

# ANNUAL REPORT 2019

Braskem 





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## FOREWORD

Innovation move us ahead. In our search for pioneering, diversified and, mainly, sustainable solutions, we became the largest producer of thermo-plastic resins in the Americas, largest producer of polypropylene in the United States and sixth largest producer of plastic resins in the world, in addition to being the global leader in the production of biopolymers.

We know that the chemical and petrochemical industry is essential for the economic development of countless production chains. We also recognize the relevance of our business and its impacts on society, which is why we invest in a responsible growth strategy with a focus on the well-being of people and management of resources.

On the following pages, we present the obstacles we faced and the advances we had throughout 2019, a challenger year, but which also yielded excellent results, such as the consolidation of Circular Economy initiatives and the completion of the implementation of our Compliance program. Our path reflects our efforts to continue evolving as a conscious company committed to creating increasingly more innovative, sustainable and efficient products and solutions.

**Enjoy your reading!**



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# LETTER FROM THE BUSINESS LEADER

\_102-14\_



## WHERE THERE ARE CHALLENGES, WE SEE OPPORTUNITIES

At Braskem, we believe that innovative ideas and attitudes are capable of transforming the future. We worked to find answers and ways of overcoming an unfavorable global economic scenario, which reached the lowest level of growth since the 2008/2009 financial crisis, with GDP growth of 2.9% according to the International Monetary Fund (IMF).

Several events across the world contributed to this situation, such as the United States–China trade war, the slowdown of the Chinese economy, the contraction of the European automobile industry, mainly in Germany, and the political instability in emerging markets, such as Brazil and Mexico. These factors negatively impacted investments and demands in a wide variety of industries, including the petrochemical sector, which is still undergoing a down cycle due to oversupply of thermoplastic resins in the world, except in the North American PP market, where the opposite is true, with healthy spreads due to the country's economic growth and the availability of raw materials.

At Braskem, we continue to collaborate with the authorities in the Operation *Lava Jato*. In May 2019, we announced the signing of the leniency agreement with the Attorney General's Office and the Controlship General of Brazil in the amount of approximately R\$ 2.9 billion, to be adjusted using the SELIC rate. We also integrated the corporate risk management and have completed 100% of the 161 initiatives in our Compliance program, establishing policies and procedures, anti-corruption controls and mechanisms to ensure integrity practices, preventing the occurrence of unlawful acts and promoting ethics and transparency.

These advances were recognized by the Federal Prosecutor's Office (MPF) through the certification of independent monitors that certified the fulfillment of all obligations assumed in the leniency agreement – entered into and between the MPF and Braskem in 2016 – and the implementation of all the additional initiatives recommended. The external monitoring process was completed on May 2020 by the DoJ (Department of Justice) and the SEC (Securities and Exchange

Commission). With the end of the independent monitoring period and the certification by the MPF, the DoJ and the SEC, the Company has complied with its obligations established in the agreements signed with these authorities and has successfully concluded the three-year term under the Agreements. Together, we presented in 2019 the filing of Forms 20–F for fiscal years ending in 2017 and 2018, another positive result of the improvements in our internal controls.

Another issue that counted on our priority in 2019 was the geological phenomenon that caused the sinking of areas in four districts in the city of Maceió (AL). We acted responsibly on this issue, signing an agreement in January 2020 to vacate the areas of risk identified by the Civil Defense and supporting studies to better understand the phenomenon and potential alternative solutions for the resulting consequences, conducted by global institutions with expertise on this matter. This positioning took into account not only an eventual liability – not yet proven – of Braskem, but also the historical relationship we have with society in Alagoas and our ethical principles.

Thus, we took important measures such as supporting the resettlement of 17,000 people to safe areas and providing adequate compensation, ending the extraction of rock salt in Maceió and closing our salt extraction wells in the city.

AT BRASKEM, WE BELIEVE  
THAT INNOVATIVE IDEAS AND  
ATTITUDES ARE CAPABLE OF  
TRANSFORMING THE FUTURE.







## ▶ IN 2019, WE CONSOLIDATED OUR COMMITMENT TO THE CIRCULAR ECONOMY



### FOCUS ON POSITIVE RESULTS

Despite the obstacles we faced in relation to the global economic situation, the challenging petrochemical scenario, and the consequences of the geological phenomenon in Maceió, our net cash generation was R\$ 3 billion, offsetting the 46% drop in recurring EBITDA in BRL, caused especially due to the smaller spreads in the international market.

This was possible because we placed even more emphasis on our diversification strategy: both in terms of geography, increasing and strengthening our international presence, and in the variation of raw materials and suppliers. We also focused on increasing the efficiency and competitiveness of our operations and improving the relationship with the various stakeholders.

In line with our Global Sustainable Development Policy – a document that reinforces our commitment to internationally recognized human rights and aligns our goals with the agenda of the UN Sustainable Development Goals – we expand our contribution to finding answers to climate change and focus on adapting and managing risks and opportunities. Another area in which Braskem continuously focuses, the Health and Safety area, presented results below expectations in 2019. Nonetheless, we remained very close to the global benchmarks for this industry. In order to improve our performance, we decided to reinforce human reliability issues.

Another milestone for Braskem in 2019 was the strengthening of our commitment to the Circular Economy, consolidating our strategy of innovating in plastics to create an increasingly sustainable cycle, from production to post-consumption. An example of this effort was the launch of solutions with low carbon emissions, such as our first solvent made from a renewable source. We also revised and expanded the I'm green brand, which now includes products made from renewable and recycled content.

We also support the prevention of waste in the oceans through the 'Plastics Sector Forum – For a Clean Ocean' and invest in technologies such as mechanical and chemical recycling. In addition, we continue to advance in projects to increase the energy efficiency and reduce greenhouse gas emissions such as the modernization of our petrochemical plant located in São Paulo, ABC. After its startup, scheduled to 2021, this Project will reduce the plant energy consumption in an amount equivalent to a city of 1 million habitants and avoid the emissions of approximately 100,000 t of CO<sub>2</sub> per year.

We understand that partnerships play an instrumental role in Braskem's contribution to Sustainable Development. We actively participate in the Global Compact, an initiative associated with the UN that has once again considered us as a leading company, highlighting the importance of our work, which focuses mainly on the topics of Climate and Water.

We joined the Global Compact's CEO Water Mandate, which promotes sustainable use of water in the global business environment through partnerships with governments, civil society organizations and other stakeholders.

Our engagement earned important recognition in 2019. For the 15th time, Braskem was included in the Corporate Sustainability Index of B3, Brazil's Stock Exchange. In addition, we were included in RobecoSAM's "The Sustainability Yearbook" as one of the most sustainable companies in the world.

The achievement of these positive results was only possible because we rely on the commitment and contribution of our Team Members. In order to value our efforts, we have advanced in the implementation of our Value Proposition, BeUx, which improves the work environment and expands innovation and creation possibilities of our professionals, who are always diverse and constantly evolving.





## READY FOR THE FUTURE

Given the challenges we face with resilience and focus, and amidst so many achievements and positive results, we feel prepared for the year 2020. Nevertheless, the reduction in the economic activity in Brazil and the other countries we operate, resulted in a significant decrease in the demand for our products over most of the segments, mostly affecting durable goods, such as transportation, and infrastructure & construction. On the other hand, there are a few examples of positive impacts, such as hygiene and health care products, which are experiencing growth over demand due the trends related to Covid-19.

Despite this scenario, the Company will maintain its focus on creating value, but without neglecting the well-being of our Team Members and other stakeholders. We had already implemented a home office routine for most professionals two years ago. At the production sites, we were able to review the work shifts of the production teams, so that only those people necessary for plant maintenance are present.

We are also working with Customers and Suppliers to donate raw materials for the production of more than 60 million masks, aprons, liquid ethanol, packaging for hand sanitizers, among other initiatives with several companies and that involve more than 61 actions to help combat Covid-19 – a joint effort that will yield many lessons learned at this critical moment for the world. Another important initiative we have taken in South America was to support the chain offering credit lines to Clients, since access to credit has been monitored as a challenging impact in this moment.

## A NEW ADMINISTRATION ROBERTO LOPES PONTES SIMÕES TOOK OVER AS BRASKEM'S CEO ON JANUARY 1<sup>ST</sup>, 2020.

Mid and long-term impacts are still difficult to measure. We understand that some trends will emerge, once social and economic activities evolve to the “new normal”, while other previously identified might be accelerated or affected. During the last months it became clear that plastic image has been uplifted with the current claim for solutions that offers versatility, flexibility, resistance and are fully hygienic and recyclable. We also perceived that, apart from economic and financial difficulties, the sustainability agenda not only maintained its resilience, but will probably continue to accelerate as an important issue. In this sense, Braskem understands its role to continue committed on supporting the industry evolve on Plastic Waste and Climate Change initiatives.

Concerning the situation in Maceió, we will continue to advance through serious, responsible and concrete actions. We will face the downturn petrochemical cycle by focusing on our competitiveness and financial health, will strengthening our image and reputation, and working to enable the consolidation of the Company's value.

To get here and trail new steps towards the future, we relied on the dedication of countless people. For this reason, I would like to thank our Team Members, who work day after day with care, efficiency, consistency and passion. I also wish to thank our Suppliers, Partners, Shareholders and Customers, who help us to excel in a challenging and globally competitive scenario. Finally, my thanks to Fernando Musa, who for the past 5 years has led Braskem with transparency, responsibility, and with a focus on the globalization of our brand.

As the world changes and uncertainties increase, we will drive as much effort as we can to strengthen our planning, adaptability, resiliency capabilities, and make sure to structure our way through whatever challenge may come. I take over the business in 2020 with the confidence that we are ready to take this next step for our growth.

**Roberto Simões**



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# FUTURE-ORIENTED

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# BRASKEM IN THE WORLD

With 40 industrial units installed in four countries (Brazil, United States, Mexico and Germany), we are today the largest petrochemical company in the Americas and the sixth largest in the world. We have an annual production capacity of more than 8 million tons of thermoplastic resins (Polyethylene, Polypropylene and Polyvinyl Chloride) and more than 10 million tons of basic chemicals (Ethylene, Propylene, Butadiene, Benzene, among others).

We are also proud to be an innovative company that, since the beginning of our operations in 2002, seeks to act in accordance with the principles of sustainable development. As the world's largest manufacturer of biopolymers, we reinforce our commitment to the consolidation of initiatives that address the Circular Economy by seeking solutions that form a sustainable cycle that begins in design, and includes production, recycling and ends in new uses for products. In addition, in 2019, we expanded our I'm green™ brand, which was created in 2010 and today represents Braskem's portfolio of more sustainable products.

**Learn more in section Innovative and Sustainable Solutions - Expanding the paths of the Circular Economy**



To learn more about our global presence, visit [www.braskem.com.br](http://www.braskem.com.br) > **Braskem-no-mundo**

To see the location of our offices, visit [www.braskem.com.br](http://www.braskem.com.br) > **unidades-braskem**

**40**  
INDUSTRIAL  
UNITS

**7,940<sup>1</sup>**  
TEAM  
MEMBERS

OPERATIONS IN  
**4**  
COUNTRIES

**16**  
SALES  
OFFICES

FREE CASH GENERATION OF  
**R\$ 3**  
BILLION

CUSTOMERS IN OVER  
**100**  
COUNTRIES

America, Europe and Asia – and in different markets and sectors, including food packaging, construction, industrial, retail, automotive, personal care and cleaning, agribusiness, health, among others

<sup>1</sup> Team Members only. Does not include interns





## OUR BUSINESS MODEL

GLOBAL CHEMICAL COMPANY ORIENTED FOR THE HUMAN BEING AND WITH A LOOK AT THE FUTURE



It is worth mentioning that we do not produce or sell products made from genetically modified organisms (GMOs) or products containing GMO ingredients, whether in Brazil or abroad.





## STRATEGY FOCUSED ON SUSTAINABLE DEVELOPMENT

From the beginning of our operations in 2002, we have been committed to aligning our business strategy with the goal to improve people's lives based on sustainable solutions from chemicals and plastics. To this end, we follow our Global Sustainable Development Policy, which assesses and meets the needs and demands of all stakeholders, in order to promote economic growth aligned with environmental preservation, work and process safety and social justice in all our business activities, services, investments, relationships and products.

In addition, we are guided by our macro-goals (see more below), that include goals aligned with the Sustainable Development Goals (SDG) and the Principles of the Global Compact, both initiatives of the United Nations (UN). In 2019, we carried out different projects to integrate this strategy and reinforce this positioning, such as the creation and strengthening of initiatives that involve, for example, the launch of more efficient and sustainable products.

With a focus on further strengthening our initiatives for sustainable development, we have made public our position concerning the Circular Economy, a document where we define priority actions to expand and promote recycling and the reuse of plastic waste. This commitment also covers further investments in new resins from renewable sources, a goal intended to expand the portfolio that today includes green plastic I'm green™ and to support new technologies, business models, development of the recycling chain and consumer engagement actions.



