

TAKASAGO

Sustainability Report

2017-2018



Takasago International Corporation

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Takasago Group

Consolidated Subsidiaries

Region	Name
Japan	Takasago Chemical Corporation
	Takasago Spice Co., Ltd
	Koei Sangyo Co., Ltd
	Takasago Coffee Co., Ltd
	Takasago Food Products Co., Ltd
	Takasago Aromas Co., Ltd
	Takasago International Inc.
	Nankaikako Co., Ltd
Americas	Takasago West Japan Co., Ltd
	Takasago International Corp. (U.S.A.)
	Takasago De Mexico S.A. De C.V.
Europe	Takasago Fragrâncias E Aromas Ltda.
	Takasago Europe Perfumery Laboratory S.A.R.L.
	Takasago Europe GmbH
Asia	Takasago International Chemicals (Europe), S.A.
	Takasago International (Singapore) Pte. Ltd.
	Takasago International (India) Pvt. Ltd.
	Shanghai Takasago-Union Fragrances & Flavors Co., Ltd.
	Takasago International (Shanghai) Co., Ltd.
Takasago International (Guangzhou) Co., Ltd.	

Non-consolidated Subsidiaries of Equity-method affiliate

Region	Name
Japan	Kowa Sangyo Co., Ltd
	Takasago Hoken services Co., Ltd
Americas	Centre Ingredient Technology, Inc
Europe	Takasago (U. K.) Ltd.
	Takasago International (Deutschland) GmbH
	Takasago International (Italia) S.R.L.
	Takasago International (España) S.L.
	Takasago International Corporation South Africa (Pty) Ltd.
	Takasago International Turkey Esans Ve Aroma San. TIC. A.S.
	STE Cananga SARL
Takasago Madagascar S.A.	
Asia	Takasago International Corporation (Korea)
	Takasago International (Philippines), Inc.
	Takasago Import and Export (Thailand) Ltd.
	PT. Takasago Indonesia
	PT. Takasago International Indonesia
Takasago International (Pakistan) Pvt. Ltd.	

Associated company of Equity-method affiliate

Region	Name
Asia	Xiamen Hua Ri Foods Industrial Co., Ltd.

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About Cover

Incense Burner, Satsuma Ware

Ceramic incense burner consisting from spherical cover, lid, and tubular incense burner integrated with the base. The handle of the lid is designed with a lion, and the lion look as being captured when the hole for fumes to come out is opened. The exterior is designed with hermits, children, and people wearing Tang Dynasty (around 620-910) style clothes and hair style with gold iro-e (polychrome overglaze enameling). The base is designed with Chinese flower and cloisonne patterns. Satsuma ware became popular in Western Europe during the Meiji period (around 1870-1910) for its Eastern design with gold iro-e.



Message from President and CEO

Takasago launched its new three-year-management plan this April. The plan is the final phase of "The Takasago Global Plan" that started in 2009 culminating in 2020 – its centennial anniversary. In a recent interview, Satoshi Masumura, President and CEO of Takasago International Corporation looks back at the history of Takasago and shares his thoughts on what the next 100 years will look like.



With all of our employees focusing on tackling environmental issues, approaching social issues and delivering innovative products that enhance lives, we will continue to fulfill our responsibilities and commitments to all stakeholders and significantly contribute to a truly sustainable society. I believe this will lead to have the company survive the next 100 years.

Satoshi Masumura
President and Chief Executive Officer

Looking back the latest mid-term management plan, GP-3

– The Takasago Global Plan consists of 4 phases of three-year mid-term management plans. How do you look back GP-3 which had been completed by March 2018?

The first phase named GP-1 strengthened the foundations while the second phase GP-2 enhanced the Takasago brand. Under the third phase GP-3, we worked diligently to rebuild stakeholders' confidence as a fire occurred at the Hiratsuka factory in 2013. We implemented preventive safety measures and resolved many other issues.

On the financial side, both sales and operating income fell short of the initial targets set. However, operating income had steadily increased during the GP-3 period.

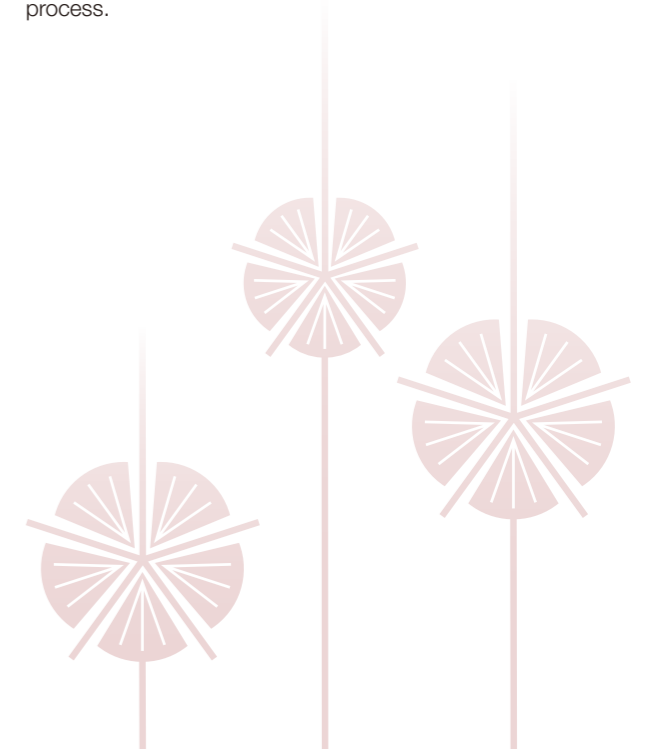
We continued to reinforce our business foundations with active and sustained capital investments both in Japan and overseas. We also made sure that the lessons learned from the Hiratsuka fire were all implemented and taken into consideration in the planning and construction of the Takasago West Japan factory in Hiroshima. At the same time, efficiency improvements were pursued from production to logistics with the installation of the latest automatic compounding and materials handling machinery. Takasago West Japan, Hiroshima was specifically chosen as the site for this new factory in consideration of various aspects such as location. In the Iwata factory, a new manufacturing building for the pharmaceutical intermediates was built to meet the increasing demand.

Other than Japan, we actively invested in overseas with high potential for business growth such as India, Indonesia, China and Germany.

In India, our new flavors and fragrances factory and laboratory started their operations in 2017. In Indonesia, laboratory and office were relocated and expanded to further strengthen the local activities. Land for a new factory in Cikarang was also acquired. The major expansion and renovation of the German facility was also completed in 2017.

– How do you express your thoughts and views about the new mid-term management plan started this April?

Our new mid-term management plan is named One-T for "One-Takasago". My goal for One-T is to unify all of our global business activities under one organization – a truly global Takasago. Under this plan while adhering to 5 basic policies of Customer Satisfaction, Business Growth Strategy, Technological Innovation, Profitability Improvement and HR Development, we have placed the "Corporate" function in the center of these policies. To realize "One-Takasago," we must strengthen cooperation and collaboration among the group companies, develop better global communication, standardize our workflows and systems and unify global business management by functional areas. The newly set up Global Integration Headquarters has been tasked to speed up this entire process.





With all our employees having “contributing to society” always being in their consciousness, all of them will be proud of their contribution to society through their work. These contributions to social value will lead to an enhanced corporate value for Takasago.

– Where do you see Takasago’s growth to come from during the One-T period?

The Japanese market has been shrinking. With this, our group needs to strongly focus on our overseas business for our continued and sustainable growth. The global flavors and fragrances market is however expected to continue to expand and this market growth will continue to give us opportunities as well.

Our industry has initially been developed mainly in Europe and the USA. Takasago was one of the first few Japanese flavors and fragrances house that laid their overseas foundations early on. Taking this advantage, we develop and provide the highly valued products that meet the demand of countries including the fast growing Asia and continuously growing Europe and U.S. This is the basic idea of “Business Growth Strategy”.

To achieve these goals, we already broke ground for a new factory in Indonesia and started a study for a

construction of new QC and logistics center in Germany. With these and other future major capital expenditures that will ensure stable profits, we will aim to achieve net sales target of 170 billion yen. This is not an easy target to achieve as it is 20% higher than the level for GP-3. I strongly believe our employees will continue to be the driving force for One-T and am convinced that setting the higher targets encourages our employees to continue to aim high.

– For the global expansion, isn’t there an urgent need for human resources development and training?

Allocating suitable employees to appropriate positions is a key to promote global expansion. In One-T we will enhance our efforts during GP-3 to make the best use of the group’s human resources and to provide an environment where our employees can fulfill their potential not only locally but also globally through such as

cross-border personnel transfers. With the opening up of opportunities globally and the training programs working in conjunction with diversity and inclusion and the Japan Government sponsored “work-style reform,” Takasago will continue to provide employees with opportunities to grow to their full potential within the Takasago organization.

– How do you intend to deliver “Customer Satisfaction” being a flavors and fragrances company?

Aromas are everywhere. Good flavors are required for delicious processed foods and flavors and fragrances can be used as part of a wholistic approach to medical treatments. I strongly believe our products can and should significantly contribute the “quality of life,” in other words, well-being of people. As our corporate philosophy “Contributing to Society through Technology” indicates, we aim to bring “customer satisfaction” to another level by contributing to well-being of the global consumer - enriching their lives with our flavors and fragrances and peripheral technology.

What is most important for us is the trust from the customers. Our vision to become a leading flavors and fragrances company in the world by 2020 contains not only numerical targets but more importantly targets that will enable us to consistently be the partner of choice by our key customers across the globe. To realize this, we will further enforce sales and R&D functions, consistent quality management and swift and flexible actions.

Sustainable Technological Innovation through “Open Innovation”

– What are your thoughts on “Takasago’s Technological Innovation” to achieve continuous growth?

As we continually strive to develop new technologies

and products to meet future market needs and trends in a constantly changing business environment, it is very important for us to recognize and appreciate the fundamental value of aromas and how they can enrich our lives. “Contributing to Society through Technology” – this has been the corporate philosophy behind our almost 100 year history. Enriching people’s lives across the globe sustainably will then be the continued focus of our research and development.

Aside from the cooperation within the Takasago group globally, the “One-T” plan strongly promotes open innovation where we collaborate and look for synergies with other companies, different industries, research institutions and universities in the development of unique aroma based technologies and products that enrich people’s lives. An example that comes to mind is in the field of brain science where research on the effects of aromas is conducted. Leveraging the synergies in such areas with academic institutions will surely expand the utility and value of our products.

We will continue to create unique and competitive technologies and products by focusing on 3 innovation areas: “Concept” in which we create new value by chemically analyzing and evaluating human senses, “Product” in which we embody the Concept and finally “Process” in which we strengthen safety, environment-friendly and efficient production technologies.

– What do you see to be Takasago’s original technologies and their capabilities of the future?

We have been and will continue to improve our manufacturing processes - seeking more efficient and sustainable ways to manufacture our products using processes with better heat and conversion efficiencies with less waste. As an example, we continue to improve on our continuous flow reaction technology which is in line with green chemistry trends and recommended

by US Food and Drug Administration (FDA). We also have been working toward laboratory-scale practical use of flow micro reactors and gas phase reactors. Our unique catalyst technologies help to reduce the number of production processes and raw materials. Supplying the catalyst products to a wide variety of industries contributes to the resource and energy savings for our catalyst customers.

The increased use of biotechnology is essential to create our new and unique chemical compounds. The future of Takasago is very much focused on the use of biotechnology and biotechnology derived products in the manufacture of our flavors and fragrances. The acquisition of US-based CIT (Centre Ingredient Technology, Inc.), with its highly advanced fermentation technologies, knowledge and manufacturing technologies is a step towards this direction. We will continue to accelerate the product development and production of our fermentation based materials. We have and will continue to deploy Japan developed technologies to CIT and commercialize new bio-ingredients.

– What kind of responsibility and contribution should flavors and fragrances business owe to the “ecosystem”?

We conduct the collection of unique aromas from the endemic species in Ogasawara Islands, Rebun Island and other locations. The purpose of this activity is to pass the aroma of endemic species down to the generations without hurting the plants we collect them from. The meaning and value of aroma by itself, not only flavors and fragrances, in the ecosystem is an activity that encourages the preservation of biodiversity. This initiative could encourage many people to actively participate in the conservation of the ecosystem and nature. We are continuing this aroma collection activity as one of the important sustainability activities that can be done only by us who are considered “aroma experts.”

Our commitment to strengthening the sustainability position

– One of the targets of the One-T medium term plan is to promote sustainability activities. How do you plan to implement this globally?

Takasago is fully committed to improve our sustainability position in all aspects of our operations. Sustainability is a key part of our corporate social commitment and responsibility.

Broad-ranging measures are necessary throughout the entire supplier chain from development and production to customers, even disposal. With our Basic EHS Management Policies, Takasago published the Environment Statement in 2002 with our guiding principles. We published our “EHS 100 Plan” in 2009 and have been working with a high level of consciousness. The “EHS 100 plan” also includes provisions of respect for basic human rights and coexistence with local society, and plays a central role of our sustainability mid-term plan.

In 2013, we expanded the coverage of our environmental report to a “Social and Environmental Report” to disclose information not only in the environmental aspect of our operations but also on the social aspects as well. During the One-T Period which is also the final (4th) phase of “EHS 100 Plan,” we are accelerating our activities to achieve the goals of all the items. While continuously addressing global environmental issues, we have extended our scope to include social issues such as “Responsible procurement” and “Diversity” under the plan. As new initiatives, to promote the activities based on COP 21 which is an international framework associated with climate change, we have initiated plans to acquire the SBT (Science Based Target) certification and to implement third-party validation of GHG emission.

Takasago joined the UN Global compact in June last year. With this, we have incorporated SDGs goals into our business activities and are promoting R&D activities that use renewable sources and reduce the environmental impact of our products and processes. We will continue to actively consider joining global initiatives and incorporating them into our daily business activities. Takasago is also moving forward with the improvement of information disclosure. We published the first sustainability report in English in 2017, and this year, we will publish a report that conforms to GRI standard.

-Takasago had a fire accident in 2013 at Hiratsuka, Japan. How did this event changed the way you treat safety issues within the group?

To ensure that the lessons learned from the 2013 fire in Hiratsuka Factory are not forgotten and to instill safety awareness, Takasago designated April 10th as “Takasago Safety Day.” The activities on the “Takasago safety day” have been conducted in our oversea affiliates in 2017 as well. We are additionally targeting to obtain OSHMS (Occupational Safety and Health Management System) certification throughout the entire group and further

enhance global safety activities and standardize operation during the 4th phase of the “EHS 100 plan”. With respect to safety, there is no way to ensure 100% safety thus what we could do is to continue with our Kaizen activities in this area. We will develop a safety culture throughout the entire organization through continuous training and education of all our employees to ensure that “Safety is Our First Priority”.

A message for the centennial anniversary

– What are your thoughts on the upcoming 100th anniversary of Takasago in 2020?

Looking back our history, we have strengthened the corporate power by always selecting the best way at each moment and repeating that. Guided by our corporate values of “TRUST through TECHNOLOGY and TEAMWORK” that our corporate logo called “Square-T” represents, by working not individually but as a team, with the entire organization’s focus on the execution of the “One-T” medium term corporate plans and goals, we will firmly take steps to meet head on the social, environmental technical and other challenges that we will face in the next century. With all our employees having “contributing to society” always being in their consciousness, all of them will be proud of their contribution to society through their work. These contributions to social value will lead to an enhanced corporate value for Takasago.

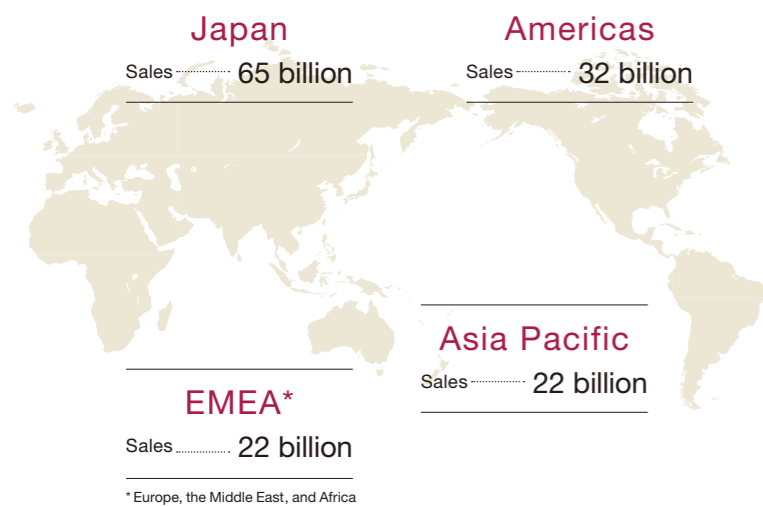
As a leading and socially responsible company and with all of our employees focusing on tackling environmental issues, approaching social issues and delivering innovative products that enhance lives, we will continue to fulfill our responsibilities and commitments to all stakeholders and significantly contribute to a truly sustainable society. I believe this will lead to have the company survive the next 100 years.

