diversity refers to the composition of the workforce in terms of internationality, gender, age and qualifications. For the purpose of promoting diversity on as many levels as possible and for creating an attractive working environment, to name but one example, GEA also seeks to increasingly consider aspects of modern work flexibilization schemes while enhancing mobility within the Company. GEA is aware of the fact that diversity represents a critical success factor, since diversity means strength.

Under its diversity strategy, GEA implements a mix of measures designed to promote diversity. For instance, when recruiting staff, GEA always makes a point of taking into consideration diversity criteria. One of GEA's objectives is to attract more women while including a higher number of talented female employees in internal employee development initiatives. Furthermore, diversity management provides the platform for reliably identifying high potentials and talents. The entire pool of young talents is to be developed in line with the above GEA diversity criteria.

The success and progress of GEA's diversity management is measured on the basis of diversity performance indicators.

The current proportion of women in the total workforce amounts to ca. 18 percent. On the first three uppermost management levels below Executive Board level, women account for 8 percent of GEA's managers worldwide. In terms of the international composition of its workforce, GEA employs more than 70 different nationalities.

A further measure taken to institutionalize diversity management within the Company embraced the introduction of an official diversity policy in tandem with a guideline for executives: This policy describes the overriding goals and current progress of diversity management at GEA. The guideline provides managers with an instrument for implementing diversity management at all Group levels.

On account of its importance to corporate culture, the topic of diversity is closely entwined with GEA's corporate values. In this respect, diversity is an engine for change towards more diversity of thought and action.



Corporate values

GEA Vision and GEA Values are the cornerstones of GEA's management philosophy. They are the crucial elements of a common GEA identity. By establishing the corporate values of "Excellence", "Responsibility", "Integrity", "Passion" and "GEA-versity", GEA has set up a reference and orientation system that creates a common understanding and guideline governing the personal behavior of both managers and employees: We stand for excellence

in everything we do; we work with passion; we walk the talk; we feel responsible for our actions; we overcome boundaries.

Thus, GEA Values guide our interaction with our employees, our customers and external partners. At the end of the day, our GEA Values are to increase the level of efficiency and professionalism in all GEA operations, while supporting a constructive dialogue inside and outside of the Company.

Work and family life

GEA has implemented a host of measures to help employees reconcile the demands of work and family life, including competent contact persons for expectant mothers and fathers as well as a sponsorship program for mothers and fathers on parental leave, company-organized childcare, flexible working hours and opportunities to take up mobile telework.

In addition, GEA cooperates with an international, external service provider to support employees in their search for adequate childcare facilities or options for dependents in need of care.

At some sites, GEA offers its employees the possibility of placing their children in nearby day nurseries or large daycare facilities. There are places for children of all ages, with GEA covering the expenses incurred. Places in full day care allow children to play with their peers while enjoying a versatile leisure and development program.

Occupational safety

In order to work productively and fully harness their potential, employees need a pleasant and safe working environment. GEA's aspiration to offer all employees safe conditions in the workplace is enshrined in the Codes of Conduct obliging our managers to guarantee the best possible health and safety conditions in every GEA workplace worldwide.

Unforeseen incidents such as natural disasters or terrorist attacks may also have severe consequences for GEA and the safety, health and life of its staff.

For managing such substantial corporate risks as effectively as possible, GEA has set up a comprehensive safety management organization: Our "Major Incident Management Manual" outlines clearly defined criteria for detecting, assessing and reporting critical incidents. The manual also includes measures and explicit action plans designed to ensure a swift and adequate emergency response and provide the names of competent contacts within GEA.

Our “Serious Events Reporting System“ makes sure that fatal or severe accidents, fires, explosions or environmental incidents are reported to the competent member of staff within the organization as quickly as possible. This allows GEA to swiftly and efficiently respond to such incidents, mitigate their impact and/or immediately initiate a probe into what happened.

Worldwide HSE data, e.g. monthly accident statistics, are recorded with the help of special software. In addition, the underlying causes of accidents and incidents are ascertained. The intelligence gathered on the basis of these investigations is communicated to the organization for preventive purposes, with the implementation of the respective measures being monitored.

Travel safety

GEA’s Safety Management provides a comprehensive service available to all employees traveling worldwide on behalf of the Group. It offers them detailed travel and safety information for every region around the globe. Should one of our employees nonetheless get caught up in an emergency, he or she can contact the 24/7 GEA Security and Support Hotline. If necessary, this service can also organize personal protection for any employee and at any location worldwide at short notice. The Medical Support Service Hotline provides assistance in health-related issues and ensures appropriate medical care or repatriation in the event of illness, if need be. Using a security app and a mobile device, GEA employees can also obtain medical and safety information relating to a specific site at any time or directly contact the 24-hour hotline at the GEA Security Center via an emergency button.