[Click here](#) to read the full Global Sustainable Development Policy





## MACRO GOALS FOR SUSTAINABLE DEVELOPMENT

To align our growth plan with the development of products, processes and solutions that minimize possible environmental and social impacts, we follow our Global Sustainable Development Policy. Through this document, we set goals and aspirations also considering our Materiality Matrix, which guides the relevance of the topics of sustainability within our business strategy.

The matrix was defined based on the sustainability reporting guidelines of the Global Reporting Initiative (GRI) and lists 29 aspects, 17 of which were classified as material because they are located in the critical or highly critical quadrants. They were consolidated into 10 strategic macro-goals for our con-

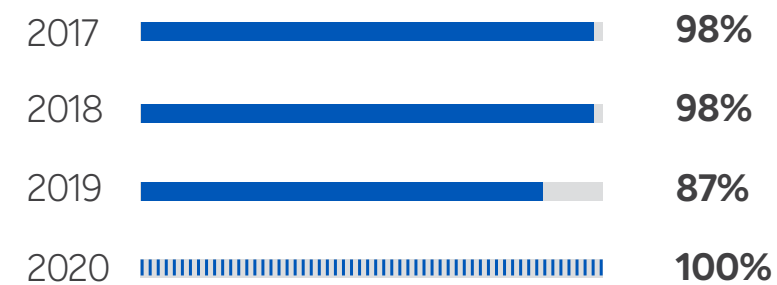
tribution to sustainable development. In 2019, we achieved 72.3% of our goals, compared to 70.6% in 2018.

This work remains closely aligned with the 17 UN Sustainable Development Goals (SDG) - with a greater focus on those SDGs where our most significant impacts occur - and with the Global Compact Principles. With the arrival of the target year for the commitments established, we are setting the challenges for the new 2021-2030 cycle, and updating our goals according to a new global reality. It should be pointed out that, starting in 2021, these macro-goals will be reported from the perspective of impact generation directly related to the goals of the SDGs prioritized.

### SAFETY

To be among the benchmarks in chemical, occupational, and process safety in the Global Chemical Industry.

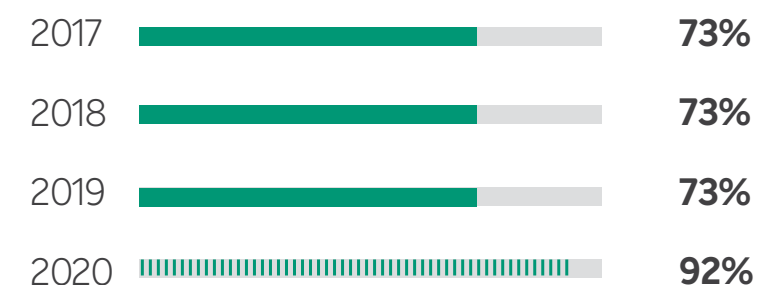
% OF ACHIEVED GOALS



### ECONOMIC AND FINANCIAL RESULTS

To be among the top three thermoplastic resin producers in the world and to ensure profitability that sustains businesses, while maintaining the Investment Grade rating in the three major international agencies.

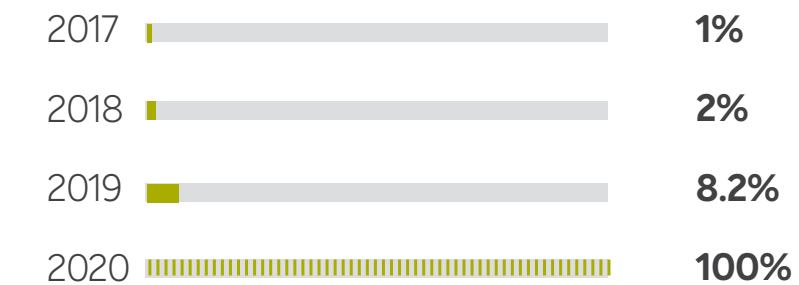
% OF ACHIEVED GOALS



### POST CONSUMPTION

To be one of the five largest traders of PE and PP with recycled content in the world, among the petrochemical companies producers of Polyolefins. Also, to become an important driver of recycling plastic in Brazil, which will help achieve the goals in the Sector Agreement on Packaging.

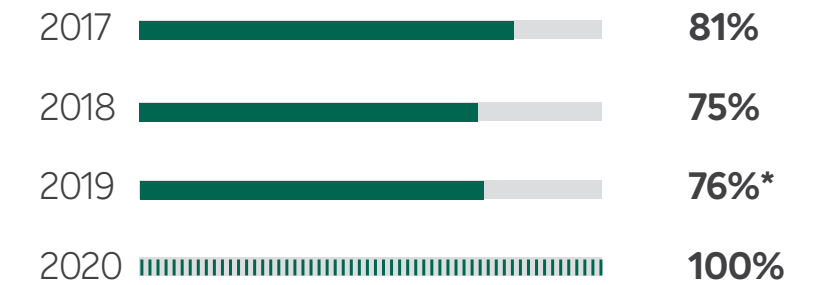
% OF ACHIEVED GOALS



### LOCAL DEVELOPMENT

To achieve an "excellent" reputation in the Citizenship Dimension of RepTrak® Pulse, recognition from society of the Company's contribution to the improvements of human development.

% OF ACHIEVED GOALS



\*without Maceió

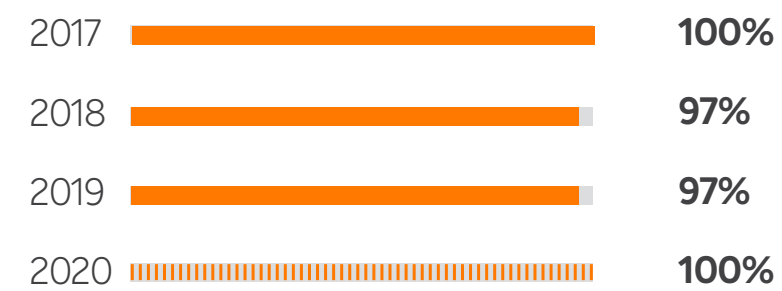




## WATER EFFICIENCY

To be recognized in the global chemical industry per our usage of water resources in terms of water consumption and water reuse.

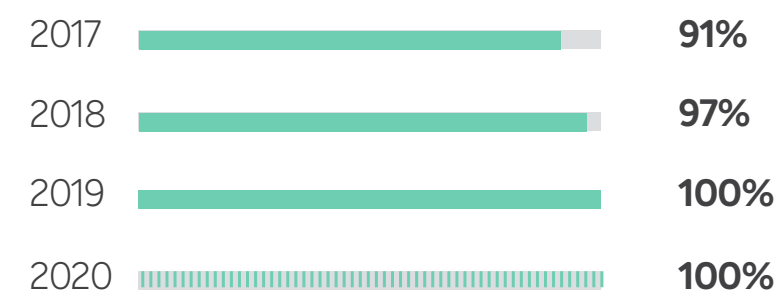
### % OF ACHIEVED GOALS



## DEVELOPMENT OF SOLUTIONS

To be recognized as a Company that supports its clients in the development of environmental and social solutions using Chemicals and Plastics, therefore reaching a “strong” reputation level through products & services.

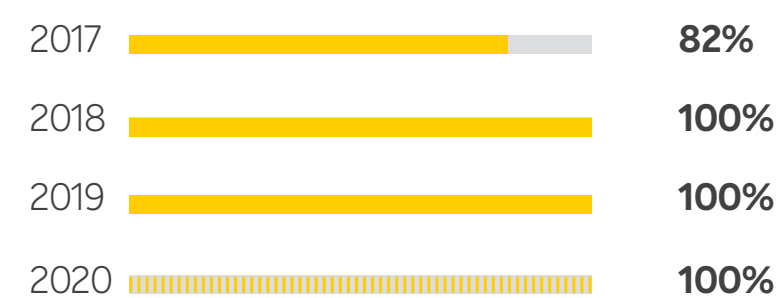
### % OF ACHIEVED GOALS



## RENEWABLE RESOURCES

To be among the leading producers of chemicals and thermoplastic resins from renewable raw materials, and remain the world’s largest producer of thermoplastic resins from renewable sources.

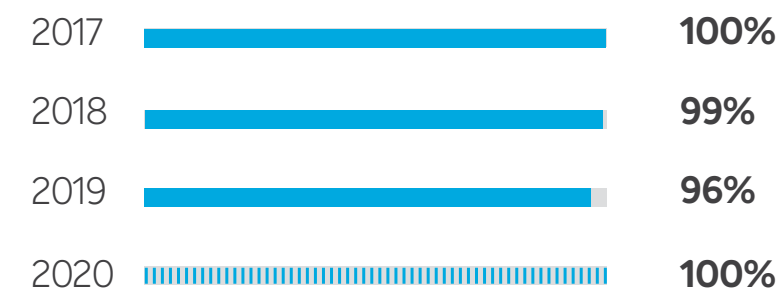
### % OF ACHIEVED GOALS



## CLIMATE CHANGE

To be among the world’s largest chemical companies in Greenhouse Gas (GHG) emissions intensity while maintaining the use of renewable raw materials.

### % OF ACHIEVED GOALS



## STRENGTHENING PRACTICES

To be among the business benchmarks in Brazil for our contribution to Sustainable Development, as well as a global benchmark in the sector due to our contribution to Sustainable Development.

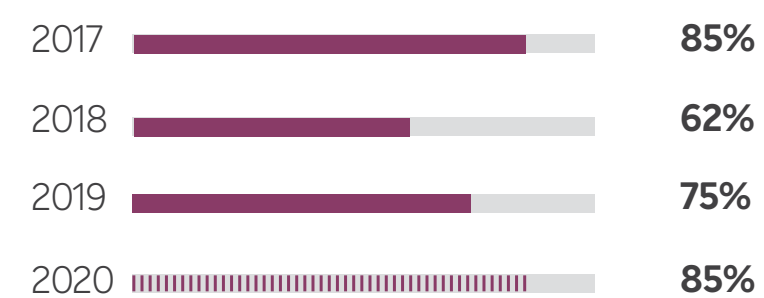
### % OF ACHIEVED GOALS



## ENERGY EFFICIENCY

To be considered one of the best chemical industries in the world in energy consumption and be an important renewable energy user.

### % OF ACHIEVED GOALS



[Click here](#) to learn more about our Materiality Matrix







## HIGHLIGHTS OF OUR MACRO-GOALS

### Safety

The last fatal accident at the workplace was recorded in 2016, at the Cubatão unit (São Paulo).

### Economic and financial results

Delta Project: with an investment of US\$ 675 million, the plant might start up in 2020, positioning Braskem as the largest producer of PP in the United States (450,000 tons).

### Post consumption

We reviewed the I'm green brand, which now offers renewable, recycled and renewable-recycled products. In 2019, a total of 1,651 tons of post-consumer resin were produced and sold, representing 8.2% of the target for 2020.

The Chemical Recycling Squad carried out some trials with product from the chemical recycling of post-consumer plastics produced by technology companies partners.

### Water Efficiency

Our water consumption index increased from 4.14 to 4.31 in the period between 2002 and 2019, representing an aggregate negative index of around 4%. Even so, Braskem's water consumption index is about six times better than the average for the global chemical industry (base: ICCA).

The percentage of water reused grew from 18.5 to 25.3 between 2011 and 2019, representing an aggregate improvement of about 37%.

The liquid effluent generation index decreased from 1.94 to 1.31 in the period between 2002 and 2019, representing an aggregate improvement of about 32%.

We joined the CEO Water Mandate, a special initiative of the United Nations and of the UN Global Compact in favor of the sustainable use of water in the world.

### Strengthening of practices

We have completed 100% of the 161 initiatives set out in our integrity program and the integrated corporate risk management is already in place across the company.

Considering the advancement of our internal controls, it is worth mentioning the filing of Forms 20-F for fiscal years ending in 2017 and 2018 ("Form 20F 2018") with the U.S. Securities Exchange Commission ("SEC").

Braskem listed in the 15<sup>th</sup> consecutive portfolio in the ISE B3 Sustainability Index, being part of the select group of 7 companies that have remained in the portfolio since its launch.

For the eighth consecutive year, we were recognized by the UN Global Compact as a Leading Company in Sustainable Development, and we are the only Brazilian company among the 10,000 associates.

We maintained our score on the Ecovadis platform and remained among the 9% best companies evaluated in the chemicals industry in 2019 (not categorized as gold, silver, bronze). The platform assesses topics associated with the environment, labor practices and human rights, sustainable procurement, and ethics.

### Renewable resources

We announced our first solvent made from a renewable source (sugarcane), as a result of investments of R\$ 1 million and Braskem's constant search for sustainable solutions.

Our MEG (monoethylene glycol) development project, together with Haldor Topsoe, a world leader in catalysts and technology for the chemical and refining industries, continues to advance, already with tests to confirm the technical and economic viability of MEG production at scale.

### Energy efficiency

The energy efficiency indicator decreased from 11.09 to 10.09 GJ/t in the period between 2002 and 2019, representing an improvement of about 7%.