Corporate Profile

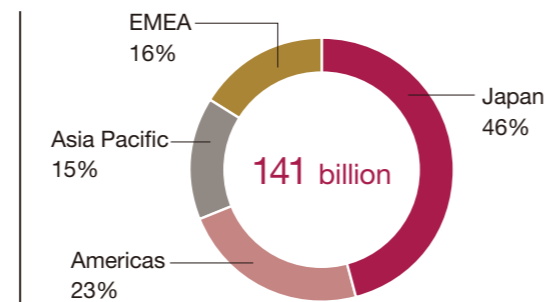
Takasago International Corporation, headquartered in Tokyo, Japan, develops, manufactures and sells Flavors, Fragrances, Aroma Ingredients and Fine Chemicals. Our products are in foods, cosmetics, household products and pharmaceutical intermediates for the life science industry, and functional materials for the electronics industry. With a new sales office in Pakistan set up in end 2017, we have now business operations in 27 countries and regions around the world. Takasago strengthens its market presence worldwide and accelerates the growth in every area where we are.

As of end March, 2018

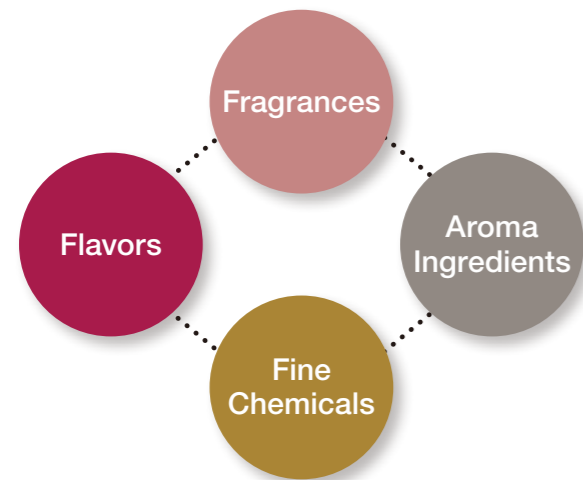
Financial Highlights (JPY)



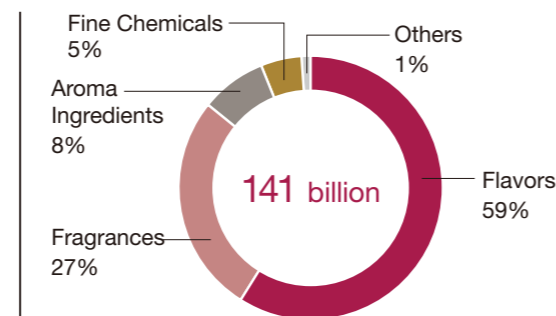
2017 Sales Turnover by Region



4 Core Businesses



2017 Sales Turnover by Category



Sales Turnover



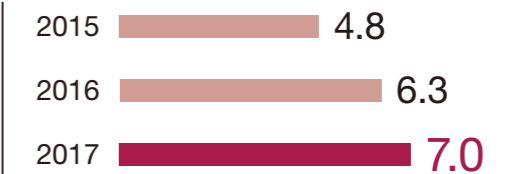
Operating Income



Ordinary Income



Net Income



ROE* %



* ROE = Return on Equity

ROA* %

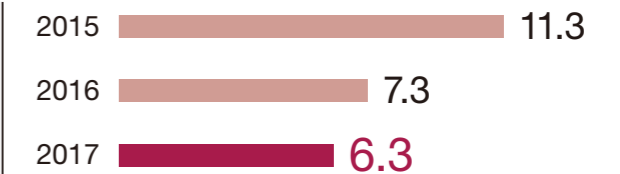


* ROA = Return on Assets

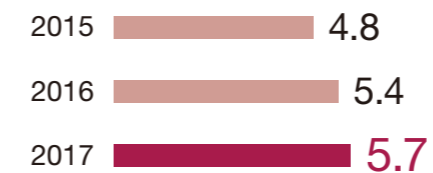
Equity Ratio %



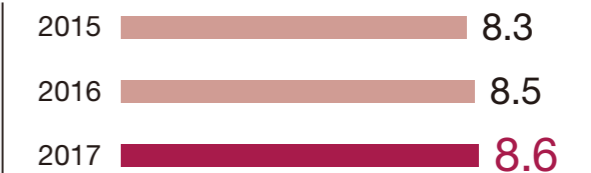
Capital Investment



Depreciation Expense



R&D Expense to Sales Turnover %



Business Outline

Takasago has been developing innovative products and technologies that enrich people's daily lives.

Skincare products,
Cologne,
Cosmetics



Laundry detergent,
Fabric softener



Ice cream, Potato chips,
Chocolate,
Canned coffee beverages



Functional foods/
drinks

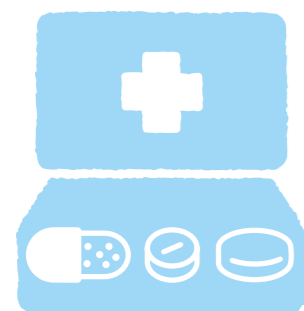


Room fragrances



Yogurt, Pastries, Dressing,
Instant noodles

Hair care products,
Body wash



Fine
Chemicals
Supporting development of
new medicines by supplying
pharmaceutical intermediates

Facial soap, Toothpaste,
Mouthwash



Dashi
(Japanese traditional Umami)



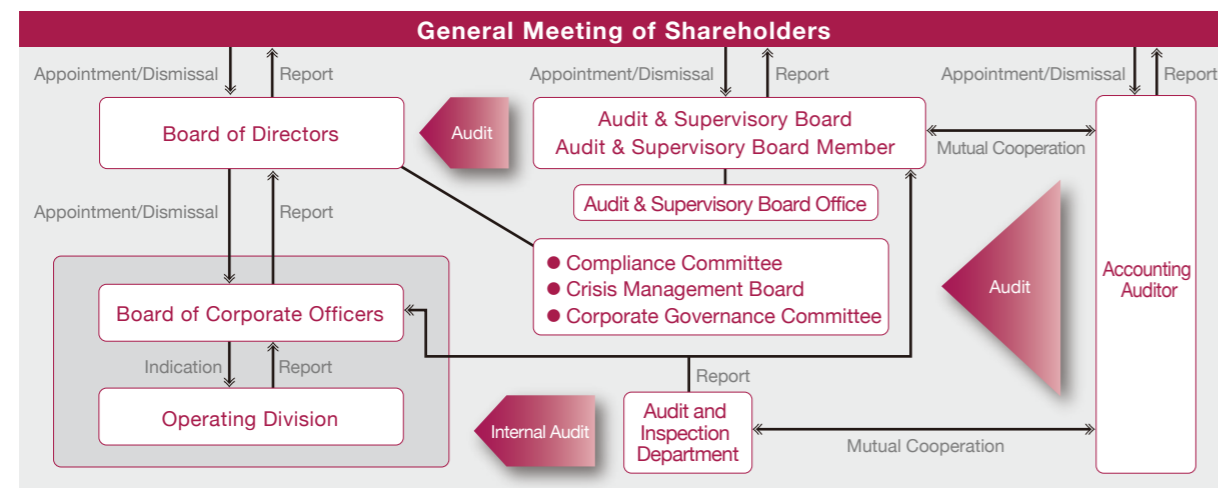
Corporate Governance

The Takasago management continues to strengthen corporate governance by ensuring the decision making process is according to the corporate guidelines and is properly monitored by the board of directors. Transparency in corporate activities is further enhanced through appropriate information disclosure.

In addition to establishing the basic policy on internal control, a corporate officer system was introduced to clearly separate the board of directors' supervisory and policy making functions from corporate officers' execution and implementation roles in the business. This is to ensure that both the directors and corporate officers remain focused on their primary roles and that the decisions made and directions set by the board are dutifully executed in a timely manner.

A Charter of Corporate Behavior and Code of Conduct is disseminated globally and regularly up-dated to ensure relevance and used as a guideline for all the employees. The global Human Resources team monitors its dissemination and consistent implementation in all Takasago sites.

Corporate Governance System



Risk and Crisis Management

Takasago does not only value the environment and society, but is dedicated to the sustainability of our business. In order to fulfill our responsibility to every stakeholder, we regularly review and identify global risks that could potentially affect our business.

We will continually develop measures to each of below listed risks to mitigate and manage in the best possible way.

Climate change

Bad weather, especially in summer time, could be a risk that affects our business for the beverage market, which is one of our leading businesses. Unseasonal weather could be also a risk to our suppliers having bad harvest. It could make us difficult to source our raw materials and fulfill our supply responsibility.

Exchange Rate

Takasago develops, manufactures and sells the products around the world, and has 11 overseas consolidated subsidiaries. Due to fluctuation in the exchange rate, the separate financial statements after translated into

Japanese yen could potentially affect the financial condition of the consolidated financial statements. In foreign currency transactions, significant fluctuations in the exchange rate could impact the Takasago group's business results and financial condition.

Globalization

Takasago is making business activities in overseas. Unanticipated change in laws and regulations, politics, economic confusion by terrorism, war and social confusion by pandemic could significantly affect our business performance and financial condition.

Procurement /Sales

Takasago sources raw materials and sells its products around the world. Natural disasters, consumer preference, legal regulations and the other significant changes influence our procurement and sales activities. That could significantly affect our business performance and financial conduction.

Accidents/Disaster

A natural disaster or accident that occurs in the area where our production sites are situated could damage production facilities and disrupts procurement, distribution and sales. Consequently, it could negatively affect Takasago's business performance and financial condition.

New products research and development

We adhere to research and development for new products with researching the market. However, delay of developments or unforeseen changes of consumer's preference could negatively affect the effect of investments for the research and development.

Information Security

Takasago deals with confidential information related to research and development, production, marketing and sales, as well as the personal information of numerous customers. A leak of confidential or personal information held by the Takasago group resulting from an attack on its server, unlawful access, a computer virus or other factors that exceeds beyond our control could impact the Takasago group's business results and financial condition.

Economic Conditions

Future recession on the main markets, both in Japan

and overseas, could negatively affect our procurement activities. It could also lead to a change in consumer demand that holds off on buying home products, foods and so on under the stagnating economic situation. Declining consumers demand in the main markets could impact the Takasago group's business results and financial condition.

Environment

We are compliant with a range of laws, environmental standards and regulatory provisions in every area we make our business activities. Future changes in regulatory affairs may increase costs and limit our activities. That could significantly affect our business performance and financial condition.

Takasago has finalized its crisis management system, including Business Continuity Plan (BCP), which enables us to take necessary precautions against possible disaster and emergency situations. The crisis management system is supervised by the Corporate Headquarters in Tokyo, continuously identifies potential risks that may hinder business continuity, as well as formulates and reviews crisis management plans against such risks. All the procedures are to help affectively minimize the impact of a contingency, and immediately restore normal operating conditions.

Compliance

Takasago group considers compliance to be one of its top priority management issues and strives to continuously improve its compliance system while ensuring fair and proper business activities and effective corporate governance. We have a compliance hotline that enables employees to consult on compliance issues. Every employee within the group is informed on the compliance hotline through an internal publication.

During the reporting period, we identified no issues brought up through the system. Also, there were no cases of non-compliance with any laws and regulations in the social as well as economic areas.

Supply Chain

Our Supply Chain

Our supply chain and procurement model at a glance

Takasago values sustainability through business. It is therefore essential to source raw materials for each of its business unit in a responsible way, in full alignment with group values and both clients and civil society's aspirations.

For its fragrances and flavours creations as well as aroma ingredients and fine chemicals, Takasago is using 14,000 different raw materials sourced from all over the world and hundreds of suppliers. Many of them are unique. 5,000 are natural ingredients, coming directly from natural source such as plants, fruits, nuts, vegetables, roots, leaves. They are used as such or further processed to further improve their unique sensory characteristics. 9,000 are synthetics. They are made using sophisticated chemical technologies to provide a unique sensory profile which does not exist in nature or to replace a natural ingredient. Their main starting raw materials can be of natural, such as wood, or synthetic origin such as natural gas or naphtha.

Given the uniqueness and complexity of our supply chain and model, we must establish a sustainable procurement model focused on our suppliers, producers and environment.

This sustainable procurement model was already implemented many years ago for Takasago and is embedded in our very DNA. This is clearly communicated internally and externally to third parties with whom we have a relationship in our "Corporate Procurement Policy" and "Corporate Procurement Guidelines" which are further described under "Our Activity, 3. We are committed towards responsible sourcing compliance" section.

Corporate Procurement Policy

Procurement of raw materials plays an important role of stable supply of reliable products.

As a guide for our activities of procurement, we have established "Corporate Procurement Policy" according to "Basic Management Policy" with the solicitude to global environment and protection of local communities.

We practice the following in our procurement activities:

- Pursuing the three elements of quality, cost, and stable supply
- Persisting in the observance of all relevant laws, respect for human rights, being fair, dealing impartially and considering preserving the environment
- Valuing a regional culture and building a partnership

Corporate Procurement Guideline

For stable procurement of raw materials, it is essential to build a sound and reciprocal relationship with business partners based on fairness and transparency of transactions.

Through such partnership, we strive to ensure stable procurement of safe and secure raw materials which satisfy customers' requests and comply with national laws and regulations at the most economical prices.

In addition, "Corporate Procurement Guidelines" has been instituted so that all persons in charge of purchasing business at Takasago group, including local procurement staff, can ensure responsible procurement activities and thoroughly implement company policies.

External Partnerships and Initiatives

Takasago engages in several organizations, supports initiatives and responds to sustainable related platforms including below.

- American Chemical Society
- CDP
- EcoVadis
- European Flavour Association (Executive Board)
- Flavor and Extract Manufacturers Association (Board of Governors)
- International Fragrance Association (Board of Directors)
- International Organization of the Flavor Industry (Board of Directors)
- Japan Business Federation
- Japan Chemical Industry Association
- Japan Flavor & Fragrance Materials Association
- Japan Food Additives Association
- Mint Industry Research Council
- Monell Chemical Senses Center
- Research Institute for Fragrance Materials (Board of Directors)
- Roundtable on Sustainable Palm Oil
- Sedex
- UN Global Compact

Sustainability at Takasago

Takasago considers sustainability as a vital element for our growth

Message from Senior Vice President



Tatsuya Yamagata
Senior Vice President,
Global Integration Headquarters,
and EHS Executive

Sustainability is defined as one of key corporate action plans under the new three-year management plan “One-T” that began in April 2018. Takasago group is committed to strengthen its activity on sustainability. Global Integration Headquarters, newly formed to achieve the aim, is responsible for strategizing and planning as well as leading Takasago Sustainability Team that consists of EHS, Human Resources, Supply Chain, R&D and Quality Assurance.

Takasago published the first Environment Statement in 2002 and has been working hard with a high level of environmental consciousness and objective. The EHS 100 Plan, drawn up subdividing the period from 2009 to 2020 into four phases with each three-years long, includes concrete action plans regarding EHS (Environment, Health and Safety), such as reduction of CO₂ emissions, water use and waste disposal, risk management and operational safety. Our activities are not limited to only EHS-related matters, but also take social issues like responsible sourcing, human rights, education and training programs and community engagement as part of our program.

This is now playing as a central role in our sustainability position.

Each function in the Takasago Sustainability Team has established its global communication platform. Through such a framework, in this case, the global Human Resources team, we ensure the charter of corporate behavior and code of conduct are thoroughly incorporated into all the employees across the group companies. Not only one-way communication from the headquarters, activities by each affiliate such as community engagement are reported and shared among the global team. In this way, we have Takasago Sustainability Way built in the global system.

During One-T period, we are focusing on 3 items in main: climate change related-issues, information disclosure and acquisition of OSHMS certification. Takasago is actively addressing climate change related-issues in line with the recommendations of TCFD. To acquire SBT (Science Based Target) certification is one of important action plans and to show our commitment to Paris Agreement, which states to prevent dangerous climate change by limiting global warming to well below 2 degrees Celsius. We have been working very hard on the reduction of CO₂ emissions since the EHS100 Plan started in 2009. Takasago headquarters has a dedicated team for the energy management which was formed more than 10 years before following the enforcement of the Energy Conservation Act in Japan and has been working hard on the energy conservation programs as combating global warming. During GP-3, we extended the scope to out of Japan, supporting group companies with the know-how developed. Now under One-T, we will further strengthen this cooperation and introduce Takasago best practice globally to reduce CO₂

emissions and tackle climate change.

Secondly, in terms of information disclosure, we are publishing this English report in accordance with the GRI standards (core option). With this, we have updated the system (called “T-ReCS”) to collect the associated information, which is gathered globally from all affiliates. We will continue to expand the scope and improve the information disclosures.