GEA also maintains a continuously updated database that embraces the locations of all employees on business trips worldwide. In the event of a regional crisis, this so-called Travel Tracker enables us to respond rapidly and provide our employees with active assistance.

GEA Aid Commission

Employees, who suddenly get into difficulties, for instance due to a severe accident or a sudden illness, require rapid and unbureaucratic financial assistance. In a group-wide agreement concluded with the Group Works Council, GEA has pledged to unbureaucratically provide financial assistance under such circumstances. Employees affected in this way, but also the families of employees who suddenly pass away, may turn to the GEA Aid Commission for support.

Company pension scheme

GEA wants all its employees to enjoy their well-deserved retirement. This also includes the financial security to enjoy an acceptable standard of living. In many countries, however, the impact of demographic change, increased life expectancy and high unemployment rates places a growing financial burden on state pension systems. As a result, private and, in particular, company pension schemes will play an increasingly significant role in closing such future pensions gaps. Thus, the Company provides an efficient pension scheme for all its employees.

In 2015, GEA’s executive pension scheme was transformed into a defined contribution system.

GEA also offers an attractive performance-related pension scheme to employees below senior management level. In Germany, for instance, this is based on an employee-financed deferred

compensation plan. Employees are given the possibility of waiving part of their monthly salary and contributing this amount to the pension plan (deferred compensation). If an employee chooses this option, GEA tops up this basic employee contribution with an additional employer contribution; the latter is financed by the Company and performance-related.

Healthcare

Healthy employees are more productive, more reliable and more motivated. Thus, a health-conscious workforce also promotes the long-term and sustainable development of a company. For this reason, GEA supports its employees with a variety of active healthcare offerings.

The program designed to promote employee health comprises a broad range of measures to prevent illness. Inter alia, they include cancer screening, stop smoking seminars, workplace ergonomics training as well as fitness meals in staff canteens. Moreover, the Company addresses safety issues: safe winter driving or walking, how to get to work by bike, as well as information on noise, protection against cuts or on how to keep the workplace clean and tidy, to name but a few examples. Apart from these campaigns, 2015 also saw some new topics like a healthy diet.

Healthcare coaching

In special development assessment centers supported by external coaches, employees obtain comprehensive information on the health benefits of physical exercise, fitness and a proper diet. Where possible, this theoretical information is supplemented by practical exercises. All preventive measures are tailored to the actual living and working circumstances of the employees concerned. In addition, the Group also offers individual coaching with fitness tests or health analyses.

Socially committed

As a global enterprise, GEA is also involved in a host of local projects undertaken outside its own companies, where the local population directly benefits from the support provided by the Company. In many different ways, GEA and its employees make their contribution to help others.

The fascinating world of engineering

GEA places particular emphasis on promoting projects that involve children and adolescents, allowing them to experience the fascinating world of engineering at a very early stage of their lives.



'Exploration Days' at GEA are a great experience for children

At GEA's location in Oelde, for instance, "Stöbertage" (Exploration Days) are open to very young children at pre-school level. Groups of kindergarten children paying a visit to GEA learn about tools and machinery while discovering the world of engineering. In addition to that, GEA supports a variety of institutions such as schools and kindergartens.

School-Business Cooperation Network

Cooperation between schools and businesses that aims at easing the transition from school to work and/or assisting students in choosing a specific career or university degree helps ensure that companies – especially technically-oriented undertakings – will be able to recruit workers from a reasonably large pool of new labor. This is why GEA is involved in the School-Business Cooperation Network that covers activities such as information events at participating schools, job application training for students and projects jointly undertaken by students and trainees.

Girls' Day

GEA participates in the German Girls' Day, an initiative designed to encourage girls from the fifth grade onwards to think about their future career options. It provides them with an opportunity to find out more about a wide variety of professions in science and technology. This event combines the features of an open day and a detailed information event by offering participants a hands-on experience of technology designed to encourage them to take an interest in engineering from an early age onwards.

“Technik ist Zukunft” initiative

In the future, GEA will continue to need creative young people with a passion for science and technology. For convincing students of the multiple opportunities and appeal of a career in engineering and of the career opportunities offered by GEA, the Company has joined forces with other businesses, for instance within the framework of the “Technik ist Zukunft” (“Technology is the Future”) initiative. While GEA grants financial support to the initiative, many of its employees establish direct links with tomorrow's qualified skilled labor: At the various “Technik ist Zukunft” action days held at schools, they give students graphic accounts of their work, while informing them about GEA products and services as well as career opportunities offered by the Company. GEA also regularly invites groups of students to participate in tours of GEA sites, giving them a comprehensive insight into production processes and the daily working routine.