Braskem and Siemens established a partnership to increase energy efficiency in São Paulo, ABC, through a cracker modernization project. This initiative will result in an improvement in Braskem's sustainability indicators, in addition to higher efficiency in the production process.

Concluded the installation of 1 MWp out of 5MWp of the floating solar panels farm project, located in the Sobradinho's hydroelectric plant, controlled by CHESF in Bahia. Project developed in partnership between Sunlution and UNIPAC group.

Start of the solar power plant operation in Bahia, with a capacity of 97 Wp, installed in an area of 2500 m<sup>2</sup>, supplying 27% of our Salvador's office demand. After the completion of the next phase, the project will meet 35% of the demand for this installation. This is yet another investment for the diversification of our energy matrix.



## ACKNOWLEDGMENTS \_102-12, 102-13\_

For us, strengthening sustainable practices means being a lead player in promoting actions and projects that increase positive environmental and social impacts and minimize any negative effects. For this reason, we are proud to be part, for the 15<sup>th</sup> consecutive year, of the Corporate Sustainability Index (ISE), a portfolio prepared by the Brazilian Stock Exchange (B3) with companies that adopt best practices and obtain the best results in corporate sustainability.

We were also recognized as a Leading Company in Sustainable Development by the UN Global Compact, the largest corporate sustainability initiative in the world. This was the eighth consecutive year that Braskem has been appointed to the highest level of engagement in the project and demonstrates our leadership in managing issues related to climate change and water resources. Despite having more than 10,000 associates, only 36 companies were awarded a leadership role by the UN, with Braskem as the only Brazilian company to obtain this title.

Once again, we are part of the latest edition of “The Sustainability Yearbook,” published by RobecoSAM, which evaluates corporate sustainability performance and is considered the most embracing and important publication in the world. In addition to being in the top 15%, this was the sixth consecutive time that Braskem has been chosen as one of the most sustainable companies in the world.

In addition, in October 2019, we received the award Anuário Época Negócios 360°, which chooses the 250 best Brazilian companies based on six aspects: financial health, corporate governance, innovative capacity, human resources policies, social and environmental responsibility, and vision for the future .



To learn about Braskem’s initiatives that led to its recognition as a Global LEAD by the UN [click here](#)

[Click here](#) to see “The Sustainability Yearbook”

## JOINT EFFORT FOR THE ENVIRONMENT

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In January 2019, we teamed up with a group of 30 major companies to help put an end to improper disposal of plastic waste into the environment. Called Alliance to End Plastic Waste, the purpose of the program is to invest up to US\$ 1.5 billion (R\$ 5.5 billion) over the next five years in projects and new technologies related to this topic.

The organization is not for profit and gathers the entire plastics value chain: companies that produce, use, sell, process, collect and recycle this material. The Alliance has the strategic support of the World Business Council for Sustainable Development.

The work started through partnerships with governments of several cities to design integrated waste management systems in large urban areas with little infrastructure, especially in locations where there are rivers that can transport plastic waste to the ocean. This joint effort also collaborates with intergovernmental organizations, such as the United Nations and the incubator Circulate Capital, to conceive actions that prioritize the prevention of plastics in the ocean as well as waste management and recycling.



THIS INITIATIVE IS IN LINE WITH  
SDG 14, SUPPORTING GOAL 14.1







## WASTE IN THE OCEANS

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Improper disposal and inadequate solid waste management are two of the main factors that influence the contamination of seas and oceans by plastics. We recognize the complexity of the problem and understand that finding solutions is only possible if the various sectors of society—government, society and companies—join efforts. For this reason, we invest not only in innovation and development of more sustainable products, but we also actively participate in the debate and the search for answers to combat the accumulation of plastic waste in the oceans.

We are one of the signatories to the Plastics Sector Forum - For a Clean Sea, an initiative created in 2016 by Plastivida and the University of São Paulo's Oceanographic Institute. Its goal is to integrate companies and industry associations to mitigate pollution of the seas and oceans. This is achieved through activities in the areas of environmental education, conscious consumption and proper waste disposal. Two initiatives in 2019 that should be mentioned were the participation in the "World Day for the Cleaning of Rivers and Beaches," on the coast of São Paulo, which raised awareness on the importance of responsible consumption, plastic recycling and preservation of the marine environment, and the launch of the "National Plan for Combating Waste at Sea (PNCLM)," carried out by the Ministry of the Environment on March 22 -World Water Day.

We also adhered to the "Alliance to End Plastic Waste," which brings together companies producing thermoplastic resins, brand owners, transformers and waste treatment companies.



To learn more about this initiative, go to:  
[www.endplasticwaste.org](http://www.endplasticwaste.org)



## THE ALLIANCE FOR THE END OF PLASTIC WASTE WORKS ON FOUR PILLARS:

1. Improvement of waste management infrastructure
2. Fostering education and engagement of governments, communities and businesses
3. Promotion of technological innovation to minimize waste and advance recycling and recovery of plastic waste
4. Support in cleaning areas with a higher concentration of waste



To learn more, visit  
[www.opcleansweep.org](http://www.opcleansweep.org)

Another action front was our adherence, in February 2019, to the environmental management program Operation Clean Sweep (OCS), developed by the partnership between Plastics Industry Association and the American Chemistry Council. The idea is to help reduce the presence of plastic in the seas by improving pellet handling operations - microgranules of plastic resin that, when disposed of improperly, can contaminate the environment - from production to its use in processing and recycling companies.

### HUMAN RIGHTS

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At Braskem, we understand that our actions can have a positive or negative impact on human rights. We consider as fundamental for sustainable development all internationally recognized rights expressed in the International Charter of Human Rights and in the Declaration of the International Labor Organization regarding fundamental principles and rights at work.

Our commitment to respecting human rights is in line with the United Nations (UN) Guiding Principles on Business and Human Rights and encompasses our own operations, surrounding communities, our value chains or even society as a whole. This commitment is expressed in our Global Sustainable Development Policy, approved by Braskem's Board of Directors and Codes of Conduct, all publicly available.





# RISKS THAT OUR OPERATIONS MAY HAVE ON HUMAN RIGHTS

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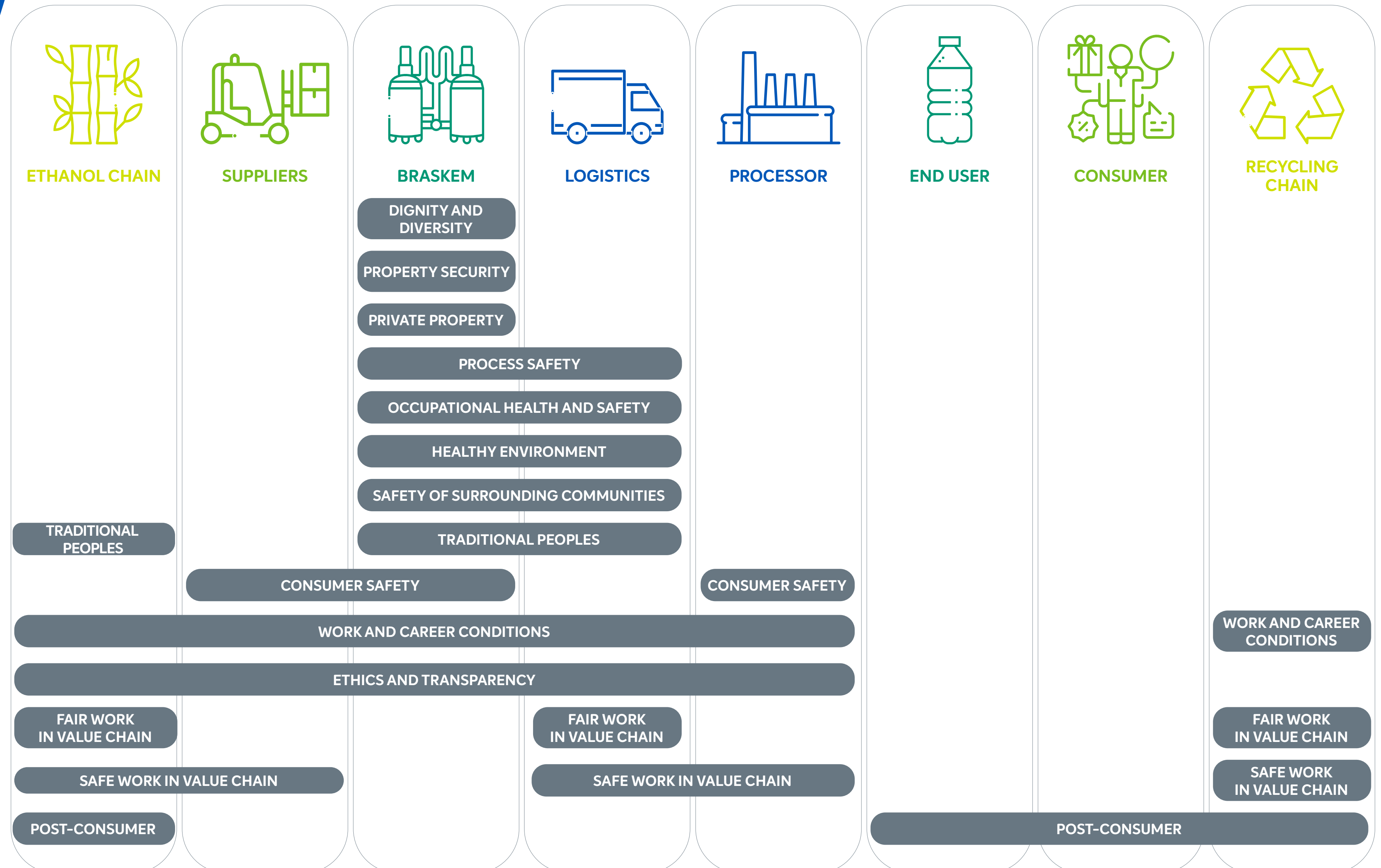
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In 2019, we proceeded with the implementation of measures for preventing and mitigating the human rights risks assessed as priorities and integrated into the Corporate Risk Matrix, monitored by the Board of Directors and senior management. **[Learn more in section Governance and Compliance]**

In relation to the risk to Dignity and Diversity, we started to develop a set of measures to protect and care for victims of harassment and discrimination in the workplace. The purpose is to strengthen our reparation mechanisms in the event of such violations.

In order to respect the human rights of Traditional Peoples, in 2019 we renovated the project Rede de Maré, carried out in traditional communities of fishermen and shellfish gatherers on Ilha da Maré, located in the vicinity of our operations in Salvador (BA). The project promotes the sustainable management of artisanal fisheries in the region, preserving traditional local cultures and their livelihoods, and the community's environmental education with a focus on the marine ecosystem. **[Learn more in section Value Creation - Communities]**

Within the scope of the Program Na Mão Certa, from Childhood Brasil, we managed to impact 1,644 truck drivers and 373 Team Members with awareness actions conducted with logistics and transportation companies to prevent the sexual exploitation of children and adolescents on highways. Overall engagement increased by 55% compared to 2018

Advances in risk management related to Ethics and Integrity and to Post-Consumption will be further detailed in specific sections of this report. **[Learn more in sections Governance and Compliance and Innovative and Sustainable Solutions]**



THIS INITIATIVE IS IN LINE WITH SDG1 (GOAL 1.5), SDG 4 (GOAL 4.7), SDG 5 (GOAL 5.2), SDG 10 (GOALS 10.2 AND 10.3), SDG 12 (GOAL 12.3) AND SDG 16 (GOAL 16.2)

**Click here** and see our commitment to human rights



For more information on voluntary projects and commitments, visit

[www.braskem.com.br/voluntary-commitments](http://www.braskem.com.br/voluntary-commitments)

[\\_102-12, 102-13\\_](#)







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# RESPONSIBLE PERFORMANCE

\_103-2, 103-3, 307-1, 413-1, 413-2\_





In the beginning of 2018, three districts in the city of Maceió – Pinheiro, Bebedouro and Mutange – registered cracks in buildings and sinking of public roads. In March of that same year, a magnitude 2.4 earthquake on the Richter scale was recorded in these districts where Braskem has 35 rock salt extraction wells and where the company has been operating for over 40 years.

In respect to this long relationship in the region and to our ethical principles, from the very beginning we adopted a responsible, transparent and active stance, collaborating with the authorities to understand the geological phenomenon and attempting to identify its causes.

### DETAILED STUDIES AND SAFETY

Thus, Braskem commissioned a detailed study of the salt wells. Using sonar technique, the study determined the conditions of each well and of the stabilization actions that are being addressed through the Mine Closure Plan. The results were shared with the regulatory body – the National Mining Agency (ANM).

In parallel, in April 2019, we signed the first Technical Cooperation Agreement with different public agencies to implement a series of preventive and corrective measures in the region. We carried out, for example, the inspection and correction of the stormwater drainage

system, the recovery of the street pavement, the installation of a meteorological station and of geological monitoring systems, and set up a control room to be used by the municipal Civil Defense.