Lastly, OSHMS certification is also a key action item for the next 3 years. Having learned from the fire at Hiratsuka plant in 2013, Takasago has been working diligently on additional preventive measures with firm resolution toward “safety”. We developed the EHS Minimum Requirement to provide the concrete guidelines during the GP-3 for all the group companies. Additionally, we are planning to introduce OSHMS into our safety management system. This will help accelerate global integration of our occupational safety activities as well as improve the capabilities.

Leveraging this sustainability promotion structure, not only economic activities, we are also keen to strengthen social activities, especially addressing the issues of environment, human rights, occupational safety, human resources development and social contributions, and continue to contribute to building of a sustainable society.

About T-ReCS

Takasago Responsible Care System (T-ReCS) is a data reporting & tracking tool that precisely records and analyzes data collected from all of our locations. Takasago has been using the system since 2009, started with EHS platform to collect environmental data, and has now expanded its scope to social area as well.



Vision

Corporate Philosophy

Contributing to Society through Technology

Basic Management Policy

- A well regarded company that respects the global environment and local communities.
- A leading flavors and fragrance company in the global market that consistently supplies dependable products.

Charter of Corporate Behavior and Code of Conduct

Takasago establishes the Charter of Corporate Behavior and Code of Conduct in order to respect human rights, observe the relevant laws and regulations, international rules and their spirit, and act with common sense and sound judgment. The principle and values are communicated with all the employees and incorporated in their day to day practices and behavior.

Takasago Sustainability Team

Takasago Sustainability Team consists of 5 Core functions which are EHS, Human Resources, Quality Assurance, Supply Chain, and R&D. Tatsuya Yamagata, GM of Global Integration Headquarters, is a board member and EHS Executive leads the Team and communicates key sustainability issues in the board of directors' meetings. "Sustainability Promoting Meeting" takes place regularly at Headquarters, once a month to once every quarter at minimum depending on agenda, to ensure that all of our direct and indirect activities are aligned with our vision and strategy, and that the progress is made according to our sustainability plan. Respective team is responsible to share the vision and values of corporate sustainability with its functional area globally as well as make plans, and conduct progress management. Such a global meeting takes place every quarter or so to build mutual communication and discuss issues and solutions. Through this global communication matrix, Takasago is strengthening its sustainability activities across the globe.



Stakeholder Engagement

Takasago defines its stakeholders as those individuals and organizations that affect or are affected by the company's business, and regards shareholders, society, suppliers, customers and employees as our key stakeholders. Dialogue with each stakeholder provides us with insights on important issues to them and our company. We value communication with stakeholders for corporate decisions.



Relationships with shareholders

We make utmost efforts to return profits to shareholders

by realizing steady growth expanding market presence globally based on solid governance. At the same time, we work hard to develop good relationships with shareholders both in and outside of Japan.

Dialogue with Shareholders

After the shareholder's meeting 2017, we gave a questionnaire to our shareholders.

This activity, our first time attempt, is along the line with Basic Corporate Governance Policy, article 23: The company shall make much account of constructive dialogue with shareholders, etc., and shall make every effort to have dialogue mainly by executive management including the top management team through various opportunities.

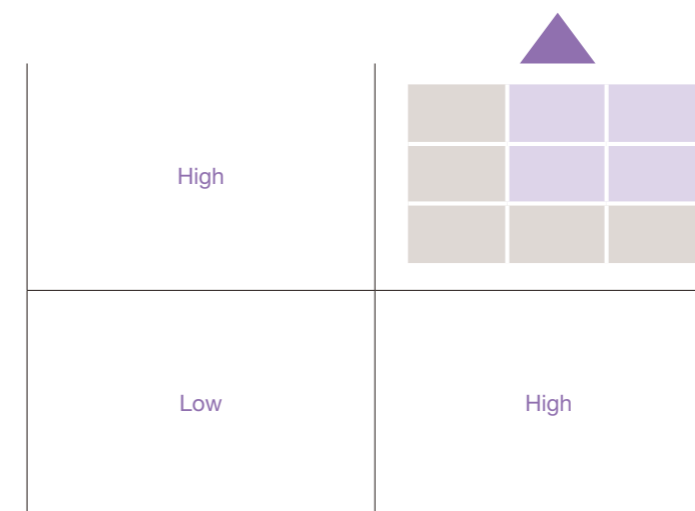
Shareholder's Feedback is provided to executive management so as to consider for the improvement and report on next shareholder's letter. We highly value this communication that leads us to the sustainable growth and the improvement of the corporate value over the mid to long term.

Activities of engagement with other groups are detailed in the following sections respectively; Society (page46: Relationship with local society), Suppliers (page40: Supplier Relationship Management), Customers (page42: Product Responsibility), Employees (page44: Relationship with Employees). There were no major concerns raised in any of the groups.

Materiality Assessment

Takasago conducted a materiality assessment taking external opinions into consideration for our consultation. Our materiality matrix is taking company's priority in X axis while taking stakeholders' priority in Y axis. The matrix is discussed and reviewed by Takasago Sustainability Team and brought up to the board of directors' meeting for their review and further discussion.










We defined the report content and topic boundaries according to the materiality assessment done in 2017, which was our first time attempt. We will evaluate the matrix and define new issues, if identified, for future reporting.



Strategic Actions to Advance SDGs

In September 2015, the Sustainable Development Goals of the 2030 Agenda, known as SDGs, was adopted by the United Nations as the Post-MDGs (Millennium Development Goals) with a broader scope and officially came into effect on January 1, 2016. The SDGs are composed of 17 goals and 169 associated targets. The

17 goals include no poverty, fight against inequalities, tackle climate change, and others. Takasago is committed to taking strategic actions to advance the broader societal goals with an emphasis on collaboration and innovation.

Materiality Issues	SDGs Mapping
Local Communities	 
Occupational Health and Safety	 
Promoting Diversity	 
Reduction of Environmental impact (Water, Emissions, Effluents, Waste)	  
Responsible Procurement	
Supplier Social/ Environmental Assessment	
Transparency	
Education and Training	 
Climate Change (adaptation)	 
Customer Health and Safety	 
Green Chemistry	 
Human Rights	 
Innovation	   

Our Activity

EHS

Ensure compliance with laws, regulations and voluntary compliance obligations, protect people's health and safety and preserve the global environment.

Innovation

Continue to focus on the development of innovative technologies that enrich lives of people and societies worldwide.

Supply Chain

Value the relationships with our global, regional and local partners. While we focus on procuring quality raw materials at a reasonable cost from sustainable sources, we invest in, and support sustainability studies and improvements in local communities.

Product Responsibility

Deliver reliable products that comply with all safety and regulatory requirements and ensure consumer safety. We work as a valuable partner that meets customers' needs and expectations.

People

In valuing our relationship with stakeholders, Takasago sustains not only our business but also our social and cultural commitments and passes our cultural heritage on to future generations. In alignment with these goals, we implement and support proactive programs that add value to Takasago and its employees, leading to improved employee welfare, empowerment, growth and retention.

EHS

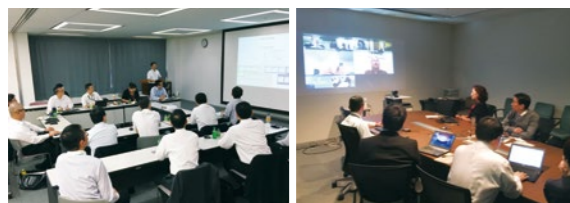
Environment, Health & Safety

EHS Management

Takasago group is aware of the importance of environment and the health and safety of its employees and stakeholders.

Global EHS team is led by EHS Executive. EHS Executive organizes group EHS committee with Site EHS Managers and the member of EHS headquarters. The team reviews the progress of EHS100 plan and the related activities on regular basis to improve our actions. The team works hard to achieve our EHS goals with a sense of mission.

EHS Statement is provided in 11 languages in order to disseminate group mission on EHS to all employee who work in 27 different countries. EHS headquarters developed the group EHS Guidelines and Minimum EHS Requirements to clarify the requirements on EHS activities.



Environment

As part of its basic management policy, Takasago group aims to be “A well regarded company that respects the global environment and local communities” and endeavors to reduce the environmental impact of its activities.

Currently, 19 production sites and EHS Office at Headquarters are certified to the ISO 14001 standard under a single corporate certificate. The remaining production sites and Hiratsuka R&D are expected to be added to the scope in the near future.

In December 2017, we updated our ISO14001 certification to 2015 version.

ISO14001 Certified Locations

Site Registered	
JAPAN	EHS Office
	Hiratsuka Factory
	Iwata Factory
	Kashima Factory
	Takasago Spice Co., Ltd. Hadano Factory
	Takasago Coffee Co., Ltd. Iwata Factory
	Takasago Chemical Corporation Kakegawa Factory
	Takasago Food Products Co., Ltd.
	Nankaikako Co., Ltd.
	Takasago West Japan Co., Ltd.
OVERSEAS	Flavor Factory
	Fragrance Factory
	Takasago Europe Perfumery Laboratory S.A.R.L. Factory
	Takasago International Corporation (U.S.A.)
	Takasago International (Singapore) Pte. Ltd.
	Takasago De Mexico S.A. De C.V.
	Takasago Europe GmbH
	Shanghai Takasago-Union Fragrances & Flavors Co., Ltd. Pudong Factory
	Takasago International Chemicals (Europe), S.A.
	Takasago International (Guangzhou) Co., Ltd.
Takasago Fragrâncias E Aromas Ltda.	

*As of December 2017

Energy and Emissions

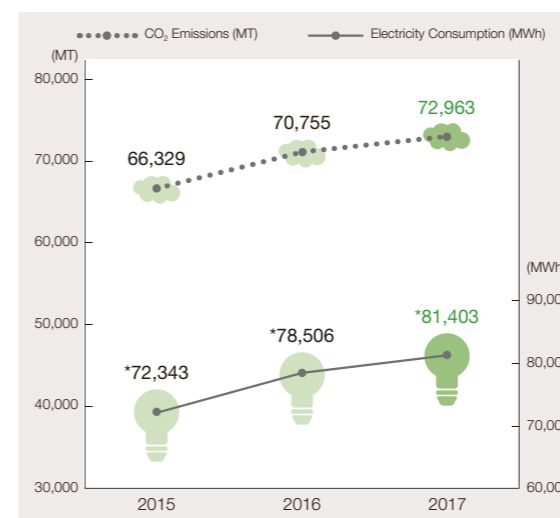
Takasago manufactures flavors and fragrances with a variety of natural raw materials, the production of which is spread all over the world. The price, quality and supply volume of our raw materials have been affected by bad weather globally especially these years. In addition, our production bases could be impacted by a natural disaster that risks supply of our products. These events are presumably caused by climate change.

As such, taking appropriate actions on climate change is an extremely important issue for us not only to protect the global environment, but also to assure the supply of our products that is directly associated with sustainability of the business.

Due to expansion of production bases, increase in production volume, and change in product type, the amount of electricity consumption and CO₂ emissions in 2017 increased compared to 2016.

We will continue making utmost efforts on reduction of GHG emissions through strengthening overall energy management, upgrading equipment, improving production processes and introducing more environmental friendly technologies such as continuous flow reaction process.

Electricity consumption and CO₂ emissions



Data for the Takasago group
*restated

Calculating Scope3

		CO ₂ emission (metric tonnes)	GHG Ratio to the gross volume
cat 1	Purchased Goods and Services	NA	NA
cat 2	Capital goods	17,338	1.4%
cat 3	Fuel- and Energy-Related Activities Not Included in Scope 1 or Scope 2	NA	NA
cat 4	Upstream Transportation and Distribution	1,132,252	92.1%
cat 5	Waste Generated in Operations	927	0.1%
cat 6	Business Travel	3,148	0.3%
cat 7	Employee Commuting	3,387	0.3%
cat 8	Upstream Leased Assets	NA	NA
cat 9	Downstream Transportation and Distribution	NA	NA
cat 10	Processing of Sold Products	NA	NA
cat 11	Use of Sold Products	NA	NA
cat 12	End-of-Life Treatment of Sold Products	NA	NA
cat 13	Downstream Leased Assets	NA	NA
cat 14	Franchises	NA	NA
cat 15	Investments	NA	NA
Scope 3(Total)*Data period: 1 April 2017 to 31 March 2018		1,157,053	94.1%
Scope 1		28,586	2.3%
Scope 2		44,377	3.6%
GHG total amount		1,230,016	100.0%

Data for Takasago group * NA: not available
Data for FY2017

Water and Effluents

Currently availability of water is not directly affected to our business operation, as we have good access to sufficient amount and quality of water. However, we have production facilities in 13 countries, and some sites locates in the area expecting more demand to water in the future. Also, because availability and quality of water are very important to our production process, shortage and change or deterioration of water quality directly affect our production output and quality.

Although the use of a certain amount of water is indispensable for our production process, we will promote the reduction of water consumption through recycling of water used in the process and reviewing the cleaning process.

Also, it is important to understand the specific condition and requirement of water usage and efforts for proper use at each site. Also through the periodical survey for regulatory trends, we strive to grasp comprehend water risks at each site and the associated control measures.

Water withdrawal m³

Source	2016	2017
Municipal water	1,173,799	1,097,535
Ground water	2,085,110	2,117,260
Total Water Withdrawal	3,258,909	3,214,795

Water Discharge by destination m³

Destination	2016	2017
Surface water	2,751,809	2,702,949
Third-party	618,047	636,728
Total Water Discharge	3,369,856	3,339,677

Waste Management

Cognition and regulations concerning industrial waste are very different depending on country and region. There are a few sites not sorting wastes because the sorted collection service is not available in their locality.

Meanwhile, the most costly process of industrial waste treatment is transportation, and this cost becomes expensive the more it's sorted. This also indicates that more CO2 emissions occur along with transportation if process is more segmented. So currently we cannot say segmentation of sorting is the best for environment.

In 2017, 1.1% of the waste generated is finally landfilled, but there are countries and areas where the manifest system is not in place, and processing information on waste at outsourcing companies can not be obtained or is unclear in some cases.

In the future, we will aim for collection of more accurate data by selecting contractors that can disclose processing information.

We will work to reduce the amount of generated waste through appropriate sorting and recycling practices, and related education.

Weight of Waste Landfilled MT

	2016	2017
Industrial Waste Generated	26,883	26,293
Landfilled	398	277
	1.5%	1.1%

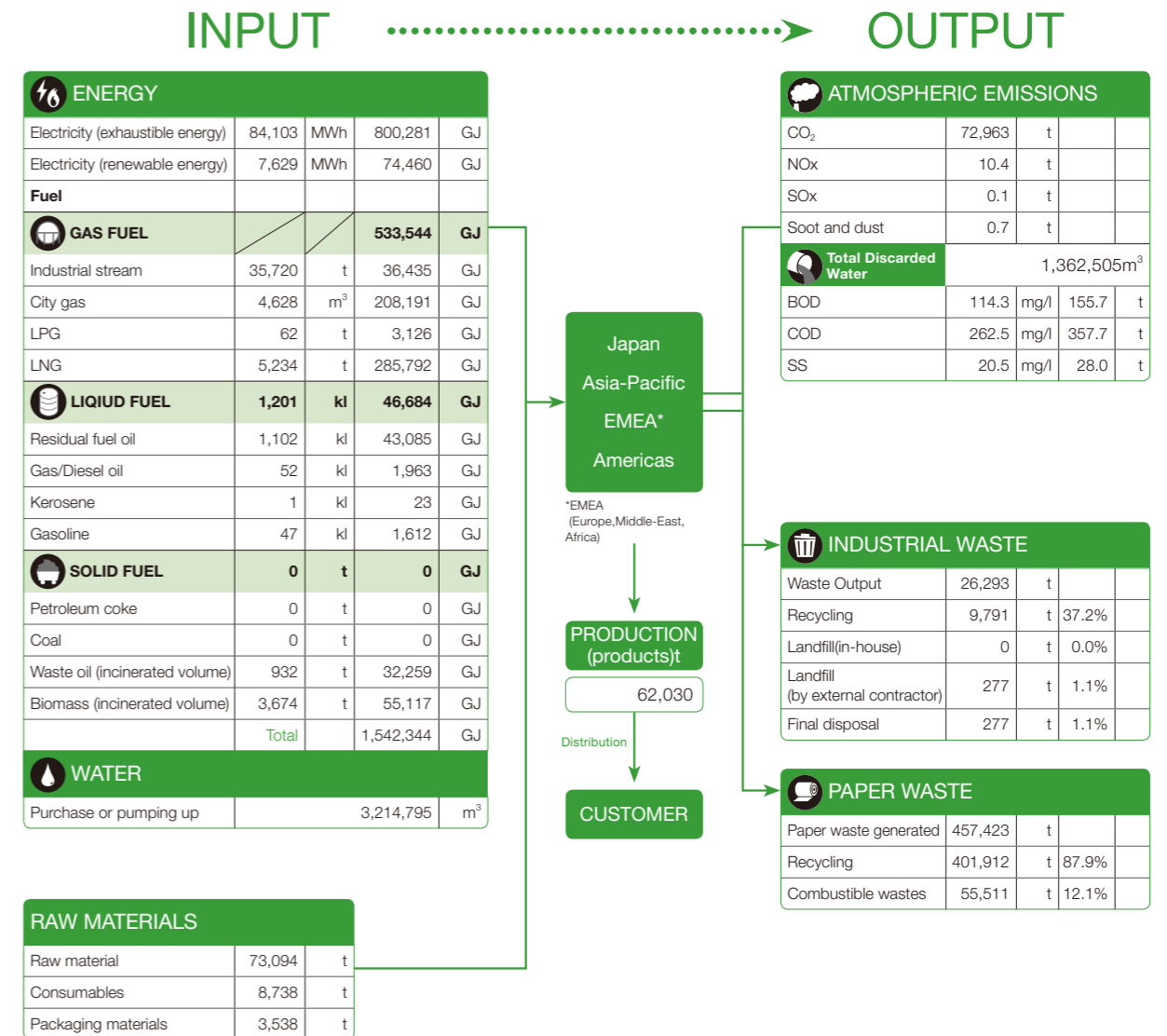
Environmental Compliance

We comply with relevant environmental laws and regulations. There was no major deviation from the compliance standard in 2017.