Industry contact forum

The eighth edition of the ‘Industriekontaktforum’ (Industry Contact Forum) held in 2015 at GEA's site in Büchen, Germany, also serves the purpose of promoting qualified and talented young people. Around 50 male and female students from the Hamburg HAW (university of applied sciences), the Flensburg University of Applied Sciences, as well as at the Universities of Hannover and Fulda were given an early insight into the work of a project engineer while still pursuing their studies at the above universities. The event focused on an exchange with GEA experts, who covered specialist and technical issues relating to the food, juice and dairy processing industry while also providing information on entry-level and general career opportunities at GEA.

Social sponsoring

In many different ways, GEA gets actively involved in social projects and organizations.

For the previous 12 years, the Company has supported the Future Farmers of America (FFA) Organization within the framework of the World Dairy Expo in Madison (USA), to name but one example. FFA is an interdisciplinary student organization for students interested in agriculture and management. The funds donated by GEA are used for various activities and seminars aimed at promoting young talents in the field of agriculture.

The Wallace & Gromit's Children's Charity is a British charity raising funds to improve the lives of sick children in hospitals and hospices. In Great Britain, GEA has sponsored this organization for a number of years.

In 2015, GEA again organized an annually recurring event in North America. Joining forces with employees and customers, it made a contribution to support Susan G. Komen, a non-profit organization engaged in combating breast cancer.

Ecologically sustainable

Sustainability in the ecological sense is based on the principle of protecting nature and conserving its limited resources. In this context, GEA's innovative products make an important contribution, since in the world of process technology, the days when ecology and economy pursued conflicting interests are long gone. By using GEA machinery, components, systems and plants, our customers advance the cause of climate protection. But also within the Company, environmental protection is accorded its rightful place.

Environmental protection at GEA

GEA's key environmental objectives focus on the prevention of adverse environmental impacts, for instance by reducing the levels of energy consumption, waste and emissions. Identifying the main environmental parameters at a local level, GEA analyzes their significance and influence on products and services for the purpose of deriving measures for improvement. The environmental parameters subject to monitoring include:

- Emissions
- Energy consumption
- Hazardous goods handling, including water-polluting agents such as acids and alkalis
- Waste
- Noise
- Waste water/water consumption

Environmental protection and the efficient use of resources are standard practice throughout the Group. Production waste is sorted and, wherever possible, recycled. Environmental impacts are largely avoided, for example by using exhaust gas filters and collecting vessels, or by treating and recycling process liquids. Of course, this scheme also includes energy audits that are conducted in line with the requirements under the Energiedienstleistungsgesetz (Energy Services Act).

Selected initiatives

Carbon Disclosure Project

As in previous years, GEA took part in the 2015 survey conducted within the framework of the Carbon Disclosure Project (CDP). CDP is an independent, not-for-profit organization currently representing more than 700 institutional investors. Each year, it gathers information on the greenhouse gas emissions of major listed corporations and their strategies to combat climate change. The results are then made available to current and potential investors. In this survey, GEA also provided information on the opportunities and risks related to climate change, as well as action taken in the field of climate protection. From GEA's perspective, any potential risks arising from shifts in demand will at the very least be offset by equally large opportunities to supply customers with energy-efficient solutions for their production processes from our wide range of products.

In 2015, GEA was awarded the “Best Improver Germany 2015” prize by CDP for the way it reported on the measures taken in the field of climate protection. The award, which was presented to the Group on the occasion of the “Climate Leadership Award Ceremony & Conference” held in Bonn, Germany, especially acknowledges GEA’s distinct improvement in the CDP ranking.

Blue Competence sustainability initiative

GEA is an alliance member of “Blue Competence”, an initiative of the German Engineering Association (VDMA). The members of the initiative have pledged to develop and/or promote sustainable engineering solutions in harmony with economic, ecological, and societal needs. In doing so, they



seek to assume responsibility for prosperity, education, safety and nature. The industry associations, organizations and companies involved in this initiative – including GEA – always consider the consequences of urbanization and globalization in the ways they think and act.

Sustainability – for the benefit of climate and customers

Energy consumption is an increasingly important factor in the total cost of ownership of a machine or plant. GEA believes that global climate change creates major potential for the use of its energy-efficient products.

The following examples show the savings potential for a variety of resources, which is provided by GEA’s machinery, components, systems and plants.