In the same period, the State Prosecutors Office and the Public Defensor's Office of the State of Alagoas requested the first preventive injunction against Braskem. There were a series of similar requests from other bodies and judicial decisions at different levels, favorable to and against the company. The authorities sought to safeguard the rights of the community even before a conclusion was reached about the causes of the problem.

In May, a study by the Geological Survey of Brazil (CPRM) concluded that the rock salt extraction process could have reactivated geological structures in the region, causing cracks, and that the soil instability in the district of Pinheiro was aggravated by the erosion resulting from the lack of an adequate stormwater drainage and basic sewage network.

Considering these results, as a precaution, we decided to stop the extraction of rock salt in Maceió and temporarily interrupt the operation of the chlor-alkali plant in Pontal da Barra. We have responsibly taken these measures and started a series of studies by independent institutes in Brazil and abroad to deepen the knowledge about the situation.



WE RESPECT OUR RELATIONSHIP WITH SOCIETY IN ALAGOAS AND FOLLOW ETHICAL PRINCIPLES, WHICH IS WHY WE HAVE ADOPTED A RESPONSIBLE, TRANSPARENT AND ACTIVE ATTITUDE





OUR OPERATIONS INVOLVE MORE THAN 60 COMPANIES IN THE PLASTIC AND CHEMICALS CHAIN AND ACCOUNT FOR 3% OF THE GDP OF THE STATE OF ALAGOAS.

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### INVESTMENT IN CONCRETE AND FAIR ACTIONS

Our operations account for 3% of the GDP of the State of Alagoas and involve more than 60 companies in the plastic and chemicals chain in the state. For this reason, even with the interruption of important activities, we are committed to stakeholders and did not issue any layoffs.

To honor our services to our Customers, we import raw material from other states and abroad, focusing on resuming operations at the Pontal da Barra plant in the future. We asked the National Mining Agency (ANM) for authorization to survey salt reserves in rural areas of Alagoas to continue generating jobs and income in the region.

In November 2019, we received the technical report from the Leipzig Institute of Geomechanics (IFG), Germany, a global reference in salt well studies, which recommended the creation of a buffer area around wells that showed certain changes. Based on this report, a buffer area was established for 15 of the 35 rock salt wells. Nevertheless, this report is not conclusive about the fact that these changes are related to the geological phenomenon.

Even so, we care for the safety of the residents and decided for the definitive closure of all salt wells, in addition to proposing to the authorities the creation of a buffer area. To respond to the demands of the community, we reinforced the communication and clarification program and intensified social dialogues and our presence in the neighborhoods.

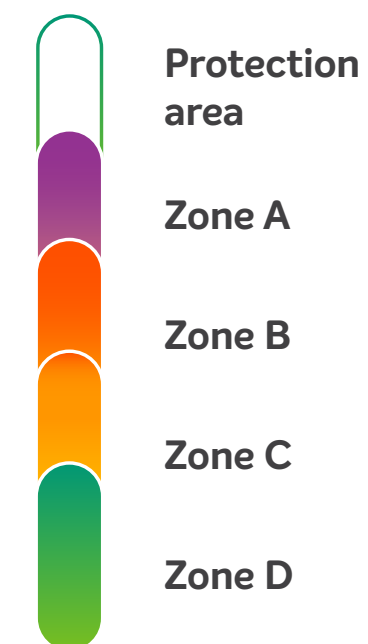
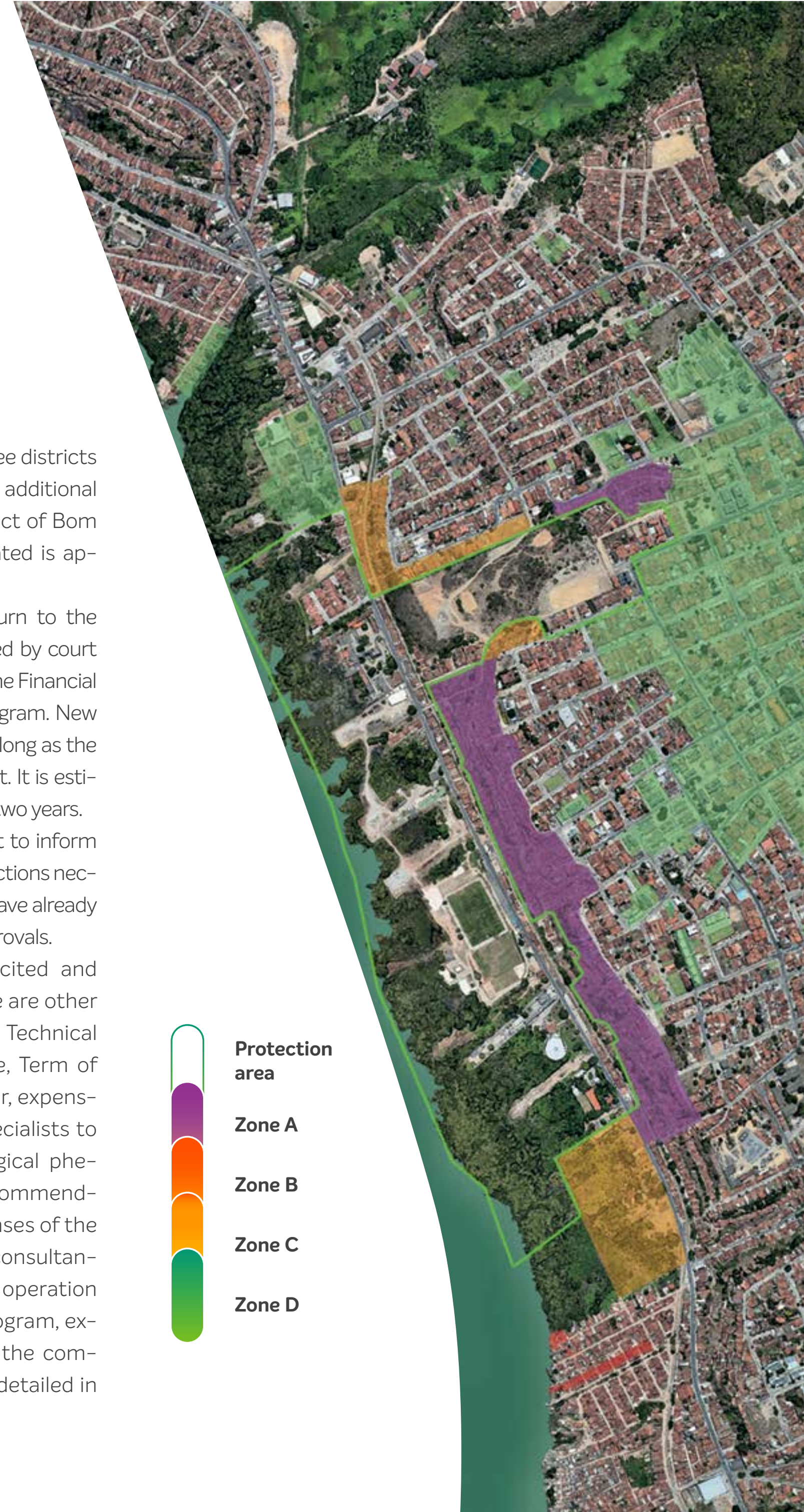
We continue negotiating with public authorities to seek solutions for the affected residents. Thus, in January 2020, we signed the Term of Agreement with the State and Federal Public Defensor's Offices and the Federal and State Prosecutors Offices. The document covers the areas classified under 00 criticality in the risk

map identified by the Civil Defense in the three districts (Pinheiro, Mutange and Bebedouro) and 62 additional houses with structural problems in the district of Bom Parto. The number of properties to be vacated is approximately 4,500, totaling 17,000 people.

The agreement also determines the return to the company's account of the R\$ 3.7 billion blocked by court order, of which R\$ 1.7 billion will be allocated to the Financial Compensation and Resettlement Support Program. New judicial impediments may not be requested as long as the company is fully compliant with the agreement. It is estimated that the measures will be completed in two years.

In January 2020, we issued a material fact to inform about the provision totaling R\$ 1 billion for the actions necessary to close the salt wells in Maceió, which have already started and will follow ANM's schedule and approvals.

In addition to the amounts already cited and mentioned in the Term of Agreement, there are other measures that include the instruments of Technical Cooperation signed with the Civil Defense, Term of Agreement with the Public Ministry of Labor, expenses with hiring external consultants and specialists to prepare studies to understand the geological phenomenon and support the execution of recommended actions, structure and operational expenses of the Central do Morador (Resident's Center), consultancies, expenses for service providers for the operation of the Resettlement and Compensation Program, expenses for property closing, expenses for the communication plan, among others, which are detailed in the 2019 Financial Statements disclosed.







## WE CONVENED MEETINGS WITH THE COMMUNITY TO ANSWER QUESTIONS, CREATED THE FINANCIAL COMPENSATION PROGRAM (“PCF”) AND RESETTLEMENT SUPPORT AND SET UP A RESIDENT’S CENTER IN MACEIÓ

### COMMUNITY SUPPORT

To guarantee the well-being of communities and restore trust, we have developed several actions in the region, including:

- Meetings are held to listen to residents and other stakeholders in the affected areas, to answer questions and conduct social dialogue. This dialogue made it possible to identify the main concerns of the community, to define focal points to continuously approach and influence the actions for resettlement and compensation of families.
- Creation of the Financial Compensation and Resettlement Support Program, which assists residents within the buffer area and includes compensation for material and moral damages, payment of expenses for moving and resettling families, in addition to helping in the search for a new property.
- Creation of a toll-free Call Center since November 15, 2019 and a Service and Information Desk in the district of Pinheiro to enable closer contact with residents.
- Implementation of the Resident’s Center in Maceió, which offers banking service, notary services, real estate companies, rooms for lawyers, free transportation for residents, an on-call service of the Court of Law of the State of Alagoas and an itinerant office for the State and Federal Public Defensor’s Offices.
- Psychological treatment for the residents of the affected districts (Psychological Support Home) and actions to protect and support families under social vulnerability throughout the PCF program.

### NEXT STEPS

We point out that the obligations and actions we assumed in risk areas do not mean we accept responsibility for the cracking occurring in the districts, as set out in the agreement.

So far, there are no conclusions about the causes of the geological phenomenon. Therefore, we continue to invest in studies and research that deal with its origin, conducted by renowned international organizations, such as the Leipzig Geomechanics Institute (IFG), Germany, University of Houston (USA), BRGM - Bureau de Recherches Géologiques et Minières (France), Imperial College (England) and ACCMS - Consultancy of Professors from USP.

We will continue to fulfill our role as a responsible company that is committed to the safety of people, both of our Members and of the communities where we operate, seeking definitive answers and taking sound and objective actions to solve the problem and its impacts.



To learn more about our actions in Alagoas, visit [www.braskem.com.br/alagoas](http://www.braskem.com.br/alagoas) (portuguese only)



# GOVERNANCE AND COMPLIANCE

[\\_102-16, 102-17, 102-18, 102-23, 406-1\\_](#)

CONSOLIDATION OF PROCESSES

RISK ASSESSMENT

INTERNAL AUDIT

BOARD OF DIRECTORS

INCREASINGLY MORE ENGAGED

ETHICS LINE CHANNEL

REPUTATION MANAGEMENT

DUE DILIGENCE







## CONSOLIDATION OF PROCESSES

We continuously strive to implement governance and compliance initiatives in line with our goals and market standards. The year 2019 represented the completion of two important projects in these areas.

The first was the completion of the the Compliance Program, which started in 2016 and included 161 initiatives to improve the compliance environment. Among the projects was the establishment of Braskem's Compliance System, structured through 10 measures in the three pillars: Prevention, Detection and Remediation. The objective of the system, which is permanently monitored by the Board of Directors, is to maintain an ethical, integral and transparent performance in all the company's activities and operations.

The second was the completion of the independent monitoring process carried out by the Federal Prosecutors Office (MPF) that began in 2017 with the aim of evaluating the implementation and effectiveness of our Compliance Program.

In March 2020, MPF recognized the improvements achieved by the program by attesting to the fulfillment of all obligations assumed in the Leniency Agreement signed between MPF and Braskem in 2016, in addition to the implementation of all additional recommended initiatives. The effectiveness certification issued by external monitors and attested by the MPF demonstrates the effort and dedication of all Braskem Team Members to this topic, and reinforces our commitment to ethics, integrity and transparency in all of our actions.

The external monitoring process was completed on May 2020 by the DoJ (Department of Justice) and the SEC (Securities and Exchange Commission). With the end of the independent monitoring period and the certification by the MPF, the DoJ and the SEC, the Company has complied with its obligations established in the agreements signed with these authorities and has successfully concluded the three-year term under the Agreements.