Material Flow

Environmental impact of our business activities in FY2017

t = 10³kg



Environmental Performance Data

Japan

Item	Unit	Site									
		Takasago International Corporation				Takasago Chemical	Takasago Spice	Takasago Coffee	Takasago Food Products	Nankaikako	Takasago West Japan
		Hiratsuka Factory	Iwata Factory	Kashima Factory	R&D	Kakegawa Factory	Hadano Factory	Iwata Factory			
CO ₂ emission	t-CO ₂	852	21,509	3,393	2,170	2,121	682	1,974	5,120	4,224	3,599
Electricity consumed	MWh	1,206	18,871	5,702	3,514	2,489	871	1,483	4,823	2,499	4,673
Amount of industrial waste	t	287	6,493	929	70	2,078	49	2,069	7,921	2,048	157
Amount of BOD	t	0.03	1.37	0.58	NA	1.12	NA	4.15	0.62	NA	0.08
Amount of COD	t	0.18	1.43	2.90	NA	4.39	NA	12.11	3.37	8.10	0.30
Water withdrawal	m ³	8,741	1,634,149	100,832	26,104	374,853	8,906	51,621	141,908	542,989	28,840

Item	Unit	Office														
		Takasago International Corporation									Takasago Aromas	Koei Sangyo	Kowa Sangyo	Takasago Spice	Takasago Chemical	Takasago Coffee
		Headquarters	Yamanaka Training Institute	Osaka Branch	Nagoya Branch	Fukuoka Branch	Shizuoka Branch	Tokushima Liaison Office								
CO ₂ emission	t-CO ₂	251	13	40	21	27	9	10	2	197	1	1	2	2		
Electricity consumed	MWh	419	11	45	31	32	15	9	5	393	2	2	4	4		

Asia-Pacific

Item	Unit	Site				
		Takasago International (Singapore)	PT. Takasago Indonesia	Shanghai Takasago-Union Fragrances & Flavors Putong Factory	Takasago International (Guangzhou)	Takasago International (India)
		CO ₂ emission	t-CO ₂	5,092	284	1,041
Electricity consumed	MWh	8,476	376	1,095	2,308	613
Amount of industrial waste	t	101	6	226	189	3
Amount of BOD	t	65.80	NA	0.27	0.04	NA
Amount of COD	t	113.76	NA	0.89	0.63	NA
Water withdrawal	m ³	58,031	194	13,871	31,813	5,214

Item	Unit	Office											
		Takasago International (Singapore)			Shanghai Takasago-Union Fragrances & Flavors		PT. Takasago International Indonesia	Takasago International (Philippines)	Takasago Import and Export (Thailand)	Takasago International Corporation (Korea)	Takasago International (India)		
		Vietnam Office	Australia Office	Yangon Office	Headquarters	Guangzhou Office					Mumbai Office	Delhi Office	Bangalore Office
CO ₂ emission	t-CO ₂	7	17	6	522	2	141	27	72	45	4	1	1
Electricity consumed	MWh	11	14	6	618	3	103	30	65	7	5	2	2

EMEA*2

Item	Unit	Site				
		Takasago Europe Perfumery Laboratory Factory	Takasago Europe GmbH	Takasago International Chemicals (Europe)	Takasago Madagascar	STE Cananga
CO ₂ emission	t-CO ₂	72	3,198	3,487	36	38
Electricity consumed	MWh	934	2,859	4,849	51	16
Amount of industrial waste	t	231	142	2,550	1	NA
Amount of BOD	t	NA	73.36	2.73	NA	NA
Amount of COD	t	NA	168.98	24.47	NA	NA
Water withdrawal	m ³	4,198	29,350	57,370	2,455	426

Item	Unit	Office							
		Takasago Europe Perfumery Laboratory		Takasago International (Italia)	Takasago International (España)	Takasago (U.K.)	Takasago International Corporation South Africa	Takasago Europe GmbH Moscow Office	Takasago International Turkey
		Headquarters	Dubai office						
CO ₂ emission	t-CO ₂	71	3	7	15	8	9	NA	7
Electricity consumed	MWh	601	5	9	5	6	10	NA	9

Americas

Item	Unit	Site			
		Takasago International Corporation (U.S.A)		Takasago De Mexico	Takasago Fragrancias E Aromas
		Fragrance Factory	Flavor Factory		
CO ₂ emission	t-CO ₂	1,329	3,808	630	163
Electricity consumed	MWh	1,484	4,028	778	914
Amount of industrial waste	t	83	293	96	52
Amount of BOD	t	NA	NA	5.12	0.43
Amount of COD	t	NA	NA	15.11	1.02
Water withdrawal	m ³	3,443	42,359	5,841	11,433

Item	Unit	Office		
		Takasago International Corporation (U.S.A)		
		Headquarters	New York Gallery	Midwest Sales Office
CO ₂ emission	t-CO ₂	2,984	34	5
Electricity consumed	MWh	3,941	65	10

*1 NA: Not Available *2 EMEA: Europe, the Middle East, and Africa

Occupational Health & Safety

Based on the statement that “Safety is Our First Priority”, we establish operational safety as the basic principle of our activities in order to maintain stable and continuous growth of Takasago group.

Since the fire accident in 2013, Takasago Japan has been conducting an official meeting called Safety Committee monthly, in which site EHS representatives, concerned departments’ directors and general managers (some are the board of directors) participate. It is designed to address key issues brought up from a regular site audit and others and conduct progress checks. We ensure all issues are put into PDCA cycle and additional preventive measures are implemented horizontally across the sites.

As one of the recent actions in a summer season, we have taken up an action on heatstroke prevention. EHS HQ and staff members at a production site of the company collaboratively measured WBGT (WBGT; Wet Bulb Globe Temperature) value and identified higher-risked area in the site. They recommended and/or advised how to prevent heatstroke at the area.

Additionally, as part of EHS HQ, EHS office have been visiting operating sites in other countries to conduct an EHS inspection in order to verify compatibility to the Minimum EHS Requirement. We also focus on odor control derived from manufacturing at a site to prevent such environmental pollution.

Work-related Injury

At all the sites in Japan, unfortunately, 7 workers caused slight or relatively light burn contacted with hot water during cleaning, and 6 workers caused relatively light wound during manufacturing in FY2017. We have to make extra efforts to reduce such work-related injuries.

Environmental incidents

At all the sites in Japan, no leakage incident beyond site is occurred. However, some slight leakage due to damaged and/or turned-over containers was occurred. Thus, we have to make extra efforts to reduce such incidents at work.

Takasago Safety Day 2017 at Takasago Europe GmbH

What staying true to our motto “Safety is Our First Priority” implies for our site is that we meet legal safety requirements, implement Takasago-internal safety regulations, provide safe plants, machinery and equipment and ensure safe working processes for normal operation as well as in case of incidents. Our staff is always of key importance in this context. Only properly qualified and motivated personnel is capable of working safely at all times and of applying the correct behaviour patterns in the event of an emergency in order to minimize personal injury as well as property damage. For this reason, we conduct regular safety trainings and emergency drills at our site.

However, to further emphasize the issue of “safety”, the Takasago management decided to establish the Takasago Safety Day. Each year, the group will determine a new central theme for the Safety Day and prepare the according video and presentation materials and make them available to all sites. On the Safety Day itself all the regular work is suspended to make sure that every employee can participate in the planned activities.

In 2017, Takasago Europe GmbH attended the Safety Day for the first time. The central theme discussed was electrostatics. This subject-matter was chosen due to certain shortcomings during earthing measures which led to the fire in 2013.

Safety Day 2017 was started with a video message by President and CEO of the group, followed by a speech delivered by General Manager and President of Takasago Europe GmbH. It conveyed the exceptional significance of safety for both the Takasago group and the Takasago management at the Zülpich site to all employees. Then the staff was presented with the supplied video and training material. Subsequently, site-specific questions regarding electrostatics and the required earthing measures were discussed in more detail. This was accompanied by their own presentations and took place directly on site so as to vividly demonstrate the previously explained safety measures to the staff at the workplace by

way of practical application.

The remaining time was spent with trainings on other safety-relevant subjects such as fire prevention, explosion protection, first aid and health care.

The parties involved participated in an active cross-departmental exchange of experiences which contributed to further improvements of the safety measures.

The first Safety Day at the Zülpich site was met with a very positive response from the employees. This action day held simultaneously at all sites made everyone realize just how important a role safety plays within our company. It also revealed how every individual staff member can influence safe working conditions to ensure the Zülpich site continues to contribute to the lasting success of the Takasago group.



Takasago Europe GmbH
Manager EHS/GMP
Energy & EHS Management
Representative
Christine Schenk, Ph. D.

Takasago Safety Day 2017 at Takasago International Corp.(U.S.A)

All major Takasago International Corp. (U.S.A) sites held Safety Day 2017 on April 10. Included in everyone’s Safety Day activities were the CEO’s message, the Hiratsuka DVD and the presentation of the “Takasago Technical Guideline for Grounding/Bonding to Container which Contains Flammable Liquid”.

Rockleigh HQ started the day with a breakfast gathering where Fire Safety Poster Contest entries were displayed. These Posters were created by family members (children) of employees. Some other fun activities included a safety quiz and an Impaired driving simulation and “Why I work safely” photos that we made for employees to wear with their badges. Lunch was followed by a fire extinguisher lecture and hands on training from the Bergen County Fire Academy. The site also held a fire drill during the day.

At Rockleigh, a comprehensive discussion on Static Electricity was given. Since Rockleigh has many laboratories, it was important to provide examples employees could relate to. We talked about the importance of having controls on equipment such as hot plates, ovens and other devices where raw materials are heated. US OSHA states that if you heat a combustible material within 30 degrees F of the flashpoint, it must be treated as a flammable liquid. Having temperature controls would assure that a safe temperature can be maintained. Another important point for Rockleigh was demonstrating to employees how to properly ground and bond when pouring small quantities. If transferring less than 2 liters, the desired method is to maintain continuity between the container you are pouring from with the container you are pouring to by touching the containers together and allowing the liquid to run down the inner wall of the receiving vessel.

Both fragrance and flavor factories discussed the topic of heating combustible liquids which could create a fire hazard and where these kinds of activities occur in the plant. We also discussed where flammable liquids might be dispensed by pump or by gravity and whether there was the potential for freefall. Lastly there was discussion around how best to ground plastic containers.



Takasago International Corp.
(U.S.A)
EHS Director, Americas
Tracy Pepe

Takasago Safety Day 2017

We designated April 10th as “Takasago Safety Day”. This is the day to reflect on the 2013 fire, and to pledge, “Never to let such an accident happen again”. Our Corporate Philosophy, “Contributing to Society through Technology”, cannot be realized without safety. We must reaffirm the commitment, with tireless effort and strong will, to further cultivate safety awareness and the development of a safety culture in every aspect of our business.

CEO delivered a speech to all employees in Japan from Takasago Food Products on Takasago Safety Day and sent the video message to employees in overseas.



TIC Headquarters (Tokyo, Japan)

Address of EHS Executive and standard first aid training course.



TAKUS Headquarters (New Jersey, USA)

Fire Safety at Home and Work Poster contest was created to engage employees to discuss with their families the importance of fire safety at home and at work.



TDM (Mexico)

After education of grounding/bonding, checked if grounding / bonding is properly implemented in factory.



TIC Hiratsuka Factory (Kanagawa, Japan)

Education of grounding, bonding, and static electricity by an external lecturer.



TAKUS Flavor Factory (New Jersey, USA)

Site EHS Manager presented video on fire extinguisher usage and demonstrated different types of extinguishers and proper usage.



TII (India)

Evacuation drill and fire fighting training.



TIC Iwata Factory (Shizuoka, Japan)

Address of production division director, communication test of Multi Channel Access (wireless wide area network) and Satellite Phone with headquarters.



TAKUS Fragrance Factory (New York, USA)

Safety Games involved employees identifying unsafe acts/conditions in posted pictures.



TBR (Brazil)

Training to understand the extent of the hazard and how it can be controlled, considering the fundamentals countermeasure against static electricity. Tour in the production area to strengthen the procedure of control of static electricity.



TIC Kashima Factory (Ibaraki, Japan)

Education of Foam Fire Extinguishing Equipment training and field observation of valves.



Takasago Spice Hadano Factory (Kanagawa, Japan)

Fire fighting drill on assumption of fire at warehouse and check new emergency passage.



TIG (Guangzhou, China)

Field check of production area by a plant manager.



STU (Shanghai, China)

Evacuation drill, fire extinguisher drill, and fire fighting drill by in-house fire-fighting team.



Shanghai (Headquarters)



Pudong Factory

TIC R&D (Kanagawa, Japan)

Safety check on dangerous goods storage condition, grounding/bonding effectiveness, and safety equipment.



Takasago Chemical Kakegawa Factory (Shizuoka, Japan)

Emergency shut-down drill of final outlet and the liquid transfer drill to emergency pit on the assumption of oil leakage to rainwater drainage.



TIS (Singapore)

Fire extinguisher and breaking call point training and spill containment drill.



TEG (Germany)

Education of ignition hazards and protection measures in production with practical examples.



Takasago West Japan (Hiroshima, Japan)

Fire fighting drill and education of fire and fire prevention collaborating with a local fire department.



Takasago Coffee Iwata Factory (Shizuoka, Japan)

Communication test of disaster prevention wireless system with TIC Iwata Factory, Takasago Food Products, and Takasago Chemical Kakegawa Factory.



Takasago Food Products (Shizuoka, Japan)

Education of grounding/bonding and check of continuity.



Nankaikako (Wakayama, Japan)

Education of industrial accident by a local Labor Standards Inspection Office.



TEPL (France)

Game and questions to stimulate awareness at the electrostatic and fire risk in the production



TICSA (Spain)

Fire drill collaborating with local authorities on assumption of the fire from chemical storage and the rescue of an employee injured.



Innovation

Green Chemistry

Takasago R&D and manufacturing activities are oriented to Green Chemistry.

Green Chemistry is defined as the design of chemical products and processes that reduce or eliminate the generation of hazardous substances. 12 principles of Green Chemistry were developed, and recently the scope of green chemistry includes not just pollution by toxic chemicals but energy conservation, waste reduction, and life cycle considerations such as the use of more sustainable or renewable feedstocks.

1. Prevent waste
2. Maximize atom economy
3. Design less hazardous chemical syntheses
4. Design safer chemicals and products
5. Use safer solvents and reaction conditions
6. Increase energy efficiency
7. Use renewable feedstocks
8. Avoid chemical derivatives
9. Use catalysts instead of stoichiometric reagents
10. Degradation of Design chemicals and products after use
11. Analyze in real time to prevent pollution
12. Minimize the potential for accidents

Catalysts

One of our key assets to practice Green Chemistry is catalysts which achieve high selectivity and mild reaction conditions. These catalysts realize manufacturing processes with (1) minimized use of raw materials, (2) reduced amount of wastes, (3) reduced energy consumption and (4) the use of safer and non-hazardous reagents. Since our first industrial application of an asymmetric catalyst to the l-menthol process in 1983, we have developed a variety of catalysts and applied them to manufacturing processes.

As an example, we recently developed a catalyst for reduction of esters to alcohols using hydrogen gas. This conversion had been conventionally carried out by

stoichiometric use of metal hydride (such as sodium borohydride) as reductant. The new catalytic protocol allows us to avoid large amounts of waste and dangerous quenching operations associated with metal hydride reagent.