Zero-water dairy processing plant

In view of limited resources, enhanced water consumption management has become of crucial importance to the industrial sector. For many years, GEA has been supplying water recovery systems for dairy processing plants allowing companies to reclaim water from milk for the purpose of



The water recovered from the milk during processing is filtered in a GEA reverse osmosis plant.

re-use within the plant. Due to an ever-growing world population, these processes have adopted a new sense of urgency while becoming more and more sophisticated. In the meantime, the technology required to reprocess water – not only for cleaning in the factory, but also for use in product-contact operations – has become available. Zero water consumption dairy processing plants have become a reality.

The water recovered from the milk during processing is filtered by means of reverse osmosis processes, just like before. In the downstream step, GEA solutions apply carbon filters to remove odours, treat the water with ultraviolet light and chlorine dioxide to eliminate contamination, and add minerals to make the water less aggressive to plant systems. In fact, GEA treats water exactly the same way as the product itself, i.e., by relying on plants and equipment that meet the highest

standards of hygiene. As a result, the quality of the treated water complies with WHO standards for drinking water and may be utilized for quite a number of process steps, like the last rinse cycle, for rinsing cans, cleaning pipework and tanks and even as an ingredient that is added to the final product.



GEA's energy storage system achieves primary energy savings of 20 to 50 percent at brew house level.

Energy recovery and water management processes for breweries

Beer production requires considerable amounts of thermal energy – the bulk of which is being consumed in the brewhouse. Factors affecting energy consumption include, inter alia, the kind of raw materials being used, their quality as well as the design of the process applied. The thermal heat consumption of brewhouses installed all over the world varies widely from 18 to 40 kWh/hl.

Supporting brewery customers in upgrading their plants to state-of-the-art technology in terms of energy consumption, GEA is offering bespoke energy supply strategies that usually embrace an energy storage system.

GEA's energy storage system allows the transfer of energy from the wort kettle vapours to the following brew. Instead of releasing the vapors into the atmosphere, they are condensed, with the respective energy being transferred into the water. This water is used in the following brew to heat the wort from its filtration temperature of around 77°C to approx. 94-95°C. As a result, a substantial proportion of the heat energy required by cutting-edge systems is no longer generated on the basis of fossil fuels, but obtained by means of a heat recovery process. This energy storage process enables our customers to realize primary energy savings of between 20 and 50 percent for brewhouse operations.

In brewhouses situated in the equatorial zone, the ambient water temperature is typically between 20°C and 37°C during the summer, which requires a two-stage cooling process. At any rate, the hot water production in the wort cooler exceeds the amount of water required by the brewery as a whole. The resulting excess hot water must be disposed of via the sewerage system, with a loss of drinking-quality water and of the energy contained in the 80°C hot water. Apart from storage systems for energy conversion that rely on closed water cycles, GEA is also offering open-cycle systems equipped with two water tanks for temperature levels of 79°C and 98°C, respectively. Subject to the quality of the raw materials employed and dependent on further process parameters, the water management process developed by GEA allows a 35 to 100 percent reduction in hot water losses. Within the framework of a project conducted in South America, the solution provided by GEA has helped salvage around 100 m³ of hot water per day that no longer need to be disposed of.



GEA's ECOSpin2 Zero filling technology does not release any harmful chemicals into the atmosphere

ECOSpin2 Zero – sustainable aseptic filling

With introduction of ECOSpin2 Zero, GEA has achieved an advance in development of its wet aseptic bottling technology ECOSpin. The new system ensures that no peroxides are released into the environment, which is why it provides the optimum solution in terms of sustainability.

Prior to filling, the PET bottles for sensitive beverages are sterilized in an aseptic environment.

In developing this seventh generation of ECOSpin technology combined with zero emissions and a reduced level of water and energy consumption, GEA's filling specialists have made substantial progress in various fields.

Step number one embraced GEA's optimization of the use of peracetic acid (PPA) as a sterilization medium to ensure that only a minimum amount of chemicals are required for achieving the necessary sterilization effect. In a second step, rinsing time per bottle was reduced to one second only, which – in turn – significantly cuts the amount of sterile water used during this stage.

At the end of a production run, the remaining PAA undergoes a neutralizing process to make sure that the water can be safely used for cleaning within the plant. This reduces water consumption at production level and prevents the release of chemicals into the environment.

PAA vapors generated while the bottles are sterilized by means of a chemical solution are subjected to a vacuum extraction process and freed from all chemical residues. This enhances the working environment of the operators while making sure that no harmful chemicals are released into the atmosphere.