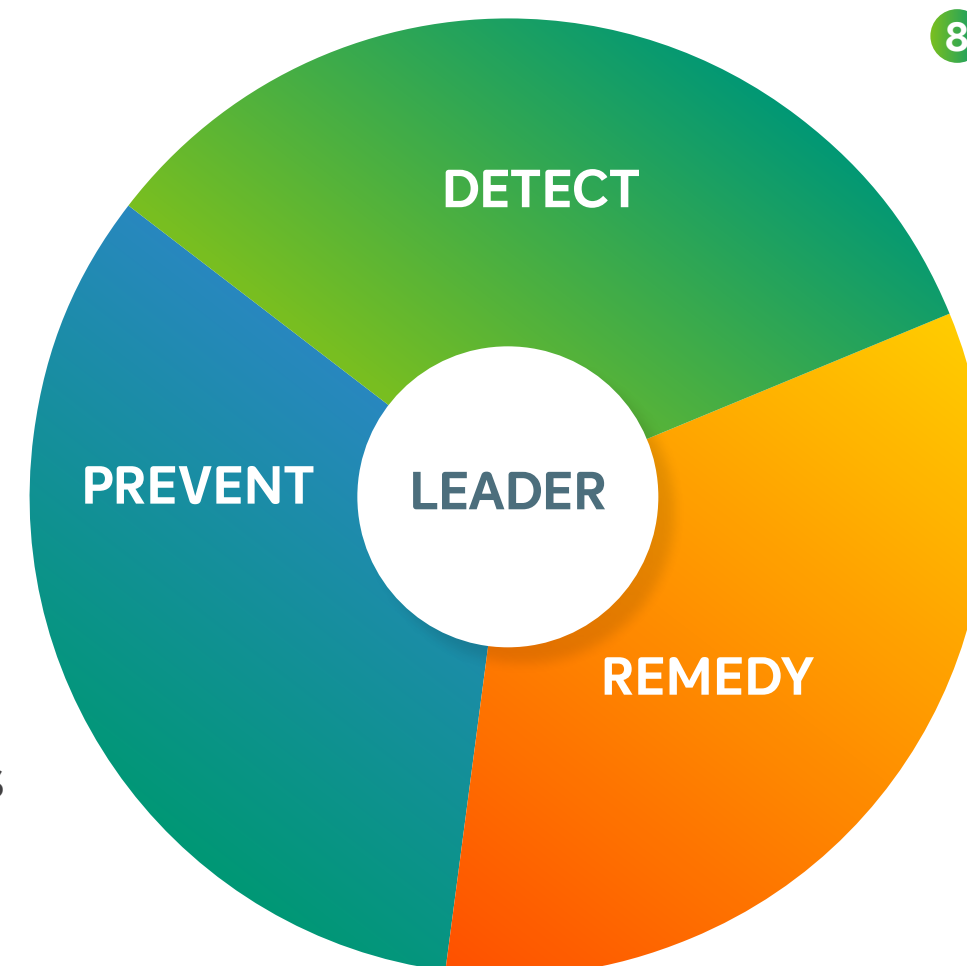


Our governance and compliance actions are directly linked to the macro-goals of strengthening practices and of economic financial results, in addition to converging with all of our priority SDGs.

Through strategic actions that focus on respecting values, such as ethics, integrity and transparency, we work to guarantee Braskem's competitiveness and reputation, and ensure our contribution to economic growth, innovation, eradication of poverty, responsible consumption, among many other topics.

## COMPLIANCE SYSTEM MEASURES

- 1 COMPLIANCE GOVERNANCE
- 2 POLICIES AND OTHER GUIDELINES
- 3 RISK ASSESSMENT AND CONTROLS
- 4 COMMUNICATION AND TRAINING
- 5 THIRD PARTY COMPLIANCE
- 6 ENGAGEMENT IN COLLECTIVE ACTIONS



- 7 ETHICS LINE CHANNEL MANAGEMENT
- 8 MONITORING OF RISKS AND CONTROLS

- 9 REMEDY RISKS AND STRENGTHEN CONTROLS
- 10 DISCIPLINARY MEASURES



STRENGTHENING PRACTICES



FINANCIAL RESULTS



## 2019 HIGHLIGHTS

- Compliance team composed of **49 Team Members**, divided into corporate and regional teams
- Completion of the implementation of the Compliance Program with the implementation of **100%** of the **161 scheduled actions**.
- Completion of the independent monitoring process carried out by the Federal Prosecutors Office (MPF), the US Department of Justice (DoJ) and the Securities and Exchange Commission (SEC)
- **Evolution** in the evaluation of the ETHOS\* Institute's health indicators, with a score of 9.3 in cycle 18/19
- Signature of leniency agreement with the Federal Attorney Office (AGU) and the Federal Comptroller Office (CGU)
- Implementation of the Due Diligence process for Customers (KYC)
- Approval of the Privacy Policy and Protection of Personal Data
- Achieved the ABERJE Communication Award (regional and national)
- New Courtesy Training

\* Civil society organization whose mission is to mobilize, raise awareness and help companies manage their business in a socially responsible manner





## ANTI-CORRUPTION INITIATIVES

[\\_103-2, 103-3, 102-16, 205-2\\_](#)

In line with our commitment to ethical and responsible management, we have adopted a global Code of Conduct that sets out principles, values and practices that guide the corporate conduct of our Team Members both in internal and external relations. All Team Members received training on the Code of Conduct, as did members of the Board of Directors.

In addition to this document, which includes a section dedicated to fighting corruption, we have an Anti-Corruption Policy in place and on which 100% of the Board of Directors and 95% of the Team Members were trained. We are also part of the Anti-corruption Working Group of Global Compact Network Brazil and the Business Pact for Integrity and against Corruption of the Ethos Institute. And finally, in 2019 we offered training on corruption and the Third Party Code of Conduct, which guides the relationship between the company and its suppliers and partners.

The **Code of Conduct** is translated into all languages of the countries where Braskem operates.

**Click here** to learn more about our anti-corruption policy. [\\_102-23\\_](#)

You can access our Third Party Code of Conduct by **clicking here**.



Understand how our Corporate Governance structure, principles and model works at <https://www.braskem.com/Principal/corporate-governance> and at <https://www.braskem.com/Principal/compliance>. [\\_102-18\\_](#)

Also visit our **Investor Relations website**







## RISK ASSESSMENT

102-15

The risk assessment process is essential, since it sets out the main factors that can impact the achievement of our goals and objectives, in financial, strategic, operational and regulatory terms. In all, 120 risks are assessed and, in 2019, we classified 18 items as priorities. The Board of Directors and the Advisory Committees are responsible for closely monitoring each risk regularly with the administration. In addition, action plans have been defined to reduce the likelihood and/or the impact of these risks should they occur.

In 2019, the following risks were highlighted:

- **Industry Cycle:** Possible difficulty adapting business to market volatility in the development of corporate strategies, resulting in financial losses and/or loss of competitiveness.
- **Circular Economy:** possible difficulty in adjusting production processes (from design to collection) to meet the globally required needs in terms of recycling, resulting in the reduction/rejection of the Company's products by society, inability to meet demand and consequent loss of markets, in addition to adverse effects on the Company's image and reputation.
- **Competition:** possibility of increased competition or loss of market share in the sector in which the Company operates and/or existence of incentives for competitors from other countries.

## DATA PRIVACY PROGRAM

One of our concerns, as a global and connected company, is to adapt our activities to the privacy laws that guide the treatment of the personal data of our Customers, Suppliers and Team Members. With that in mind, we started the Global Privacy Program that covers the countries where we operate and maintain relevant commercial offices.

The program, created from the enactment of Brazil's General Data Protection Law, aims to preserve the rights and freedoms of Data Subjects. This includes processes such as mapping personal information used in different areas, updating contracts with service providers and expanding knowledge about the law.

All processes involved in the program must be fully aligned by August 2020 and this is being led by the Compliance team alongside the Information Technology department and the Legal area.





## INTERNAL AUDIT

Through an independent and objective evaluation process, Internal Audit consolidates and protects our institutional value, checking compliance of operations and activities against internal policies and external rules and regulations. As a result, it is possible to improve risk management and identify opportunities to increase efficiency, expanding and strengthening governance practices.

In 2019, 24 projects were completed, including: Related Parties, Sales Intermediate, Access and Change Management, Information Security, Pricing, Due Diligence, Business Courtesies, among others. These reports generated 128 opportunities for improvement in the internal control environment of the audited processes and 354 action plans for the respective remediation.

## BOARD OF DIRECTORS

At Braskem, we have an active Board of Directors that works according to the best corporate governance practices. Since 2018, it has been comprised of a minimum of 20% independent members. As of December 31, 2019, the Board was composed of 11 members, 4 of whom are independent, and the Board's activities and powers are regulated by the Bylaws and its Internal Regulations.

We also have a Compliance Committee; whose role is to support the Board of Directors in their commitment to ethical and transparent administration. It is a Statutory Committee formed by at least three independent members of the Board of Directors.



To learn about the structure of our Boards and Departments, visit:  
<http://www.braskem-ri.com.br/councils-and-board> and  
<http://www.braskem-ri.com.br/board-of-directors-committees>





## INCREASINGLY MORE ENGAGED

We believe that, in addition to adopting compliance actions, it is important to understand how our Team Members perceive these initiatives. For this reason, every year, we prepare a global survey that, in 2019, had a record participation: 4,811 respondents from units in Brazil, Europe, the United States and Mexico.

The survey, which was answered on an online platform between March 11 and April 5, 2019, inquired about the level of people's understanding of compliance, their responsibilities in relation to the topic and how it is embedded in their day-to-day activities. In addition, the results help identify opportunities for improvement in processes, procedures and communication management.



- **4,811** RESPONDENTS WORLDWIDE
- **95%** OF THE TEAM MEMBERS RECOGNIZE THAT IT IS A COMMITMENT TO ETHICAL, UPRIGHT AND TRANSPARENT PERFORMANCE
- **97%** OF OUR TEAM MEMBERS AGREE THAT ENSURING COMPLIANCE IS THE RESPONSIBILITY OF ALL.

## ETHICS LINE CHANNEL

[\\_103-2, 103-3, 102-17, 406-1\\_](#)

The Ethics Line Channel was one of the measures created to keep our activities in line with our commitment to compliance. Established in April 2017, the service is an evolution of the whistleblowing channel and aims to provide all our audiences with a form of communication that ensures confidentiality, security and secrecy to send reports of illegal and unethical conduct, including possible violations of the applicable Anti-Corruption Laws and / or the Company's Guidance Materials

The service is managed by an independent and outsourced company, which has professionals trained to impartially receive, evaluate and correctly direct reports in an impartial manner. Within Braskem, reports are received by a Compliance team specialized in Investigation.

In 2019 the channel received 527 reports, 53% more compared to 2018: 380 in South America, 122 in Mexico, 10 in the United States and 15 in Europe, with 65% of people preferring to remain anonymous. The top five categories: 45% behavior and conduct at work (harassment, abuse of power, retaliation, discrimination, etc.), 25% complaints, 11% conflicts of interest and 10% irregularities in contracts.

In 2019, a report initially classified as relating to corruption was reported on the Ethics Line Channel and an independent investigation by a law firm was conducted to establish the facts. The outcome of the investigation found conflicts of interest and embezzlement of company resources by a former Member, with no evidence of involvement of public officials. [\\_205-3\\_](#)



## Results of the Ethics Line Channel in 2019

\_406-1\_

### GENERAL FIGURES

▶ **527**  
reports received in 2019

▶ **476**  
closed reports

### DISCRIMINATION

In 2019,

▶ **6**  
cases were received in Brazil and

▶ **2**  
in the United States

All 6 cases in Brazil were properly investigated and concluded: 4 of them were considered substantiated or partially substantiated and 3 remedial actions were implemented. The two incidents in the US were properly investigated and concluded to be unsubstantiated.

### MORAL AND SEXUAL HARASSMENT

In 2019,

▶ **46**  
cases were received globally

▶ **42**  
in Brazil

▶ **1**  
in the United States

▶ **1**  
in Europe

▶ **2**  
in Mexico

In Europe, the case was considered unsubstantiated. In the United States, the investigation is ongoing. In Mexico, the employee was dismissed for the substantiated case and the second case did not have enough information for investigation.

In Brazil, 34 investigations were conducted, 32 of which were closed and 2 still in progress. Of the 16 substantiated cases, 9 undergo behavioral monitoring, 1 was restricted to feedback, 1 in written warning and 2 terminations.

In 2019 there were no reports of disciplinary or corruption-related cases. All reports received in 2019 have been investigated or are undergoing investigation. It should be noted that some reports are similar or identical to others already received by the channel and, therefore, are jointly investigated. For this reason, the number of investigations is smaller than the number of reports received. The status of the investigations refers to March 2020.