We continue our efforts to explore and improve catalysts so that our manufacturing process will be more benign to human beings and the environment.

Continuous Flow Development

With the experience of continuous flow operations implemented in the aforementioned l-menthol process, we understand the benefits of continuous flow manufacturing. Thanks to recent progresses in this field, we are intensively expanding our capability toward continuous flow, which is now recognized as an indispensable tool to attain sustainable development goals. There are many advantages in adopting continuous flow rather than batch, namely

- Easier temperature control
- Reduced risk when handling hazardous chemicals
- Achievement of a more consistent throughput

Typically, smaller equipment than that for batch is employed for continuous flow, which enables easier temperature control. With precise temperature control, side reactions can be better suppressed, resulting in a higher atom economy. In some cases, suppressibility of side reactions allows the cryogenic reactions to be operated at energy-saving moderate temperatures. Pipe reactor is one typical platform, which suits our catalyst portfolio well because the reaction can be run homogeneously. Notably, the pipe reactor is run with a feed pump, with no agitation required, and thus less electric power is required. For work-up operations, counter current extraction can help reducing water usage. From our efforts to expand our continuous flow capability, we are confident that continuous flow technology will contribute to reduce the burden on our Mother Nature, and we are putting “continuous” efforts into this field.

Supporting Wellness

Today, people are getting more and more health conscious. There are growing consumer demands for healthier foods and drinks. Food industries are making efforts to develop functional products with less sugar, salt and fat to meet people's individual preferences. Takasago flavors add value by enhancing the taste of functional foods to strongly support the health and wellness of consumers around the world. We serve as a reliable partner to support our customers in their product development, taking advantage of our highly advanced technologies developed in pursuit of innovation.

Sugar Reduction

Excess sugar consumption is associated with diabetes, heart disease, and other diet-related health problems. In response to WHO guidelines to reduce sugar intake, sugar reduction is in worldwide demand.

High-intensity sweeteners (HIS) are required for low or zero calorie foods as a sugar replacement to reduce their sugar content. Indeed HIS will provide the same degree of sweetness as sugar in small amounts, but it is not quite the same in terms of sweet profile. HIS have unpleasant bitterness, astringency, or lingering aftertaste that leads to different sweet profile from the authentic sugar.

Based on our study of HIS sweet property, we provide appropriate flavor solutions to close those gaps between HIS and sugar, and allow our customers to reduce sugar content in their products with maintaining great taste.

Salt Reduction

When the amount of sodium salt in the food and drink is reduced, we feel their taste turns into simple and bland in most cases. However, potassium salt as a substitute for sodium salt has an unfavorable taste. Takasago flavors can improve the off-taste specific to potassium salt without any influence on the original flavor of food and drink.

Fat Reduction

Low fat foods are low in calories due to reduced oil and fat content and generally have a light and flat taste, so often we can't get satisfied with those products. Takasago flavors to enhance fatty and oily profile can help low fat products become tastier and richer in flavor.

Natural Aroma Ingredients

Biotechnology is an effective means to realize a sustainable society, and this technology contributes to the realization of SDGs. With a history of Japanese cultural heritage of fermentation, Takasago is working on development of natural fragrance & flavor ingredients using our proprietary biotechnology from renewable resources. We are performing screening of novel microorganisms from nature to unveil the hidden potential of living world, introduction of new cultivation technology, and expansion of breeding technology through collaboration research with academia.

We have further strengthened our commitment to this area by acquisition of US-based Centre Ingredient Technology, Inc. (CIT). CIT produces natural fragrance & flavor ingredients using their unique biotechnology manufacturing processes. In addition, we also have been establishing collaboration with alliance partners to tap into cutting-edge technology of white biotechnology for contributing to future sustainable society.

Sustainability

With a history of 98 years as the first Japanese aroma ingredients company, sustainability is in Takasago's DNA and it has been an essential part of our heritage. We have learned from our 65 years of experience in l-menthol production that over-dependence on a single source of raw materials from petrochemicals is unsustainable. This has pushed Takasago forward and into the next level in seeking new renewable sources as well as new production routes using Green Chemistry. Having iconic

chiral technologies and catalytic technologies coupled with renewable sourcing, these pronged approaches represent Takasago's core philosophy of "contributing to society through technology".

Takasago has taken another baby step by launching our latest nature identical molecules, a "dynamic duo" of Biomuguet™ and Biocyclamol™. Both molecules are quickly becoming indispensable as alternatives to existing muguet ingredients. Our strong commitment through intensive efforts and investment made this new launching possible.

We are challenging to develop novel molecules possessing significant biodegradability or considering environmental safety as an alternative solution for securing natural biodiversity for contributing to sustainable society.

Biodiversity - Island Projects -

The concept of "Biodiversity hotspots" has recently been proposed amid growing concerns about conservation of the natural environment. There are 36 hotspot regions in the world (2017), including Japan. In Japan, high-biodiversity can be found mainly in the islands and alpine regions. Takasago launched "Island Projects" to capture the scents of Japanese unique flora using AROMASCOPE™ technique that has low impact on the environment and the plant itself.

The Ogasawara Islands, designated as a World Heritage Site in 2011, have hundreds of endemic animals and plants. From 2013 to 2014, our team sampled and analyzed the headspace of these unique plants and then reconstituted their aromas which represent originality and uniqueness of the vegetation of the Ogasawara Islands from an olfactory point of view.

In 2016, we started investigating flowers in Rebun Island. This island is located in the northernmost part of Japan, and it is well known for its unique alpine flora from the lowlands.

There are very few reports on the scents of endemic

or endangered flowers in Japan. Our project, sharing the new knowledge of the scents of Japanese precious flowers and showcasing the interesting reconstituted-fragrances, can be one of the best ways to best present the rich biodiversity of Japan.



Schima mertensiana



Primula modesta var. matsumurae



AROMASCOPE™ technique
(to collect flower fragrance from the head space)

Supply Chain

How do we manage in a responsible way our diverse and complex supply chain?

The primary objective of procurement is to ensure long term supply of our many unique ingredients with tailored sourcing strategies.

This cannot be achieved without local producers, their communities and the environment they operate in.

...and trust from clients and civil society that we conduct procurement in full alignment with their expectations and our standards.

Those above three fundamental pillars of sustainable sourcing at Takasago are covered by our "TaSuKI" program described below.

"TaSuKI", Takasago Responsible Sourcing program

In full alignment with Takasago One-T concept and to address growing fundamental aspirations from clients and civil society, Takasago has embarked on an overarching ambitious responsible sourcing program named TaSuKI.

Why TaSuKI ?

Firstly, it is because TaSuKI is the abbreviation of Takasago Sustainable Key Initiatives. More importantly, in Japan, a "TaSuKI" (たすき) is a piece of cloth (same as a stick) that long distance relay runners from "Ekiden" (a relay race which originated from Japan) would pass to each other to cover the full relay race. For us it is highly symbolic and important as it represents tradition and modernity, teamwork, global efforts, continuity, sustainability as well as speed, a sense of urgency and other Takasago values.

TaSuKI aims at ensuring that the way we operate is

consistent with our corporate sustainability aspirations, harmonized across our sites and affiliates, and is clearly known and respected by our suppliers and partners. It is also a dynamic, continuous improvement "Kaizen" process, from an existing to a desired future situation. TaSuKI covers 3 main topics which will be further described below.



1. We implement and manage responsible sourcing strategies along the whole value chain to secure sustainable supply.

Overall Objective

We ensure responsible, long term, stable supply of most strategic ingredients for the Takasago business.

Strategy

Over nearly 100 years of activity, we have acquired an in-depth understanding of our raw material supply chains and identified the most strategic ingredients for our business to focus on.

For those ingredients, we design and implement responsible sourcing strategies such as:

- Backward integration in countries of origin from farming to processing.
- Long term supply commitments with suppliers and producers to provide visibility and regular revenues.
- New alternative source development to mitigate supply risk.
- Research programs to improve yields & revenues to producers.
- Innovative technologies development such as green chemistry and biotransformation.

A few examples:

Responsible Sourcing

While being a global company we do enrich our traditional Japanese heritage from the best of all cultures and experiences. Many of our strategies and actions could be guided by the saying from Africa “ If you want to go fast travel alone, if you want to go far travel together...”

Even if we would like to go “fast”, for many large raw materials we cannot act in isolation. We believe that joining forces in a collective, harmonized effort should be a more effective and efficient way.

For environmental protection we therefore have become a member of RSPO (Roundtable on Sustainable Palm Oil)*1, RCPA (Renewable Citrus Products Association)*2 and are working, on our own this time, on procurement of sustainable natural materials such as Cedarwood Oil, Cypress Oil, Guaiac Wood Oil, etc. made from fallen trees, sawdust, cut-branches materials, waste materials instead of traditionally coming from logged trees.

For Takasago, the ratio of renewable raw materials*3 we used in 2017 is about 31% of our total. We have other initiatives to significantly improve this figure and prepare for the future depletion of petroleum.

* 1. RSPO: A social organization trying to transform the palm oil industry into a sustainable industry with fewer burdens on the environment.
 * 2. RCPA: A group of companies interested in developing sustainable citrus products.
 * 3. Renewable raw material: A renewable resource is a natural resource which can replenish itself to overcome human consumption through biological reproduction, naturally recurring processes and/or other positive actions. Based on the definition of GRI Standard Japanese version, we compiled the ratio of renewable raw material usage.

Another example is Recycled packaging

For cardboard packaging and steel drums, recycled materials (waste paper and steel materials) are used, and the ratio of waste paper used in cardboard can vary from 50% up to 99%. (The recycling ratio differs according to the country)

We are also re-using IBC containers, steel drums and palettes, as long as there is obviously no potential safety risk.

All unfit for use packaging materials are collected, sorted and recycled by authorized recycling third parties. While we have engaged in discussions with our customers, at this stage we do not use any recycled

bottles and packaging for our finished products for safety and regulatory reasons.

2. We support local suppliers, producers and their communities and reduce impact on the environment.

Overall Objective

For each most strategic material for which Takasago is backward integrated, we ensure that a comprehensive program is in place to support local communities with the aim of protecting their environment and improving their standard of living.

Strategy

We first need to identify direct beneficiary community members of the program. Jointly with communities, we then expand, implement new (or join existing) comprehensive programs to cover:

- Education
- Health and hygiene
- Nutrition
- Women
- Income
- Environment

In some cases, we also encourage individual communities' members to regroup in cooperatives as it facilitates the overall management of support initiatives and sourcing programs

There are a few more examples:

Local communities support program for sourcing natural ingredients

Vanilla

Takasago helps the SAVA community to go back on its feet after the cyclone. The cyclone in the SAVA area has affected vanilla cultivation, but most of all it has affected the Malagasy population. Faithful to its mission statement, Takasago has decided to contribute to society funding the recovery of the SAVA community. Through our local partner, we have contacted mayors, chief of districts and local authorities to understand and address which are their most urgent needs.

With complete transparency and maximum attention to touch as many people as possible with our contribution, our help has been aimed primarily at alleviating the immediate needs for food, and secondly to fixing infrastructures and trying to send back kids to school as soon as possible.

In detail, the list of projects funded by Takasago includes:

1. Reparation of the EPP Ambatofisaka elementary school and of the CEG Ampahana high school in SAVA, both severely damaged by the cyclone
2. Funding the reconstruction of Maroantsetra School
3. Contribution to the reconstruction of the roads affected by the floods in Maroantsetra
4. Funding the work of a local women's group in Maroantsetra, involved in numerous reconstruction projects
5. Food supplies, with the distribution of 2,5 quintals of rice to the ones most in need.



CEG School of the Rural District of Ankofabe in Maroantsetra, Madagascar during rehabilitation after cyclone.



CEG School in Ampahana, Madagascar after Enawo cyclone (SAVA AREA).

Yuzu

Continuous support for producers of *Yuzu*, Japanese citrus. *Yuzu* is a traditional citrus cultivated in Japan for more than one thousand years. *Yuzu* has a unique sensory profile and is used to enhance many Japanese traditional dishes such as grilled fish, bouillons and soups. Traditionally, during winter solstice, Japanese people also enjoy using *Yuzu* fruits in their baths to provide a distinctive citrus smell and enjoy the relaxing effect of the essential oil it contains.

These days there are many *Yuzu* fragrance related products such as bath salt, cosmetic and perfume featuring *Yuzu* for its image of relaxing and popularity among Japanese people. For Takasago, *Yuzu* essential oil produced in Japan has been on the pallet for creation of flavours and fragrances for years. *Yuzu* usually grows in mountainous parts of Japan. Due to their long and strong thorns, picking *Yuzu* fruits is tedious. To support the growers, particularly the most senior, we regularly are joining the program of *Yuzu* fruits harvesting during its peak. This also contributes to improve understanding of farmers needs and to strengthen the relationship.



3. We are committed towards responsible sourcing compliance.

Overall Objective

Ensure that all business dealings with Takasago are ultimately handled in an ethical and environmentally respectful way, aligned with Takasago triple T core values: Trust, Teamwork and Technology to contribute to society.

Strategy

Our strategies to ensure compliance apply to raw materials, suppliers and Takasago employees. They cover ethics, sustainability and environmental requirements and are aligned on our below described five steps continuous improvement process:

1. Define > 2. Inform > 3. Assess > 4. Improve > 5. Verify.

1. Define Takasago responsible sourcing expectations. We have clearly described our expectations for 3 specific dimensions:

- Procurement Overall (Corporate Procurement Policy & Guideline)
- For suppliers (Suppliers Code of Conduct)
- For individual raw materials (in-house Takasource matrix)

These expectations are mostly aligned with international standards (UN Global compact, 17 SGDs, SEDEX/ SMETA, etc.)

2. Inform all internal and external stakeholders on Takasago responsible sourcing expectations rationales and process for them to complete self-assessment identify gaps and mitigation actions.

3. Assess current situation versus expectations and identify gaps via questionnaires, Sedex, Takasource screening and field trips.

4. Improve by careful review with suppliers of identified gaps, root causes and proposed remediation strategies and plans. Should we feel that proposed mitigations are not robust enough, we may decide to execute one of our own strategy outlined above or a more appropriate alternative.

5. Verify and certify compliance. Should we feel that Sedex self-assessment is not enough, we may ask for a SMETA or other independent audit.

With the above process we want to ascertain that raw materials supply chains are traceable and responsibly managed in compliance with Takasago requirements. Depending on circumstances and client's requests, we may ask (go for internally sourced raw materials) for third party certification such as organic, fair trade, etc.

They are a few examples:

For years Takasago defined and shared its standards and requirements concerning Corporate Sourcing Responsibility, Responsible Sourcing and Business ethics.

This is clearly described in our "Corporate Procurement Policy", "Corporate Procurement Guidelines", "Supplier Code of Conduct" and "Takasource" questionnaire which enable Takasago teams, suppliers and partners to

assess supply chains compliance with our standards in full transparency. "We say what we do and we do what we say", and we expect our suppliers to apply the same principles.

Takasago Supplier Code of Conduct

While the environment we operate in is truly global and diverse, we at Takasago operate with the same high standards across each of our affiliates. We therefore expect our Suppliers and Partners to apply the same environmental and social principles that we describe in our "Takasago Supplier Code of Conduct".

"As a company that values the global environment & aspires to gain a high level of trust from society, Takasago holds sustainability as one of the key cornerstones of our business. Takasago therefore prioritizes & values suppliers that place importance on global & social responsibilities (e.g. sustainability, compliance with laws, regulations & social norms, protection of human rights, assuring health & safety & fair trade)."

Supplier Relationship Management

As previously stressed, while we operate in a very global and diverse environment we aim at ensuring that our suppliers and partners consistently apply the same highest standards.

We will only succeed if our relationship with suppliers and partners is based on open, transparent communication and continuous improvement culture.

Key pillars of this valued relationship are

- Build strong, transparent, mutually beneficial relationship with suppliers
- Share mutual goals and expectations to ensure early alignment.
- Design, maintain and develop tools and systems that facilitate the relationship such as Global Request For Quotation where Takasago requirements are openly disclosed
- Thorough implementation with our suppliers of "Takasago Supplier Code of Conduct", which emphasizes corporate social responsibility such as sustainability and respect for human rights by periodic supplier survey using questionnaire.
- Check for no forced and child labour by periodic supplier survey using questionnaire.

* According to our 2017 supplier questionnaires results, all Takasago global suppliers confirmed that they were compliant with the social and the environmental standards described in "Takasago Supplier Code of Conduct". This may be further verified during audits.

Sedex

In early 2016, we extended the Sedex membership from B to AB. This enables us to assess our suppliers in the areas of Work Environment, Health & Safety, Environmental Management and Ethical Business Practices. By using the world's largest collaborative platform for sharing supply chain data globally, coupled with our in-house Takasago Supplier Questionnaire, we have a very solid base to assess their corporate social responsibility profile and performance. In 2017, we had established relationships on Sedex with 120 major suppliers in Japan and overseas and obtained data on their compliance.