## ETHICS LINE CHANNEL

Our Ethics Line Channel is available to all audiences: Team Members, Customers, Third Parties and the Company's external audience. The service maintains full confidentiality about the content of the reports, which can be made on any day and at any time by means of a toll-free call or over the Internet, in the language of the country (Portuguese, English, Spanish or German):

- BRAZIL: 0800 377 8021 ([www.linhadeeticabraskem.com](http://www.linhadeeticabraskem.com))
- GERMANY: 0800 183 0763 ([www.lineethikbraskem.com](http://www.lineethikbraskem.com))
- THE NETHERLANDS: 0800 022 7714 ([www.ethieklinebraskem.com](http://www.ethieklinebraskem.com))
- MEXICO: 01 800 681 6940 ([www.lineadeeticabraskemidesa.com](http://www.lineadeeticabraskemidesa.com))
- UNITED STATES: 1 800 950 9280 ([www.ethicslinebraskem.com](http://www.ethicslinebraskem.com))
- ARGENTINA: 0800 222 0394 ([www.lineadeeticabraskem.com](http://www.lineadeeticabraskem.com))
- COLOMBIA: 01 800 518 4806 ([www.lineadeeticabraskem.com](http://www.lineadeeticabraskem.com))
- PERU: 0800 76757 ([www.lineadeeticabraskem.com](http://www.lineadeeticabraskem.com))
- CHILE: + 56-448909744 ([www.lineadeeticabraskem.com](http://www.lineadeeticabraskem.com))
- SINGAPORE: + 65-31585409 ([www.ethicslinebraskem.com](http://www.ethicslinebraskem.com))





## REPUTATION MANAGEMENT

Reputation is a valuable asset. Therefore, we invest in a management model that focuses on three important pillars: monitoring of a panel of rational and emotional indicators, governance processes in the areas responsible for relationships with the various stakeholders, and incorporation of analysis in decision making on aspects associated with image and reputation.

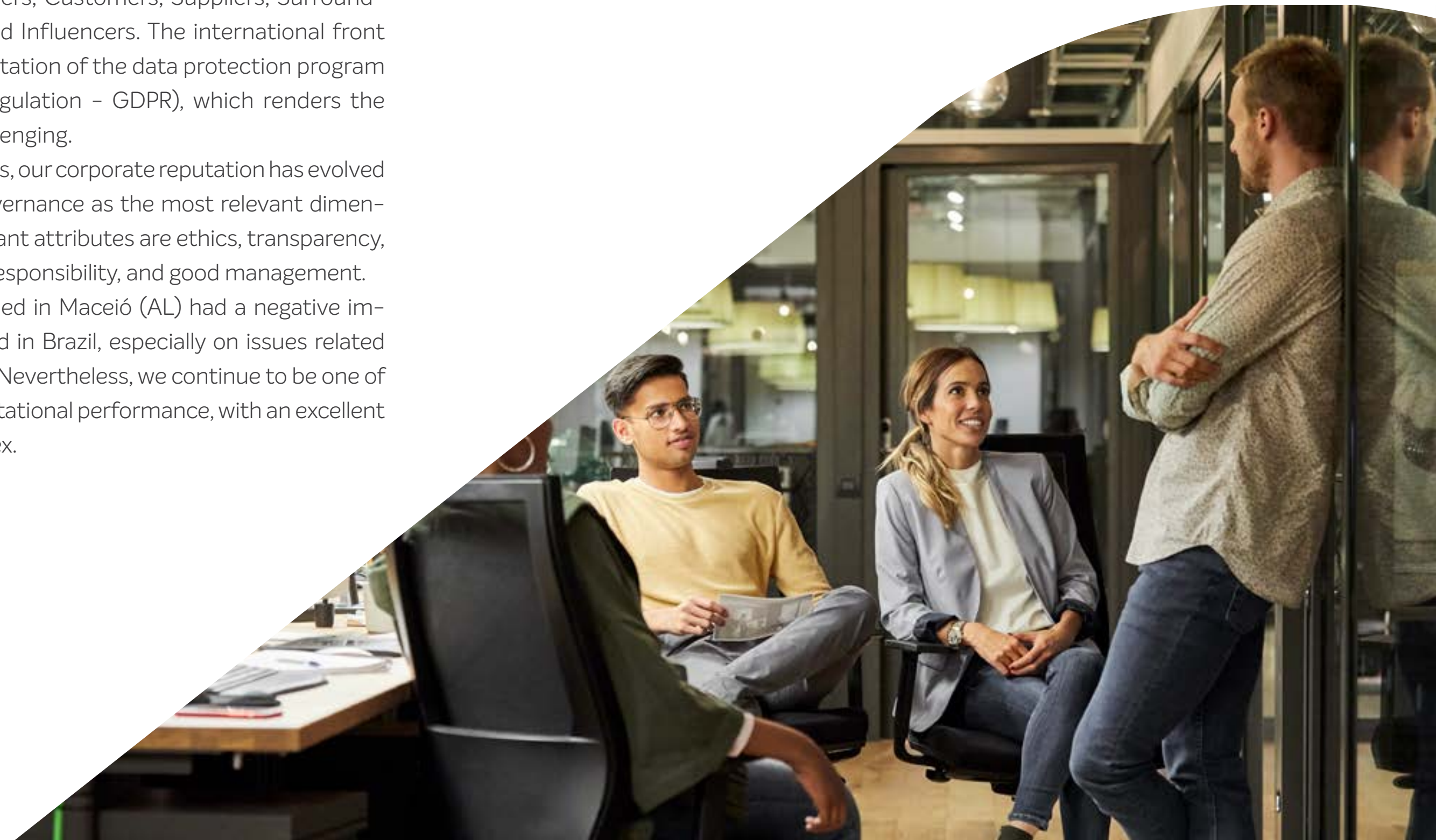
We use the RepTrak® methodology, created by The RepTrack Company, to annually monitor all countries where we operate. Thus, we can analyze information such as the perception of our stakeholders from an emotional standpoint (Pulse®) – level of esteem, admiration, empathy and trust – as well as rational indicators in seven dimensions: Products and Services, Innovation, Work Environment, Governance, Citizenship, Leadership, and Performance. In 2019, Braskem's global Pulse® was scored between 60 and 69 points.

The year 2019 represented the largest effort ever made by Braskem to measure its reputation. In all, 7,130 interviews were conducted with Team Members, Customers, Suppliers, Surrounding Communities, Society and Influencers. The international front was marked by the implementation of the data protection program (General Data Protection Regulation – GDPR), which renders the work more complex and challenging.

According to survey results, our corporate reputation has evolved positively worldwide, with governance as the most relevant dimension. Among the most important attributes are ethics, transparency, fair conduct, environmental responsibility, and good management.

The seismic shock recorded in Maceió (AL) had a negative impact on the results monitored in Brazil, especially on issues related to Society and Communities. Nevertheless, we continue to be one of the companies with best reputational performance, with an excellent score in the global Pulse® index.

**19** STAKEHOLDERS  
**4** MARKETS (BRAZIL, UNITED STATES,  
MEXICO AND EUROPE – GERMANY  
AND THE NETHERLANDS)  
**7,130** INTERVIEWS





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## DUE DILIGENCE

In 2017, Braskem initiated an Integrity due diligence process for new suppliers, with the support of an outsourced team. In 2018, a new guideline was developed that established a new methodology for the process and, in the same year, the analysis of members with regard to candidates and advisors and also analyzes of a group of customers, such as distributors and intermediaries, began. As of 2019, the customer due diligence process has been expanded, it has been done using a tool, providing greater security and traceability for it.

IN 2019, BRASKEM WON THE REGIONAL AND NATIONAL ABERJE AWARD, GRANTED BY THE THE BRAZILIAN ASSOCIATION OF CORPORATE COMMUNICATION, IN THE ETHICS, INTEGRITY AND COMPLIANCE CATEGORY, FOR INTERNAL COMPLIANCE COMMUNICATION ACTIONS

PERFORMANCE IN THE THEME GUIDE: INTEGRITY, PREVENTION AND FIGHT AGAINST CORRUPTION.

## RETURN TO THE NEW YORK STOCK EXCHANGE

One of the most important news of 2019 was the filing of the 2018 20-F Form to the Securities and Exchange Commission (SEC), the entity that regulates the U.S. capital market. The document is required of all foreign companies that trade securities on American stock exchanges. Given additional procedures and analysis regarding our internal processes and controls, there was a delay in the filing of the forms for the years 2017 and 2018, which led the New York Stock Exchange (NYSE) to suspend the trading of our American depositary shares (ADRs) and initiate the delisting procedures, although the company continued listed at NYSE.



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# BUSINESS PERFORMANCE

\_102-9, 102-45, 103-2, 103-3\_

BRAZIL

UNITED STATES AND EUROPE

MEXICO

CONSOLIDATED INCOME

GEOGRAPHIC AND RAW MATERIAL DIVERSITY

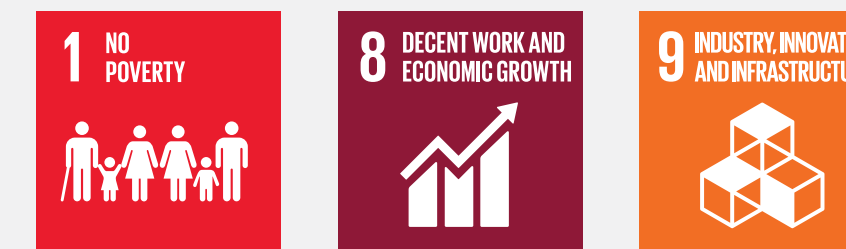


2019 was a challenging year for Braskem's business. We ended the period with a free cash flow generation of R\$ 3 billion, a result we achieved through actions such as inventories and accounts receivables optimization, the monetization of R\$ 281 million of the PIS/COFINS balance, the lowest IR / CSLL payment, loyalty of customers with long-term contracts and discipline in operational and strategic investments. This helped to offset the 46% drop in EBITDA, which occurred mainly due to lower spreads in the international market, especially in polyethylene. Our return on free cash flow was 13%.

Throughout the year, we faced with courage, focus and resilience delicate situations, such as the geological phenomenon recorded in the city of Maceió (AL) **[see more in section Responsible Performance]**. Our decision to act proactively led us to shut down the chlor-alkali plant and to definitively close rock salt extraction wells in the region. In addition, we prepared a program for financial compensation and relocation of residents in areas of risk (PCF), through an agreement with Brazilian authorities, with investments of R\$ 1.7 billion related to the PCF - to be spent over the next few years -, and we estimate about R\$ 1 billion to close and monitor the salt wells. Provisions in the amount of approximately R\$ 3.4 billion were recognized in our accounting result, which contributed to the net loss for 2019. However, this agreement allowed the judicial release in the amount of R\$ 3.7 billion of our box in 2020.

IN 2019, 0.03% OF OUR SALES IN BRAZIL WERE FROM OUR POST-CONSUMER PORTFOLIO (PCR). OF THIS TOTAL, 3% WERE FROM 70% PCR GRADES, WITH THE MAJORITY OF SALES RELATING TO 100% PCR GRADES. AS WE LAUNCHED THE RECYCLED PORTFOLIO IN 2019, OUR METRICS ALSO STARTED THIS YEAR. IN ADDITION, OUR SALES IN BRAZIL INCREASED ALMOST 7 TIMES COMPARED TO 2018.

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The good performance of our businesses and operations guarantees the sustainability of our actions. Based on a strategy of commitment to all stakeholders, we maintain our focus on creating value and developing the chain, with the implementation of projects that enable expanding production volume and global trading of recycled resins and chemicals.



## FINANCIAL RESULTS





## NEW ORGANIZATIONAL STRUCTURE

In October 2019, we presented our new administrative structure, which was redefined to be more in line with our long-term strategy that values globalization and synergy. The organization model now has ten vice presidencies and replaces the previous organization into business units.

In search of greater agility, efficiency, sustainability and better customer service, we transformed our way of operating: before, we divided the businesses into Small Companies according to the segment in which they operated, each with its own Leader and independent administration. After the change, we merged the units, and the entire portfolio (resins from fossil, recycled and renewable sources) is now considered, handled and delivered under two perspectives, commercial and production management.

Within this reorganization, we began to expand and strengthen our presence in Asia, a continent with an outlook of continued growth in demand and which has been incorporated into the vice-presidency of Europe. To this end, we expanded the team working in the Singapore office and will open, in 2020, a new office in Mumbai, India.

## BRAZIL

In 2019, operations in Brazil were impacted by a downward cycle for the petrochemical industry and by the shutdown of chlor-alkali and dichloroethane plants in Alagoas, in addition to the growth in local demand for resins, which totaled 5.3 million tons, up 2% over the previous year. This increase in demand was due to the fall in the country's basic interest rate and the recovery of confidence by businessmen and consumers in the Brazilian economy, leveraging the agribusiness, food sectors and beginning the recovery of civil construction.

International resin spreads generally declined. In relation to the polyethylene spread, there was a 36% reduction compared to 2018, which occurred due to the increase in capacities of integrated crackers based on shale gas in the United States, a drop in demand related to uncertainties about the context of the world economy and regulatory pressure on single-use plastics. With regard to the polypropylene spread, the 13% drop in relation to the same period is due to the slowdown in demand, mainly in the automotive sector, combined with the entry of new capacities from Asia.