We are promoting Sedex to all new suppliers and strongly recommend they join as B members before we start business relationship. This will allow us to gather critical information early and ensure we have a transparent, constructive and compliant business relationship.

* Sedex: An online platform for sharing information on ethical and responsible practices.

TAKASOURCE

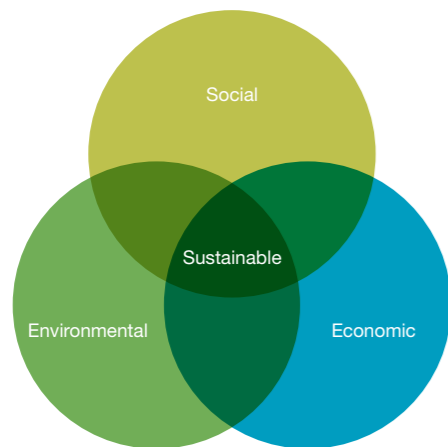
As we clearly described Takasago's expectations in our Corporate Procurement Policy, Guidelines, Supplier Code of Conduct and questionnaire, we had to establish a process whereby we would be able to assess supply chains compliance with our requirements, our client's expectations, and mitigate any identified supply, cost volatility and sustainability gaps.

In 2016 we therefore implemented TAKASOURCE (TAKAsago SOURcing with Responsible Care and Ethics). TAKASOURCE is a comprehensive IT tool that helps analyze our supply chains, identify risks for further mitigation. It is validated by ECOCERT (control and certification organization).

It is built around the below 3 main pillars

- Social dimension: Satisfy human needs and meet the objectives of social equity, by favoring the participation of all social groups on health, housing, consumption, education and cultural topics.
- Environmental dimension: Preserve, improve and value the environment and natural resources in the long term, by maintaining the ecological balance, by reducing the risks and by foreseeing the environmental impacts.
- Economic dimension: Ensure the distribution of wealth and profits, take into account the social and environmental costs in the price of materials and seek to develop the local economic network.

Takasago sourcing with responsible care and ethics



This matrix allows us to evaluate each supply chain (raw material/supplier combination) jointly with our suppliers and identify potential gaps. For each identified critical supply chain, we and/or our supplier will then conduct an in-depth on-site field audit in order to fully understand the issue and adequate preventive/corrective strategies and plans.

The ultimate goal of the above described process is to ensure long term stable supply of our perfumery industry iconic ingredients while preserving/improving the environment, culture and standard of living of ingredients producers' communities.

Continuous Flow Manufacturing

The continuous mode of production was generally thought to be an effective manufacturing method to produce bulk chemicals i.e chemicals at the tons scale. Our endeavour at the Iwata factory in continuous manufacturing has a history since the 1980's and we have successfully established multiple continuous processes to date related to our over 3,000mt per year production of l-menthol.

On the other hand, in recent years, the continuous mode of production has been given more focus in terms of its application in relatively smaller scale production, with an increased adaptability to the manufacture of products in

the pharmaceutical and cosmetic fields. This stems from the ability of the technology to achieve SDGs: Sustainable Development Goals envisioned by the United Nations¹ as well as the recommendation of the technology by the FDA: Food and Drugs Administration². To expedite the execution, outlined in the "Innovation" section, to bring up to commercial scale, we have been actively installing continuous manufacturing equipment toward API intermediate production since 2014.

One of our products manufactured at the commercial scale through continuous manufacturing has allowed us to shorten the manufacturing period to a half of a conventional batch process. This is one among many advantages of continuous manufacturing which has contributed greatly to the achievement of consistent quality and quantity of our products as well as its timely delivery.

Commercial experience with continuous manufacturing

■ PFR: Pipe Flow Reactor:

- 6 API intermediates, 1 cosmetic raw material, total production amount: over than 16mt.
- Effect: Easier temperature control, Reduced risk when handling hazardous chemicals

■ CSTR iSTR: Continuous Stirred Tank Reactor/ Intermittent Stirred Tank Reactor

- 3 API intermediates, total production amount: over 100mt.
- Effect: Easier temperature control, Achievement of consistent throughput

References:
 1. http://www.unic.or.jp/activities/economic_social_development/sustainable_development/2030agenda/
 2. FDA Voices. "Continuous Manufacturing"- Common Guiding Principles Can Help Ensure Progress".
<https://blogs.fda.gov/fdavoices/index.php/2017/09/continuous-manufacturing-common-guiding-principles-can-help-ensureprogress/>
 (Date of last access: 2018-2-28)

Product Responsibility

Quality Assurance

Takasago is committed to work as a valuable partner with our customers to meet all their product quality and safety needs and requirements.

Quality Assurance Organization

The mission of Corporate Quality Assurance Headquarters (QAHQ) is to ensure that Takasago supplies safe, wholesome and reliable fragrances, flavors, aroma ingredients and fine chemicals that comply with safety and regulatory requirements of governmental bodies, customers or trade associations. In addition, Takasago's QAHQ makes sure that Takasago consistently delivers quality products and services that meet the highest quality and product safety standards. QAHQ is an independent organization and consists of the quality assurance departments across the globe under "One Takasago Quality Assurance Concept". This organization also includes global QC centers as well as global safety and regulatory affairs centers working closely with the local teams. These centers are also responsible for the development of global policies and guidelines under a globally standardized business process and make sure that these are incorporated in an appropriate manner. With this, Takasago is able to provide the highest quality to satisfy all our customers worldwide.

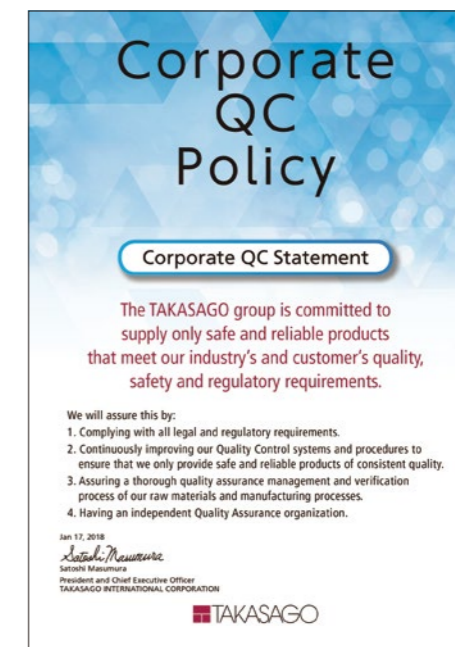
QC Policy, SOP and Guideline

Takasago's Corporate QC Policy was made based on our Corporate Philosophy, Basic Management Policy and Charter of Corporate Behavior. This enables us to have a globally consistent quality mindset and systems that not only meet customer's expectations but also ensure appropriate and timely improvements.

In line with the Corporate QC Policy, global QC SOPs and guidelines were established to standardize detailed QC procedures across all business units and geographies. These guidelines are also incorporated in the local quality management procedures and practices ensuring the

alignment of our own QC management globally.

1. Complying with all legal and regulatory requirements.
2. Continuously improving our Quality Control systems and procedures to ensure that we only provide safe and reliable products of consistent quality.
3. Assuring a thorough quality assurance management and verification process of our raw materials and manufacturing processes.
4. Having an independent Quality Assurance organization.



Global Meeting

QAHQ organizes global meetings of the Quality Division on a regular basis. The main objective is to ensure that Takasago continues to deliver products of the highest quality. The meetings are designed to update on the latest regulations, global policies and guidelines and to discuss any relevant issues or concerns on a timely basis. This activity contributes to ensuring that Takasago provides the same level of quality and service for all customers globally.

Training Programs

To develop and maintain our quality and service, all local teams participate in many kinds of training including sensory, analysis and so on. This training is conducted by Global Quality Control Centers, and the results are shared promptly with the local managements to take corrective actions. This is part of Takasago's efforts for continuous improvement.

Compliance

It is Takasago's global policy to comply with the latest regulations and/or legislation. Global Safety and Regulatory Affairs Centers continuously monitor changes in regulations, customer requirements, standards or guidelines from trade organizations like FEMA, IFRA, RIFM and so on. Information is shared promptly with each local site. This process helps guarantee that Takasago provides safe and reliable products all over the world.

Certifications

Takasago promotes the acquisition of management system certifications such as ISO 9001, FSSC 22000/ ISO 22000 and GFSI Scheme and other internationally recognized quality and safety standards that are appropriate for products we manufacture. This is part of a group-wide initiative that includes group companies in Japan and overseas. Appropriate application of these standards helps us promote better quality and service, as well as ensure global standardization.

On-site Audit

To further strengthen the group's quality management, global QC centers conduct an on-site audit regularly to identify points for improvement. Based on corrective and preventive action plans, the centers monitor the progress through the monthly report that is prepared by the local teams.

Customer Health and Safety

Takasago develops and manufactures a wide range of products across four business pillars: Fragrances, Flavors, Aroma Ingredients and Fine Chemicals. As an integral part of the creation and production processes, Takasago

continually evaluates all our products for their health and safety compliance. This approach applied from the research and development stage up to the manufacturing stage of our products.

During the reporting period, Takasago has not identified any non-compliance with regulations and/or voluntary codes.

Marketing and Labeling

Takasago develops and manufactures Fragrances, Flavors, Aroma Ingredients and Fine Chemicals. All of Takasago's sales are made through business-to-business channels. None of our products are sold directly to consumers. Our Fragrances and Flavors are sold to companies supplying consumer goods, who incorporate them into their products that are sold to the general public. Our Aroma Ingredients are sold to other Flavor and Fragrance companies for use in the creation and manufacture of their own compounds. Takasago Fine Chemicals are generally used as intermediates for the manufacturing of pharmaceuticals and of chemicals.

When supplying our products to our customers, Takasago provides product information as required by regulations and/or the customer for all the products we manufacture. This typically includes one or more of the following:

- Sourcing of the raw materials used in the manufacture of our products
- Composition of our products
- Safety data sheets (which highlight components that may have an environmental impact)
- Information on the safe use of our products

Such information is provided for all products manufactured by Takasago.

During the reporting period, Takasago has not identified any incident of non-compliance concerning product information and labeling.

People

Relationship with Employees

Employment Situation

Takasago has its workforce in 27 countries and regions around the world with a variety of contracts and types of work. In 2017, a 42% of employees is covered by collective bargaining agreements.

Employees including temporary staff

Region	Employees	Male	Female	%Male	%Female
Japan	1,707	1,334	373	78%	22%
Asia Pacific	796	419	377	53%	47%
Europe	686	383	303	56%	44%
Americas	708	397	311	56%	44%
Total	3,897	2,533	1,364	65%	35%

Permanent employees by age group

Region	<30		30-50		>50		Total
	Male	Female	Male	Female	Male	Female	
Japan	227	64	771	223	292	70	1,647
Asia Pacific	84	74	266	251	54	20	749
Europe	57	50	224	159	95	52	637
Americas	29	45	200	153	135	73	635
Total	397	233	1,461	786	576	215	3,668

Respect human rights and eliminate discrimination

Takasago does not tolerate discrimination or harassment of any type, from any source.* In the EHS100 Plan, we have enumerated four priority issues regarding our "Respect for Basic Human and Worker Rights": Child labor, Respect for the individual, Hiring of Disabled Workers, and Assessment of Suppliers. In line with this, we have implemented the following:

- Prohibition of child labor below the age of 16
- Human rights education
- Provide appropriate accommodations for persons with disabilities
- Provision of Takasago International Corporation's Suppliers' Code of Conduct to all our suppliers.

* Race, color, religion, national origin, ancestry, citizenship status, physical or mental disability, sex, pregnancy, age, marital or familial status, sexual orientation, veteran or military status or unfavorable military discharge, atypical hereditary cellular or blood trait, genetic information, arrest record or any other basis prohibited by regional laws.

Training and Education

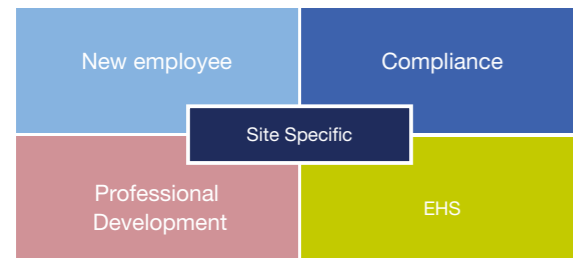
Takasago is committed to providing employees with a rewarding and challenging work environment; supplying our customers with quality and innovative products and giving back to our local communities. Takasago fully recognizes its responsibility to the community and environment in which we operate. We have consistently communicated our position and expectations to our employees and are taking the additional steps to formally train our employees globally.

Aligned with these goals, Takasago engages in ongoing training activities to promote sustainable learnings and obtain positive behavioral results. These include providing comprehensive education on anti-harassment and diversity to ensure employees and managers embrace the importance of cultural differences and inclusion, support human rights, and respect varying beliefs and practices. Safety procedures are prioritized to increase awareness of dangerous activities and hazardous materials with the goal of eliminating injuries and illnesses of all personnel.

Our Charter of Corporate Behavior outlines expectations for interacting with employees, customers, suppliers, shareholders, regulatory agencies and the communities in which we operate. Takasago provides anti-corruption, anti-trust and related trainings across all regions to educate and reinforce a commitment to regulatory excellence and fair competition.

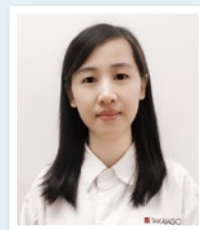
The culture within Takasago supports employee growth and development from on-boarding, ongoing training and on-the-job experiences. Employees actively participate in career path aspirations and provide feedback to modify and enhance individual performance. In collaboration with management, performance metrics are established, development plans created and opportunities to embark on new projects provided, to fully understand the operations of the organization. Building on employee expertise allows Takasago to continuously enhance the products and services provided for the consumer.

Educational Program



Takasago Educational Program consists of above 5 pillars

VOICE



Planning & Business Development Department
Takasago International (Guangzhou) Co., Ltd.
Zhi Liu

Training Experience

I felt sincerely honored to have a one week training experience at the headquarters in Japan from 9th to 12th, May 2017. Through this training, I gained a more comprehensive understanding of Takasago group and learned more about the activities of sustainability at Takasago. This training was very meaningful for me, and I hope to apply what I learned to my work and accept more challenges. During the four days of training, I was introduced to the achievement of GP-3, the mission and functions of various departments at headquarters, the EHS and supply chain activities, and visited the factory in Hiroshima.

What impressed me most is that sustainability at Takasago is included in all aspects, and thoroughly implemented from the headquarters to overseas affiliates. I identify with the culture and values of Takasago group, and feel very proud of the organization I work for.

As a staff member of Planning & Business Development Department as well as EHS manager at one of the overseas affiliates, I'm very pleased that I was provided the training opportunity at headquarters. I deeply feel that Takasago attaches great importance to each employee's personal growth and their chosen career path.

Career Development

Takasago is highly committed to career development and career pathing for our employees. We understand what knowledge, skills, personal characteristics and experience are required for an employee to progress in his or her career. We identify talents, support employee development beyond borders, share best practices and knowledge transfer, broaden perspective and network and expand global capabilities. Takasago offers a variety of tools, trainings and possibilities to develop laterally or by promotion and/or by departmental transfer.

Promoting Diversity

Takasago continually strives to create a work environment that welcomes and respects diversity and empowers individuals to realize their full potential. As part of this, we support efforts to increase female managers and foreign national employees while promoting the benefits of diversity and inclusion. Takasago values the contributions of all employees, and believe that the broad perspective provided by a diverse workforce adds enhanced value to all our products and operations on a global basis.

Return to work after parental leave

Takasago group is an advocate of work/life balance and makes it as easy and supportive as possible for employees to return to their jobs following parental leave.

We improved our leave policy to provide additional parental leave in additional to legislation requirements. As a family-friendly company, we build a working environment that is supportive to our employee in procreation. We have good track records to indicate that some employees were promoted in the year that long parental leave were taken. One of the criteria of promotion was based on past years' performance and not just the last 12 months' of service.

Particularly in Asia Pacific region, the company is aware that employees returning to work after childbirth, may want to continue breastfeeding and will require some form of lactation support at the workplace. The company set up Lactation Room to support nursing working mothers to continue breastfeeding even after parental leave and knowing the benefit it has for infant health. The company believes, a healthy, worry-free mother means an employee

who is able to contribute more productively to her workplace.

In addition, the company organises a positive parenting lunch talk as part of our employees wellbeing programme. Investing in a welcoming workplace for parents help to harness the emotional intelligence and collaboration advantages that the parenting learning laboratory provides.

The company believes that good policy and support can lead to better recruitment, better employee morale and increased productivity.

Communication

Takasago has been seeking to develop its own way for team building among the affiliated companies in Japan. Providing a sport event called "Takasago-Cup" at Japan is one of the traditions. The event is held every year in which every employee including group companies can participate. The match of various kinds of sports such as volley ball, basketball, tennis, baseball and marathon is organized and participants enjoy playing matches among sites. Through providing such an opportunity, we aim to build solid team work at each site and across companies and develop a positive work environment.



Relationship with Local Society

Community Engagement

As Takasago states in Basic Management Policy that respects the global environment and local communities, we consider connecting with the locals is fundamentally important. Takasago has been making various approaches such as providing cultural/historical contribution, educational programs, donations and supporting community activities, conducted site by site, for a long time. We will continue these activities and try to be a sincere, faithful and trustful partner.



Clean up activity around the factory, Japan



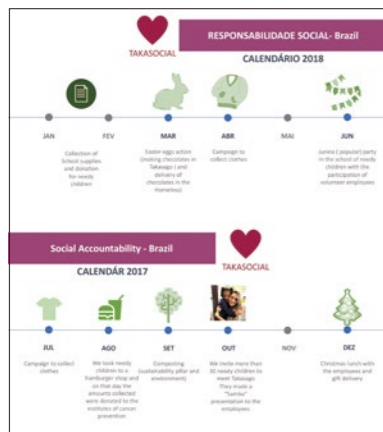
Participate in a local festival and play a role in activating the region, Hiroshima, Japan



Visit a nursing home for elderly and give materially and mentally support. Shanghai and Guangzhou, China



Gratitude given to some representatives



Annual calendar of Social Responsibility Mexico, Brazil

Cultural/historical Activity

Takasago holds a Kodo Ceremony for employees regularly. This is a part of our educational programs to provide an opportunity to learn and enjoy the traditional art of fragrance. It is not applicable to employees in Japan but also open to colleagues from other countries. Colleagues from overseas affiliates also participated in the ceremony in 2016. Also, Takasago encourages employees to participate in a Kodo ceremony held by public.



Education & the Arts

Takasago International (Singapore) Pte Ltd collaborated with Singapore's LaSalle College of the Arts to give graduating fashion students a boost as they step into the working industry. Two graduands were selected for the collaboration after clinching top spots in the Fragrance Fundamentals Program held by Takasago International (Singapore) Pte Ltd.



The graduands articulated their design thinking and, with the Takasago International (Singapore) senior perfumers of composed the right notes for the desired scent. The perfumes were then dispersed on the catwalk during the fashion showcase held by the institution.



Collaboration with local university

Takasago Spain has renovated the University Chair with the Local University. With the signature of this Agreement, University and Takasago Spain collaborate in several research projects, and as well it contemplates the participation of university students of Chemical Engineering to work in the research projects and give them the first professional experience.



Sponsor blood drive with the American Red Cross.

Providing blood and blood components is a shared community responsibility. For the last several years, Takasago America has partnered with the American Red Cross to sponsor blood drives to support employees' ability to donate blood. Every blood donation saves or sustains the lives of up to three of our neighbors within the community. Last year, Takasago collected 35 pints of blood; positively impacting approximately 105 lives.



Supporting community activities

Employees of Takasago Germany attended "Business Run" in Cologne, followed by previous year. As it was the second time, it was a steadily growing team.

About 15.000 people gathered to join the event where part of the attendance fee is used for local projects supporting people in need.



Contribute to fundraising for annual race against breast cancer

Employees from Takasago Europe Perfumery Laboratory participate in this annual 5 km and 10 km race with their families. The company bears a 50 % of registration cost for ODYSSEA annual race against breast cancer.



They also contribute to fundraising for PIECES JAUNES annual collect to support children and their families on long stay in hospitals.

Every year since 1990 the Fondation Hôpitaux de Paris-Hôpitaux de France (Foundation for hospitals) promotes the annual event « pièces jaunes » : a call on the generosity of the public to finance projects with pediatrics units in hospitals. These projects support babies, children and teenagers on a long stay. They cover improvement of daily life in hospital, pain control, accommodation of parents and relatives in houses close to hospitals, etc.



Spreading the culture of fragrance

As a fragrance-manufacturer originated in Japan, Takasago believes that it is our responsibility to spread and sustain culture of fragrance in society. We store a comprehensive collection of historical materials and records regarding traditional fragrance culture in Japan as well as overseas, and provide various educational programs.

Perfumes are believed to date back as early as 5,000 years ago, and to be recognized as a distinctive form of aroma-related culture in the long history of human civilization. Takasago has collected numerous valuable artworks and materials related to fragrances created in both the East and West. By displaying them in the gallery room at Takasago headquarters in Tokyo, we can share these heritages with public.

The Takasago Collection® features traditional Japanese incense burners, containers, and other implements used in Kodo, the art of incense. The Collection also includes incense burners from China, ancient Egyptian fragrance artefacts, Greek and Roman perfume bottles, etc. The collection contains approximately 1,000 items, some of which are on display in the Fragrance Gallery room.

Takasago held its first Kodo Ceremony in summer 2016. This is a part of our educational programs, and many of our employees, including those from overseas affiliates, participated in the ceremony to learn and appreciate the traditional art.

As a pioneer of fragrance technology in Japan, Takasago will continue optimizing our expertise and experience to support the culture of fragrance. We wish to pass this on to future generations in order to sustain the traditional role of fragrance in all culture.

■ About KODO (also sometimes referred to as “KOHDO”)

1. History of “KOH” (incense)

[Asuka Period, A.D. 538] Arrival of Buddhism

It is commonly believed that people in Japan started using “KOH” in A.D. 538 when Buddhism first entered the Japanese culture. The KOH was brought to Japan from the Asian continent, with several Buddhism ceremonies in this period.

[Asuka Period, A.D. 595] Significant driftage to Awaji Island

According to the Chronicles of Japan (Nihon Shoki), a huge scented wood drifted down to Awaji Island in April A.D. 595. The islanders who burned the wood were surprised by its marvelous aroma. They presented the wood to the Imperial court and Prince Shotoku named it Aloes-wood (Jinkoh).

[Nara Period, A.D. 753] Jianzhen (Ganjin)’s visit to Japan

It is considered that a Chinese monk named Ganjin brought a lot of ingredients for KOH and incense mixing techniques to Japan along with the precepts of Buddhism. Enjoying incense in daily living became common among the aristocrats who had gained knowledge of KOH.

[Heian Period, A.D. 794-1185]

The beginning of the society of aristocrats

In this period, “Kneaded Incense (Takimono)” become popular among the aristocrats. They prepared original Takimono and burned it over charcoal to enjoy lingering scents in their rooms or kimonos. There are repeatedly mentions of KOH in “The Pillow Book (Makura no Soushi)” and “The Tale of Genji (Genji Monogatari).”

[Kamakura/Muromachi Period, A.D. 1185-1573]

Appearance of the KOHDO

“Monkoh” which means listening to incense in accordance with a set ritual was established in the Kamakura Period. At the dawn of the Muromachi Period, a method of “Six Countries, Five tastes (Rikkoku-Gomi)” was created to categorize the type of scented woods. The culture of

incense burning, KOHDO was established along with the systematization of tools and method of Monkoh. Two main schools of KOHDO were established in this era : one is “Oie-ryu” by Sanetaka SANJONISHI and the other is “Shino-ryu” by Soushin SHINO.

■ About Rikkoku-Gomi

“Rikkoku” refers to the characteristics of fragrance and consists of Kyara (Vietnam), Rakoku (Thailand), Manaban (India), Manaka (Malaysia), Sumondara (Indonesia) and Sasora (unknown). “Gomi” is five tastes describing the fragrance such as sour, bitter, sweet, spicy and salty.

[Edo Period, A.D. 1603-1868] Establishment of the KOHDO

The culture of KOH which had already spread into aristocrats and warriors was gradually expanded to merchants with the economic power in the Edo Period. The KOHDO was one of the required educations for upper-class, and it was spread among males.

“Kumi-koh” as represented by Tanabata-koh, Genji-koh and Kurabeuma-koh is a kind of game to listen and catch the scent of fragrance. It was beautifully designed visually to fit the demands of this era.

[Present]

The KOHDO is now integrated into traditional Japanese culture. In Japan, we can see the growing interest by young people who appreciate the value of KOHDO in fusion with kimono or Japanese architecture. Globally, the KOHDO is gaining increasing attention through incense ceremonies (Koh-seki).

■ How to enjoy the aroma of incense

1. When an incense burner placed in front of you, bow to a participant sitting beside you to express “Excuse me for taking before you”.
2. Bring the incense burner with your right hand and place



it on your left hand.

3. Rotate the incense burner halfway to the left with your right hand, to place “listening point” in front of you.
4. Cover the incense burner so as to make a circle with the thumb and index finger of the right hand, to gather the scent inside the palm.
5. Keep the incense burner upright and lift to your nose, listen to the aroma of incense from in between the thumb and index finger. Commonly, inhale incense three times to listen to its aroma.
6. After listened, hold the incense burner with your right hand and place it to the next person, At this time, rotate the incense burner halfway to the right. Never hand over the incense burner directly since a burning small round charcoal briquette is inside.

■ Japanese items



Incense Container, design of parrot

Edo period, 18th-19th century.

An incense container designed with the parrot in ceramic; the branch it sits on in lead; the chain in gold; the plant pot in coral and stone; and the tassels are made of various materials, such as turban shell marquetry. This innovative design is called Ritsuo marquetry or Haritsu marquetry and many works imitating its design were created.



Hanging Incense Burner, Kyoyaki

Edo period, 19th century

A hanging incense burner hung beside the alcove and used for *soradaki* (means burning incense in large spaces). This incense burner is highly decorative with its openwork of a phoenix and a cloud motif arabesque pattern.



Jimbako Box for Incense Wood

Edo period, 19th century.

A small incense box to store fragrant wood. It comes with a *kakego*, a tray placed on the inner side, containing two incense boxes. The surface of the box is coated with black lacquer and a landscape design of silver and golden *maki-e* (sprinkled picture decoration).



Incense container, design of rabbit and butterfly

1993

An incense container with design of a rabbit, butterflies and grass patterns in gold on the lid. The background has a fish-roe pattern coated in copper verdigris. Ruby is embedded in the rabbit's eye and sides of the box are decorated with powdered lapis lazuli.

The Takasago Collection®

The Takasago Collection® contains approximately 1,000 items, some of which are on display in the Gallery at Takasago headquarters in Tokyo. The collection features not only traditional Japanese incense burners,

containers and other implements used in Kodo, but also the burners from China, ancient Egyptian fragrance artefacts, Greek and roman perfume bottles, and many others.



The Takasago Collection Gallery

Opening times: Monday - Friday, 10am - 5pm
(Admission ends 30 minutes before closing time.)
Closed: Saturday, Sunday, Public Holidays
December 27 - January 5













About this report

The scope of this report includes facilities owned and operated by Takasago International Corporation. This report includes restated data in amount of electricity consumption for year 2015 and 2016. Restated data is shown on P.24. This report refers to GRI Standard (Core). The next report will be issued in September 2019.

The term of FY2017 of this report is as follows;
From April 1, 2017 to March 31, 2018 for Japan
From January 1, 2017 to December 31, 2017 for the others

The EHS100 Plan (Excerpted)

EHS100 is subdivided into four mid-term phases each three years long

No	Category		Activities	SDGs	Phase III	Phase IV	
	Overall Category	Subcategory			FY2015-FY2017	FY2018-FY2020	
1	EHS Management	Site EHS managers	Site EHS management	—	Holding an EHS Manager meeting (Annual)	Management by objectives and promote minimum guideline	
3	Action on Environmental Issues	Improvement of information disclosure	Reporting in line with global orders and/or obligation		Publication of Sustainability report in Japanese / English (Annual)	Publication of Sustainability report in Japanese/ English (Annual)	
	3.1	Combating Global Warming and Conserving Resources	Compliance with Kyoto Protocol	Compliance with Global Warming Solutions Law		20% CO ₂ reduction per ton production by 2020 vs. 2010 Development of procedure to record GHG emissions other than CO ₂ at chemical production sites CO ₂ , CH ₄ , N ₂ O, HFCs, PFCs, SF6 (6 gases)	20% CO ₂ reduction per ton production by 2020 vs. 2010 Reporting the result of GHG emissions other than CO ₂ at all production sites CO ₂ , CH ₄ , N ₂ O, HFCs, PFCs, SF6 (6 gases)
			Reduction in water use	Reduction in pumping of groundwater, etc.		Implementation of renewable energy (30%) Implementation of selected option(s) for reducing water use in Japan	Implementation of renewable energy (50%) Reuse of drainage discharged into rivers (install drainage recycling equipments) in Japan
			3Rs (Reduce, Reuse, Recycle) for containers and packaging	3R activities for containers and packaging		Consideration of voluntary standard of reduce, reuse, and recycle of container	Promoting voluntary standard of reduce, reuse, and recycle of container
			Reduction of CO ₂ Emissions at non-production Sites	Implementation of energy saving activities by sales arm		20% CO ₂ reduction by 2020 vs. 2010 in non-production sites	20% CO ₂ reduction by 2020 vs. 2010 in non-production sites
3.3	Prevention of Air, Water and Soil Pollution	Effective use of water resources	Reduction of water consumption		20% water reduction per ton production by 2020 vs. 2010	20% water reduction per ton production by 2020 vs. 2010	
3.4	Sensory Pollution and Response to Complaints	Prevention of noise and odors outside of facility	Establishment of voluntary standards and self control		Applying voluntary standards to all production sites	Conducting voluntary standard management	
3.5	Waste Management	Emissions reduction program	Promotion of reduction of industrial waste emission		20% emissions reduction per ton production by 2020 vs. 2010 (non-recycle waste)	20% emissions reduction per ton production by 2020 vs. 2010 (non-recycle waste)	
4	Risk Management	EHS Risks	Risk assessment		Development of methodology	Establishment of risk management system through EMS and OHSMS	
5	Development of Products and Technologies	Life Cycle Assessment (LCA)	Adoption and implementation of LCA for selected Takasago Products		Implementation of LCA (80% items of total production weight)	Expand scope of LCA (90% items of total production weight)	
7	Community Engagement	Relationship with local society	Appointment of liaison officer		Promotion of associated activities through Global HR Communication platform	Strengthening associated activities through Global HR Communication platform	
8	Respect Human Rights	Respect for the Individual	Elimination of discrimination		Develop procedure for confirmation of incorporating Charter of Corporate Behavior and Code of Conduct into all employees' practices	Maintaining the framework to confirm the incorporation	
		Assessment of Suppliers	Dissemination of Takasago Supplier Code of Conduct		Making suppliers to thoroughly aware of Takasago Supplier Code of Conduct	Periodical update of Supplier Questionnaire	
9	Education and Training Program	Educational programs to employee	Education according to the plan		Establishment of the educational program	Implementation of the educational program	
		Professional training programs to employee	Implementation of training for improving knowledge and expertise		Establishment of the training program	Implementation of the training program and verify the effects	

Takasago Sustainability Report 2017-2018 and the GRI Standards

Standard	GENERAL DISCLOSURES	Pages	Related information / Reasons for omission	G4 standard	ISO 26000	GC
GRI 102:	General Disclosures 2016					
1	Organizational profile					
102-1	Name of the organization	P.9 Corporate Profile		G4-3	—	
102-2	Activities, brands, products, and services	P.9 Corporate Profile			—	
102-3	Location of headquarters	P.9 Corporate Profile		G4-5	—	
102-4	Location of operations	P.9 Corporate Profile		G4-6	—	
102-5	Ownership and legal form	P.9 Corporate Profile		G4-7	—	
102-6	Markets served	P.9 Corporate Profile		G4-8	—	
102-7	Scale of the organization	P.9 Corporate Profile Consolidated Financial Statement for the First Quarter (Available in Japanese)		G4-9	—	
102-8	Information on employees and other workers	P.44 Employment Situation		G4-10	6.4 6.4.3	6
102-9	Supply chain	P.15, P.36 Supply chain		G4-12	—	
102-10	Significant changes to the organization and its supply chain	P.15, P.36 Supply chain		G4-13	—	
102-11	Precautionary Principle or approach	P.53-54 The EHS100 Plan P.23 Environment, Health & Safety > EHS Management		G4-14	6.2	
102-12	External initiatives	P.16 External Partnerships and Initiatives		G4-15	6.2	
102-13	Membership of associations	P.16 External Partnerships and Initiatives		G4-16	6.2	
2	Strategy					
102-14	Statement from senior decision-maker	P.3-8 Message from President and CEO		G4-1	6.2	
102-15	Key impacts, risks, and opportunities	P.13-14 Risk and Crisis Management		G4-2	6.2	
3	Ethics and integrity					
102-16	Values, principles, standards, and norms of behavior	P.18 VISION		G4-56	—	10
102-17	Mechanisms for advice and concerns about ethics	P.14 Compliance		G4-57, G4-58	—	10
4	Governance					
102-18	Governance structure	P.13 Corporate Governance		G4-34	6.2	
102-19	Delegating authority	P.13 Corporate Governance		G4-35	—	
102-20	Executive-level responsibility for economic, environmental, and social topics	—		G4-36	—	
102-21	Consulting stakeholders on economic, environmental, and social topics	—		G4-37	6.2	
102-22	Composition of the highest governance body and its committees	Corporate Governance Report (Available in Japanese)		G4-38	6.2	
102-23	Chair of the highest governance body	—		G4-39	6.2	
102-24	Nominating and selecting the highest governance body	Corporate Governance Report (Available in Japanese)		G4-40	6.2	
102-25	Conflicts of interest	Corporate Governance Report (Available in Japanese)		G4-41	6.2	
102-26	Role of highest governance body in setting purpose, values, and strategy	—		G4-42	—	
102-27	Collective knowledge of highest governance body	—		G4-43	—	
102-28	Evaluating the highest governance body's performance	—		G4-44	6.2	
102-29	Identifying and managing economic, environmental, and social impacts	—		G4-45	6.2	
102-30	Effectiveness of risk management processes	P.13 Corporate Governance		G4-46	—	
102-31	Review of economic, environmental, and social topics	—		G4-47	6.2	
102-32	Highest governance body's role in sustainability reporting	—		G4-48	—	
102-33	Communicating critical concerns	P.13 Corporate Governance		G4-49	6.2	
102-34	Nature and total number of critical concerns	—		G4-50	—	
102-35	Remuneration policies	Corporate Governance Report (Available in Japanese)		G4-51	6.2	
102-36	Process for determining remuneration	Corporate Governance Report (Available in Japanese)		G4-52	—	
102-37	Stakeholders' involvement in remuneration	—		G4-53	6.2	
102-38	Annual total compensation ratio	—		G4-54	—	
102-39	Percentage increase in annual total compensation ratio	—		G4-55	—	