The drop of 8% compared to 2018 in PVC spreads was due to the weakening of PVC demand in Asia, due to the trade war between the United States and China and India's anti-dumping policy, due to the higher demand for EDC in the market, including Braskem, and the lower demand for caustic soda in the aluminum and paper and cellulose sectors.

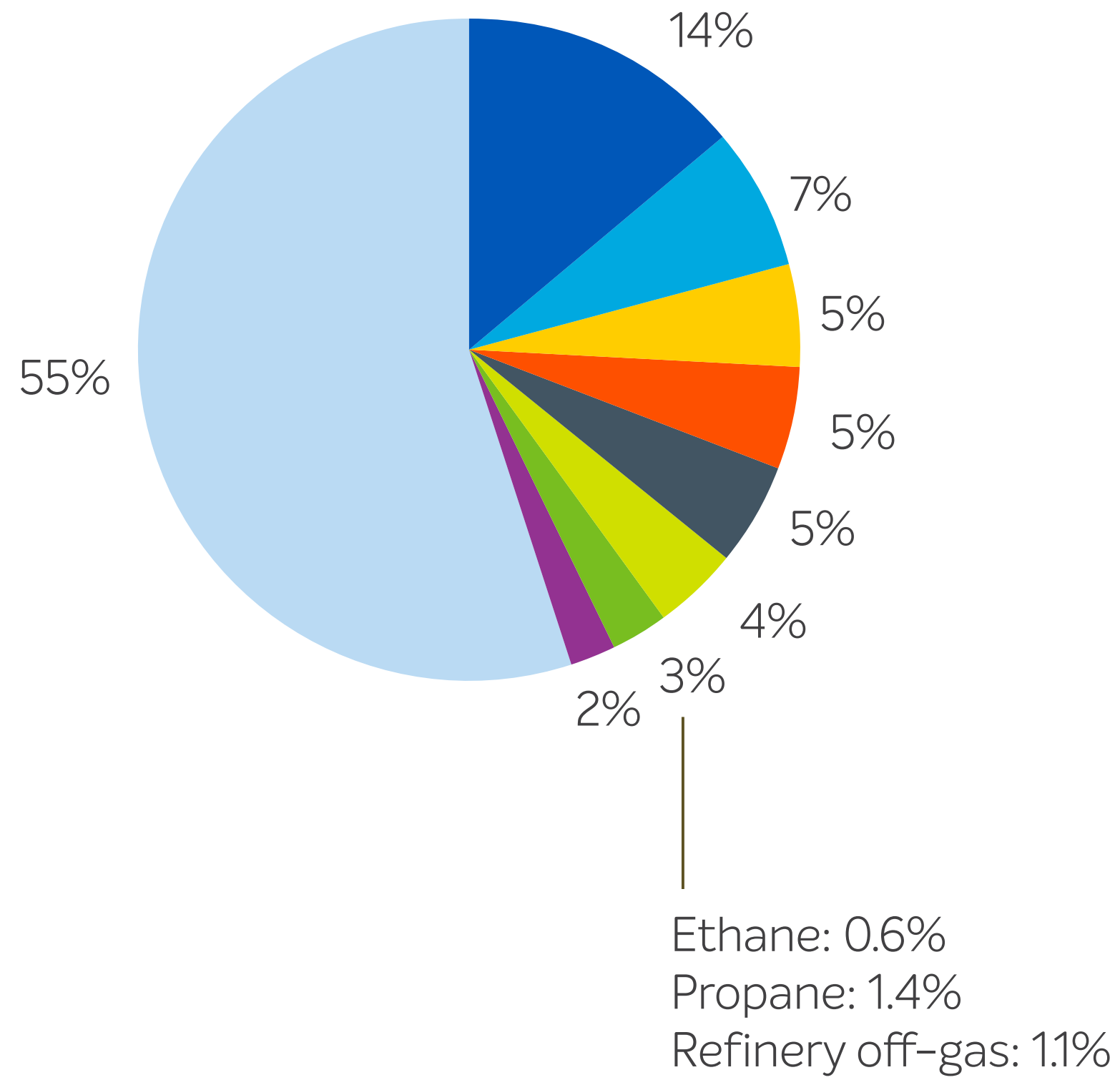
Finally, spreads for the main chemicals dropped by 22% in 2019 due to the entry into operation of ethane-based crackers and the good performance of propane dehydrogenating plants in the United States, combined with the entry of new capacities in Asia and with the reduction demand in the automobile sector.

The capacity utilization of the petrochemical plants was lower than in 2018 due to the load reduction at the Bahia plant as a result of the shutdown of chlor-alkali and dichloroethane (EDC) plants in Alagoas; the scheduled shutdown on one of the production lines at the Bahia petrochemical plant in the fourth quarter of 2019; logistics problems with the receipt of raw materials at the Rio Grande do Sul plant and load reduction from the plants with a drop in marginal profitability from resin exports.





## 2019 BRAZIL COGS\*



- Naphtha and Condensate
- Other variable costs
- Propylene
- Fixed Costs\*\*
- Deprec / Amort
- Sales Freight
- Natural Gas
- Gas
- Electricity

\*Considers accounting figures  
 \*\* Includes salaries and benefits







## BRAZIL'S EBITDA IN 2019 WAS R\$ 3.205 MILLION

In 2019, resin sales in the country totaled 3.4 million tons, aligned volume recorded in 2018. Total sales of the main chemicals, on the other hand, were 2.8 million tons, down 2% from the previous year. In the year, resin exports totaled 1.4 million tons, and exports of the main chemicals, 628,000 tons, up 8% and 10% from 2018, respectively, which reflected an increase in the market share of polypropylene in South America and, for the main chemicals, the lower sales volume in the Brazilian market.

Cost of Goods Sold (COGS) reached a total of US\$ 8,780 million, down 8% from 2018, caused by a reduction in interna-

tional prices for the main raw materials, partially offset by the higher volume of total resin sales. Lower naphtha prices followed the drop in oil prices and increased use of natural gas in the flex-feed crackers in the U.S. The lower prices of ethane and propane in the United States, on the other hand, are due to the start of operations of new gas crackers and gas pipelines in the region, in addition to the delay in the startup of ethane-based crackers. In 2019, COGS was positively impacted by the PIS/COFINS credit of US\$ 226 million (R\$ 893 million) in the purchase of raw materials and by the Reintegra credit in the amount of US\$ 2.3 million (R\$ 9.2 million).

EBITDA was US\$ 821 million (R\$ 3,205 million), 57% lower than 2018, representing 55% of the Company's consolidated segments.

FINANCIAL OVERVIEW (US\$ MILLION)*	2019 (A)	2018 (B)	VAR. (A) / (B)
NET REVENUE	9,843	11,525	-15%
COGS	(8,780)	(9,530)	-8%
Gross Profit	1,063	1,996	-47%
Gross Margin	11%	17%	-6 p.p.
SG&A	(599)	(698)	-14%
Other Operating Revenue (Expenses)	(1,016)	96	-1155%
EBITDA	821	1,905	-57%
EBITDA Margin	8%	17%	-9 p.p.
Net Revenue (R\$ million)	38,781	42,205	-8%
EBITDA (R\$ million)	3,205	6,985	-54%

\*Does not consider expenses related to the geological event in Maceió, Alagoas



## UNITED STATES AND EUROPE

In 2019, our operations in the United States were influenced by the better operational performance of the country's plants. In Europe, however, there was a restriction on the receipt of raw materials at one of our plants in the continent due to operational problems from a supplier, in addition to the poor performance of the European auto industry on PP spreads in the region.

Demand in the United States fell, due to the slowdown in the auto market. In Europe, demand grew due to the increased use of polypropylene in the consumer goods and service sector.

The average spread in the United States and Europe fell by 1% compared to 2018. In the United States, the spread increased as a result of the high availability of propylene in the region, given the high utilization rates of DHP plants and the greater use of natural gas liquids in crackers, which increases the supply of propylene. To compensate for this increase, the polypropylene spread in Europe decreased, due to the economic slowdown in the region, linked to the increase in the supply of propylene as a consequence of the regularization of river transport, which affected the region in the previous year.

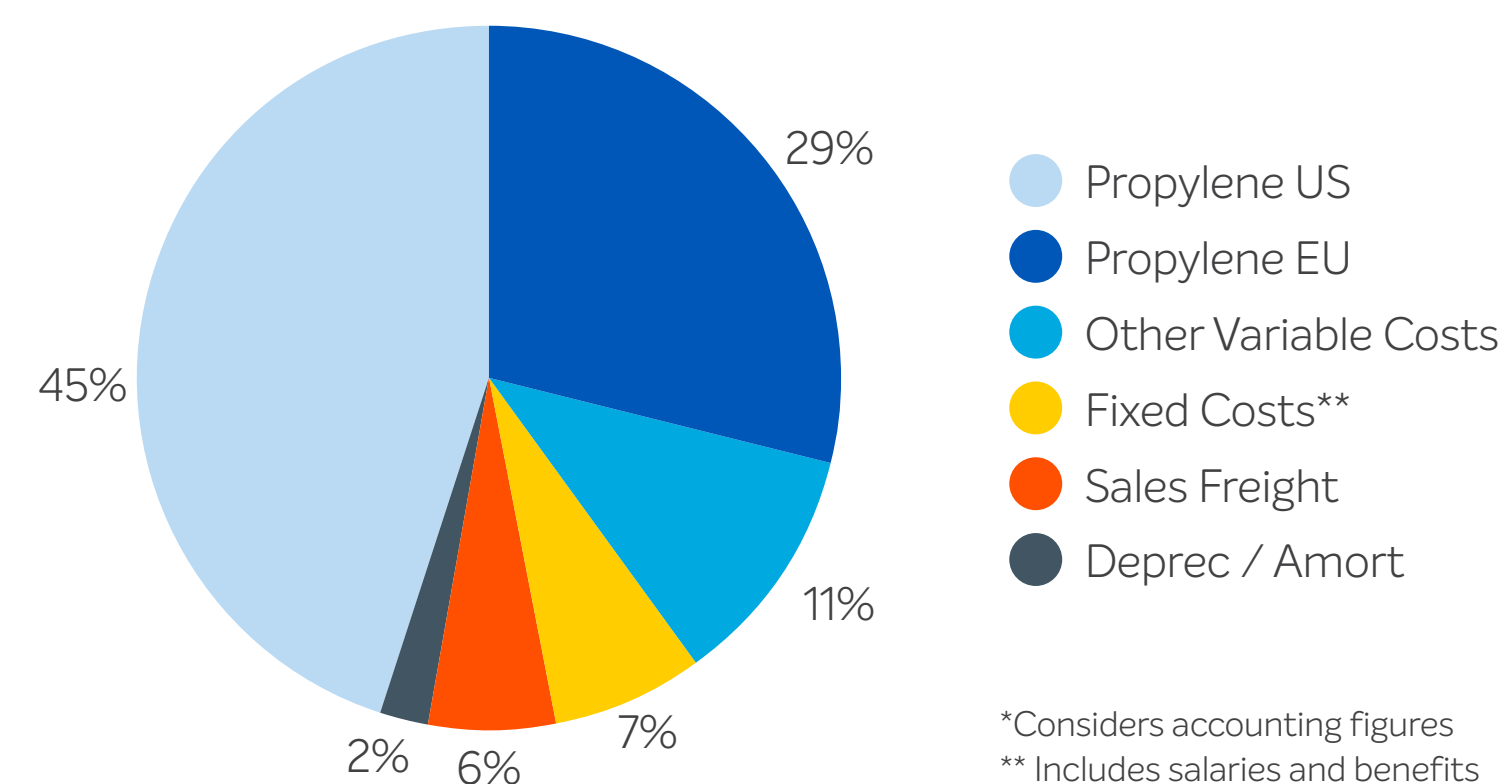
Capacity utilization of the plants registered an increase, mainly due to the better operational performance of the North American plants, offsetting the drop in capacity utilization in Europe, which occurred due to the logistics restriction in the receipt of propylene as a result of operational problems of suppliers.

Sales totaled 1.9 million tons, without significant variation from the previous year.

COGS was lower than the previous year due to lower propylene prices in both the United States and Europe. In the United States, the reduction in propylene prices was influenced by greater availability of this raw material in the region. In Europe, the price decreased due to the regularization of river transport, which had caused logistics restrictions in the region in the previous year.

EBITDA recorded by the units in the United States and Europe was US\$ 316 million (R\$ 1.247 billion), down 48% from the previous year and representing 21% of the Company's consolidated segments.

## 2019 U.S. AND EUROPE COGS\*



FINANCIAL OVERVIEW (US\$ MILLION)	2019 (A)	2018 (B)	VAR. (A) / (B)
NET REVENUE	2,591	3,211	-19%
COGS	(2,129)	(2,503)	-15%
Gross Profit	462	708	-35%
Gross Margin	18%	22%	-4 p.p.
SG&A	(194)	(175)	11%
Other Operating Revenue (Expenses)	(6)	18	-135%
EBITDA	316	608	-48%
EBITDA Margin	12%	19%	-7 p.p.
Net Revenue (R\$ million)	10,044	11,725	-14%
EBITDA (R\$ million)	1,247	2,208	-44%



THE UNITS IN THE UNITED STATES AND EUROPE RECORDED AN EBITDA OF US\$ 316 MILLION (R\$ 1.247 BILLION).