5	Stakeholder engagement					
102-40	List of stakeholder groups	P.19 Stakeholder Engagement		G4-24	6.2	
102-41	Collective bargaining agreements	P.44 Employment Situation		G4-11	6.3.10 6.4 6.4.3 6.4.4 6.4.5	3
102-42	Identifying and selecting stakeholders	P.19 Stakeholder Engagement		G4-25	6.2	
102-43	Approach to stakeholder engagement	P.19 Dialogue with Shareholders		G4-26, G4-PR5	6.2 6.7 6.7.4 6.7.5 6.7.6 6.7.8 6.7.9	
102-44	Key topics and concerns raised	P.19 Stakeholder Engagement		G4-27, G4-PR5	6.2	
6	Reporting practice					
102-45	Entities included in the consolidated financial statements	P.1 Takasago group P.9 Corporate Profile		G4-17	6.2	
102-46	Defining report content and topic Boundaries	P.20 Materiality Assessment		G4-18	—	
102-47	List of material topics	P.21 Materiality Issues		G4-19	—	
102-48	Restatements of information	P.52 About this report		G4-22	—	
102-49	Changes in reporting	P.52 About this report		G4-23	—	
102-50	Reporting period	P.52 About this report		G4-28	—	
102-51	Date of most recent report	P.52 About this report		G4-29	—	
102-52	Reporting cycle	P.52 About this report		G4-30	—	
102-53	Contact point for questions regarding the report	P.1		G4-31	—	
102-54	Claims of reporting in accordance with the GRI Standards	P.52 About this report		G4-32-a	—	
102-55	GRI content index	P.55		G4-32-b	—	
102-56	External assurance	—		G4-32-c, G4-33	7.5.3	
GRI 103:	Management Approach 2016					
103-1	Explanation of the material topic and its Boundary	P.21 Materiality Issues		G4-DMA-a, G4-20, G4-21	—	
103-2	The management approach and its components	P.15 Corporate Procurement Policy P.18 Basic Management Policy P.23 Environment, Health & Safety > EHS Management P.42 QC Policy, SOP and Guideline P.53-54 The EHS100 Plan		G4-DMA-b, G4-EN34, G4-LA16, G4-HR12, G4-SO11	—	1, 8
103-3	Evaluation of the management approach	P.23 Environment P.17-18 Message from Senior Vice President		G4-DMA-c	—	
200	Economic					
GRI 201:	Economic Performance 2016					
201-1	Direct economic value generated and distributed	P.9 Corporate Profile Consolidated Financial Statement for the First Quarter (Available in Japanese)		G4-EC1	6.8 6.8.3 6.8.7 6.8.9	
201-2	Financial implications and other risks and opportunities due to climate change	P.13 Risk and Crisis Management > Global climate change		G4-EC2	6.5.5	7
201-3	Defined benefit plan obligations and other retirement plans	—		G4-EC3	—	
201-4	Financial assistance received from government	—		G4-EC4	—	
GRI 202:	Market Presence 2016					
202-1	Ratios of standard entry level wage by gender compared to local minimum wage	—		G4-EC5	6.4.4 6.8	6
202-2	Proportion of senior management hired from the local community	—		G4-EC6	6.8 6.8.5 6.8.7	6
GRI 203:	Indirect Economic Impacts 2016					
203-1	Infrastructure investments and services supported	P.38 Responsible Sourcing		G4-EC7	6.3.9 6.8 6.8.3 6.8.4 6.8.5 6.8.6 6.8.7 6.8.9	
203-2	Significant indirect economic impacts	—	P.38 Responsible Sourcing P.46 Relationship with Local Society	G4-EC8	6.3.9 6.6.6 6.6.7 6.7.8 6.8 6.8.5 6.8.6 6.8.7 6.8.9	
GRI 204:	Procurement Practices 2016					

204-1	Proportion of spending on local suppliers	—		G4-EC9	6.6.6 6.8 6.8.5 6.8.7	
GRI 205: Anti-corruption 2016						
205-1	Operations assessed for risks related to corruption	—		G4-SO3	6.6 6.6.3	10
205-2	Communication and training about anti-corruption policies and procedures	P.44 Training and Education		G4-SO4	6.6 6.6.3	10
205-3	Confirmed incidents of corruption and actions taken	—		G4-SO5	6.6 6.6.3	10
GRI 206: Anti-competitive Behavior 2016						
206-1	Legal actions for anti-competitive behavior, anti-trust, and monopoly practices	—		G4-SO7	6.6 6.6.5 6.6.7	
300 Environmental						
GRI 301: Materials 2016						
301-1	Materials used by weight or volume	P.26 Material Flow		G4-EN1	6.5.4	7, 8
301-2	Recycled input materials used	—		G4-EN2	6.5.4	8
301-3	Reclaimed products and their packaging materials	P.37 Recycled Packages		G4-EN28	6.5.3 6.5.4 6.7.5	8
GRI 302: Energy 2016						
302-1	Energy consumption within the organization	P.26 Material Flow P.27-28 Environmental Performance Data		G4-EN3	6.5.4	7, 8
302-2	Energy consumption outside of the organization	—		G4-EN4	6.5.4	8
302-3	Energy intensity	—		G4-EN5	6.5.4	8
302-4	Reduction of energy consumption	—		G4-EN6	6.5.4 6.5.5	8, 9
302-5	Reductions in energy requirements of products and services	—		G4-EN7	6.5.4 6.5.5	8, 9
GRI 303: Water and Effluents 2018						
303-1	Interactions with water as a shared resource	—		G4-EN8	6.5.4	7, 8
303-2	Management of water discharge-related impacts	—	P.24 Water and Effluents	G4-EN9	6.5.4	8
303-3	Water withdrawal	P.24 Water and Effluents		G4-EN10	6.5.4	8
303-4	Water discharge	P.25 Water Discharge by destination				
303-5	Water consumption	—				
GRI 304: Biodiversity 2016						
304-1	Operational sites owned, leased, managed in, or adjacent to, protected areas and areas of high biodiversity value outside protected areas	—		G4-EN11	6.5.6	8
304-2	Significant impacts of activities, products, and services on biodiversity	—		G4-EN12	6.5.6	8
304-3	Habitats protected or restored	—	P.35 Biodiversity- Island Projects -	G4-EN13	6.5.6	8
304-4	IUCN Red List species and national conservation list species with habitats in areas affected by operations	—		G4-EN14	6.5.6	8
GRI 305: Emissions 2016						
305-1	Direct (Scope1) GHG emissions	P.24 Energy and Emissions > Electricity consumption and CO ₂ emissions		G4-EN15	6.5.5	7, 8
305-2	Energy indirect (Scope 2) GHG emissions	P.24 Energy and Emissions > Electricity consumption and CO ₂ emissions		G4-EN16	6.5.5	7, 8
305-3	Other indirect (Scope3) GHG emissions	P.24 Energy and Emissions > Electricity consumption and CO ₂ emissions		G4-EN17	6.5.5	7, 8
305-4	GHG emissions intensity	—		G4-EN18	6.5.5	8
305-5	Reduction of GHG emissions	—		G4-EN19	6.5.5	8, 9
305-6	Emissions of ozone-depleting substances (ODS)	—		G4-EN20	6.5.3 6.5.5	7, 8
305-7	Nitrogen oxides (NOX), sulfur oxides (SOX), and other significant air emissions	P.26 Material Flow		G4-EN21	6.5.3	7, 8
GRI 306: Effluents and Waste 2016						
306-1	Water discharge by quality and destination	P.24 Water and Effluents		G4-EN22	6.5.3 6.5.4	8
306-2	Waste by type and disposal method	P.25 Waste Management		G4-EN23	6.5.3	8
306-3	Significant spills	—		G4-EN24	6.5.3	8
306-4	Transport of hazardous waste	—		G4-EN25	6.5.3	8
306-5	Water bodies affected by water discharges and/or runoff	—		G4-EN26	6.5.3 6.5.4 6.5.6	8
GRI 307: Environmental Compliance 2016						
307-1	Non-compliance with environmental laws and regulations	P.25 Environmental Compliance		G4-EN29	4.6	8

GRI 308: Supplier Environmental Assessment 2016						
308-1	New suppliers that were screened using environmental criteria	P.40-41 Supplier Relationship Management P.37 Responsible Sourcing		G4-EN32	6.3.5 6.6.6 7.3.1	8
308-2	Negative environmental impacts in the supply chain and actions taken	P.37 Responsible Sourcing		G4-EN33	6.3.5 6.6.6 7.3.1	8
400 Social						
GRI 401: Employment 2016						
401-1	New employee hires and employee turnover	—		G4-LA1	6.4 6.4.3	6
401-2	Benefits provided to full-time employees that are not provided to temporary or part-time employees	P.45 Return to work after parental leave		G4-LA2	6.4 6.4.3 6.4.4	
401-3	Parental leave	P.45 Return to work after parental leave		G4-LA3	6.4 6.4.3	6
GRI 402: Labor/Management Relations 2016						
402-1	Minimum notice periods regarding operational changes	—		G4-LA4	6.4 6.4.3 6.4.4 6.4.5	3
GRI 403: Occupational Health and Safety 2018						
403-1	Occupational health and safety management system	—		G4-LA5	6.4 6.4.6	
403-2	Hazard identification, risk assessment, and incident investigation	—		G4-LA6	6.4 6.4.6	
403-3	Occupational health services	—		G4-LA7	6.4 6.4.6 6.8 6.8.3 6.8.4 6.8.8	
403-4	Worker participation, consultation, and communication on occupational health and safety	—		G4-LA8	6.4 6.4.6	
403-5	Worker training on occupational health and safety	P.31 Takasago Safety Day 2017				
403-6	Promotion of worker health	—				
403-7	Prevention and mitigation of occupational health and safety impacts directly linked by business relationships	—				
403-8	Workers covered by an occupational health and safety management system	—				
403-9	Work-related injuries	P.29 Work-related Injury				
403-10	Work-related ill health	—				
GRI 404: Training and Education 2016						
404-1	Average hours of training per year per employee	—	P.44 Training and Education	G4-LA9	6.4 6.4.7	6
404-2	Programs for upgrading employee skills and transition assistance programs	—	P.44 Training and Education	G4-LA10	6.4 6.4.7 6.8.5	
404-3	Percentage of employees receiving regular performance and career development reviews	—	P.44 Training and Education	G4-LA11	6.4 6.4.7	6
GRI 405: Diversity and Equal Opportunity 2016						
405-1	Diversity of governance bodies and employees	P.44 Employment Situation > Employment P.44 Employment Situation > Permanent Employees by Age group		G4-LA12	6.3.7 6.3.10 6.4 6.4.3	6
405-2	Ratio of basic salary and remuneration of women to men	—		G4-LA13	6.3.7 6.3.10 6.4 6.4.3 6.4.4	6
GRI 406: Non-discrimination 2016						
406-1	Incidents of discrimination and corrective actions taken	—	P.44 Respect human rights and eliminate of discrimination	G4-HR3	6.3 6.3.6 6.3.7 6.3.10 6.4.3	6
GRI 407: Freedom of Association and Collective Bargaining 2016						
407-1	Operations and suppliers in which the right to freedom of association and collective bargaining may be at risk	—	P.40-41 Supplier Relationship Management	G4-HR4	6.3 6.3.3 6.3.4 6.3.5 6.3.8 6.3.10 6.4.3 6.4.5	3
GRI 408: Child Labor 2016						
408-1	Operations and suppliers at significant risk for incidents of child labor	—	P.40-41 Supplier Relationship Management	G4-HR5	6.3 6.3.3 6.3.4 6.3.5 6.3.7 6.3.10	5

GRI 409:	Forced or Compulsory Labor 2016					
409-1	Operations and suppliers at significant risk for incidents of forced or compulsory labor	—		G4-HR6	6.3 6.3.3 6.3.4 6.3.5 6.3.7 6.3.10	4
GRI 410:	Security Practices 2016					
410-1	Security personnel trained in human rights policies or procedures	—		G4-HR7	6.3 6.3.5 6.4.3 6.6.6	1
GRI 411:	Rights of Indigenous Peoples 2016					
411-1	Incidents of violations involving rights of indigenous peoples	—		G4-HR8	6.3 6.3.6 6.3.7 6.3.8 6.6.7	1
GRI 412:	Human Rights Assessment 2016					
412-1	Operations that have been subject to human rights reviews or impact assessments	—		G4-HR9	6.3 6.3.3 6.3.4 6.3.5	1
412-2	Employee training on human rights policies or procedures	—	P.44 Respect human rights and eliminate of discrimination	G4-HR2	6.3 6.3.5	1
412-3	Significant investment agreements and contracts that include human rights clauses or that underwent human rights screening	—		G4-HR1	6.3 6.3.3 6.3.5 6.6.6	2
GRI 413:	Local Communities 2016					
413-1	Operations with local community engagement, impact assessments, and development programs	—	P.46 community engagement	G4-SO1	6.3.9 6.6.7 6.8 6.8.5 6.8.7	1
413-2	Operations with significant actual and potential negative impacts on local communities	—		G4-SO2	6.3.9 6.5.3 6.5.6 6.8.9	1
GRI 414:	Supplier Social Assessment 2016					
414-1	New suppliers that were screened using social criteria	P.40-41 Supplier Relationship Management P.36 Responsible Sourcing		G4-LA14, G4-HR10, G4-SO9	—	2
414-2	Negative social impacts in the supply chain and actions taken	P.36 Responsible Sourcing		G4-LA15, G4-HR11, G4-SO10	—	2
GRI 415:	Public Policy 2016					
415-1	Political contributions	—		G4-SO6		10
GRI 416:	Customer Health and Safety 2016					
416-1	Assessment of the health and safety impacts of product and service categories	—	P.43 Customer Health and Safety	G4-PR1	6.3.9 6.6.6 6.7 6.7.4 6.7.5	
416-2	Incidents of non-compliance concerning the health and safety impacts of products and services	P.43 Customer Health and Safety		G4-PR2	6.3.9 6.6.6 6.7 6.7.4 6.7.5	
GRI 417:	Marketing and Labeling 2016					
417-1	Requirements for product and service information and labeling	P.43 Marketing and Labeling		G4-PR3	6.7 6.7.3 6.7.4 6.7.5 6.7.6 6.7.9	
417-2	Incidents of non-compliance concerning product and service information and labeling	P.43 Marketing and Labeling		G4-PR4	6.7 6.7.3 6.7.4 6.7.5 6.7.6 6.7.9	
417-3	Incidents of non-compliance concerning marketing communications	—		G4-PR7	6.7 6.7.3 6.7.6 6.7.9	
GRI 418:	Customer Privacy 2016					
418-1	Substantiated complaints concerning breaches of customer privacy and losses of customer data	—		G4-PR8	6.7 6.7.7	
GRI 419:	Socio economic Compliance 2016					
419-1	Non-compliance with laws and regulations in the social and economic area	P.14 Compliance		G4-SO8, G4-PR9	6.6 6.6.3 6.6.7 6.8.7	
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