## MEXICO

Operations in Mexico were influenced, in 2019, by factors such as the downturn in the petrochemical industry - which ended up causing a drop in Mexican demand - by the maintenance of the supply of ethane below the contracted volume, by the weakening of the Mexican economy and by the strategy product redirection to regions with higher margins.

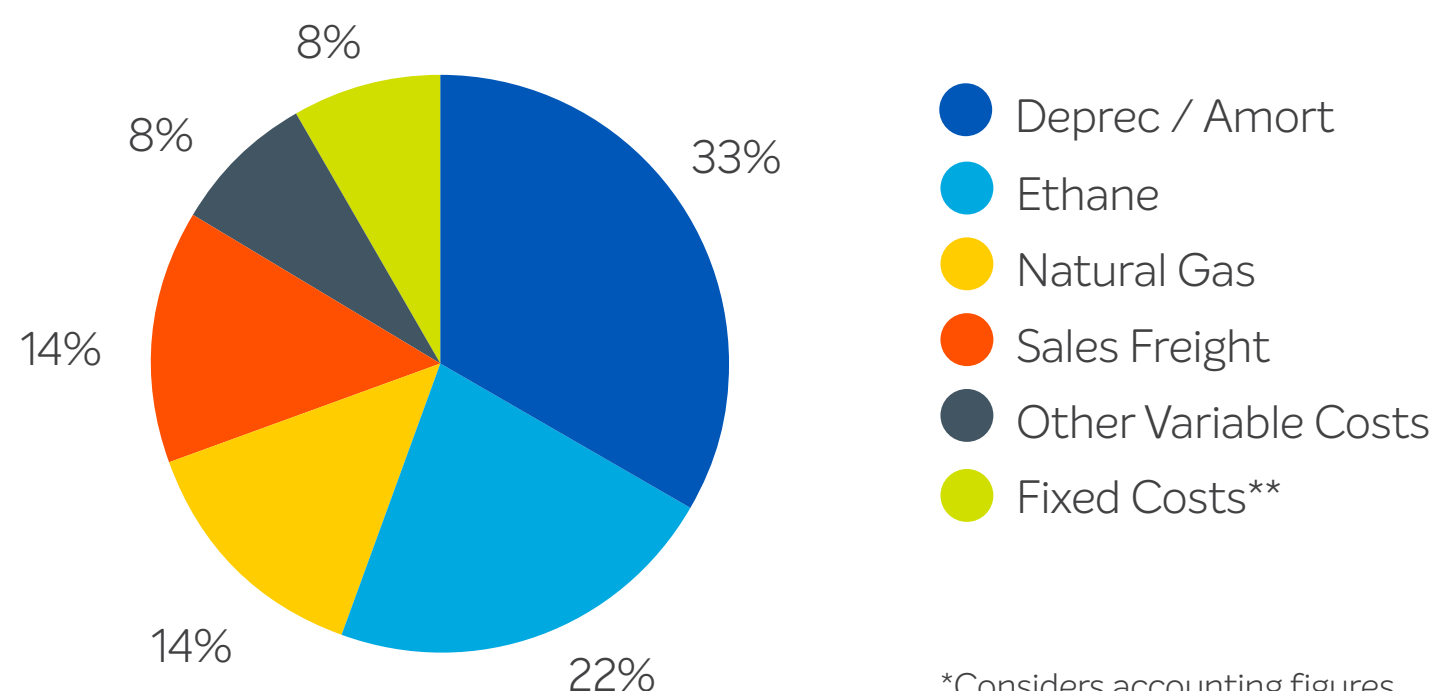
The spread of polyethylene in North America, a reference for the operation in Mexico, decreased by 28% compared to 2018, as a result of the slowdown in the growth rate of demand for polyethylene combined with the entry into operation of new capacities in the region, partially offset by lower ethane prices.

The utilization rate of polyethylene plants was below that recorded in 2018 due to the lower supply of ethane throughout the year. Regarding sales, the total was 813 thousand tons, 2% higher than in 2018.

Sales achieved a result of 2% over the previous year, due to the decrease in inventories and higher resales of polyethylene produced in Brazil. As part of the commercial strategy for product allocation in regions with higher profitability, exports to the United States increased 51% and to Europe 29%, both compared to 2018.

COGS remained in line, influenced by the higher sales volume and higher prices of natural gas in the Mexican market, offset by the drop in ethane prices.

### MEXICO COGS 2019\*



\*Considers accounting figures

\*\* Includes salaries and benefits

## US\$ 361 MILLION IN 2019, THE MEXICO UNIT POSTED EBITDA (R\$ 1,427 MILLION)

The results of Mexican operations were impacted by the US\$ 85.5 million revenue related to the delivery-or-pay provision of the ethane supply contract.

Highlight for the issuance of bonds in the amount of US\$ 900 million, largely intended to settle financing with the National Bank for Economic and Social Development (BNDES) and other Mexican development banks.

In 2019, the Mexican unit presented EBITDA of US\$ 361 million (R\$ 1,427 million), 41% lower than 2018, representing 24% of the Company's consolidated segments.

FINANCIAL OVERVIEW (US\$ MILLION)*	2019 (A)	2018 (B)	VAR. (A) / (B)
NET REVENUE	775	1,034	-25%
COGS	(636)	(636)	0%
Gross Profit	139	398	-65%
Gross Margin	18%	38%	-20 p.p.
SG&A	(89)	(86)	4%
Other Operating Revenue (Expenses)	82	84	-3%
EBITDA	361	617	-41%
Operating EBITDA Margin*	34%	51%	-17 p.p.
Net Revenue (R\$ million)	3,051	3,771	-19%
EBITDA (R\$ million)	1,427	2,251	-37%

\* Does not consider the delivery-or-pay provision for feedstock contracts





- Brazil
- Exports
- United States and Europe
- Mexico

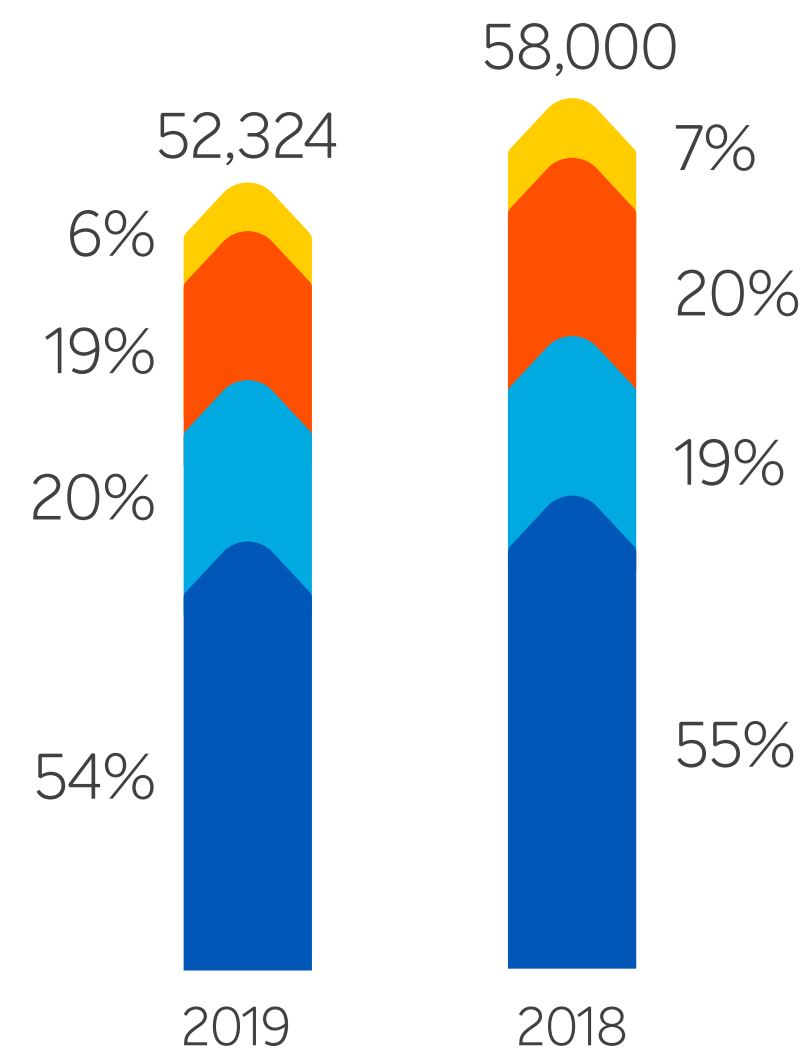
## CONSOLIDATED INCOME

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In the consolidated result for 2019, we recorded a recurring EBITDA of US\$ 1,524 million. This represents a drop of 46% compared to 2018, which was mainly caused by lower spreads in the international market, especially for polyethylene.

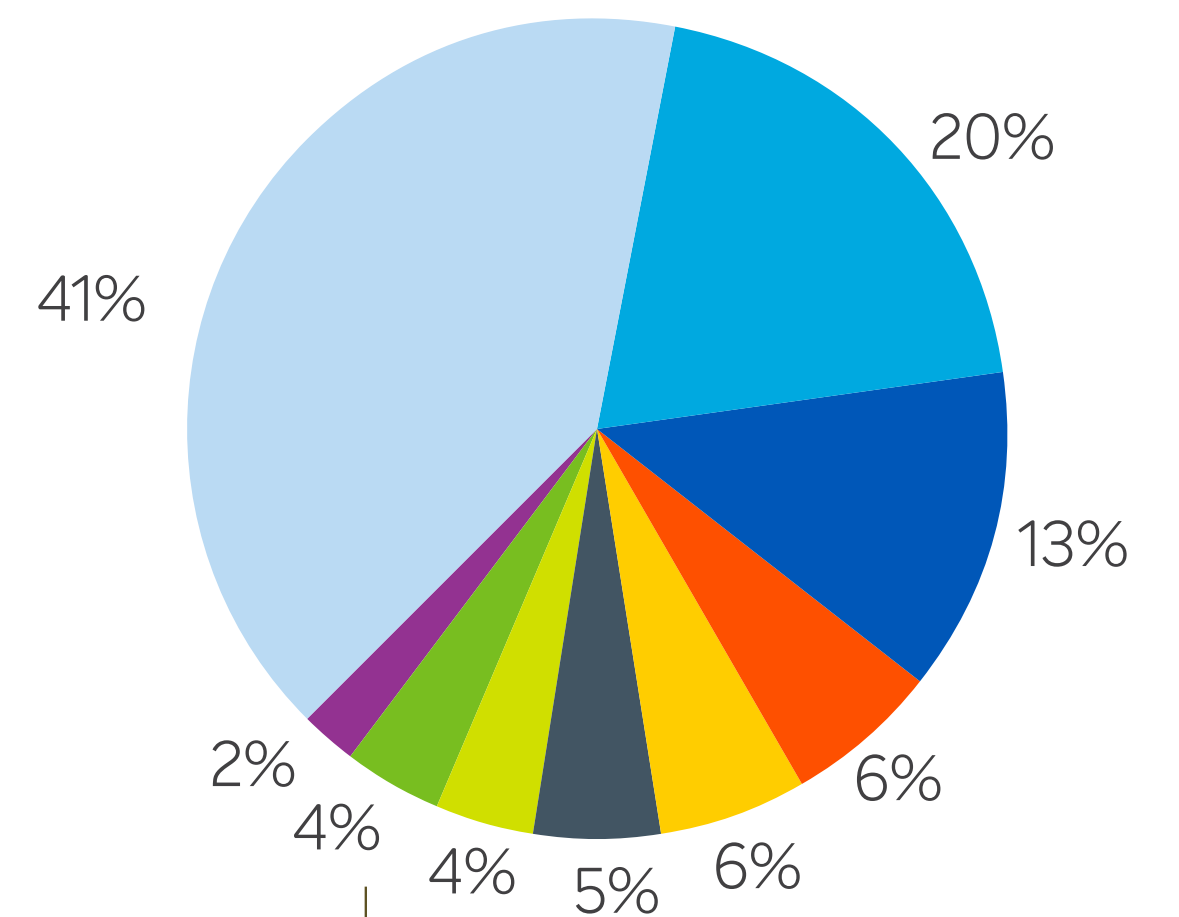


## NET REVENUE (R\$ MILLION)



## COGS 2019 CONSOLIDATED\*

- Naphtha and Condensate
- Other variable costs
- Propylene
- Fixed Costs\*\*
- Deprec / Amort
- Sales Freight
- Natural Gas
- Gas
- Electricity



\*Considers accounting figures  
\*\* Includes salaries and benefits

Ethane: 1.7%  
Propane: 1.0%  
Refinery off-gas: 0.8%



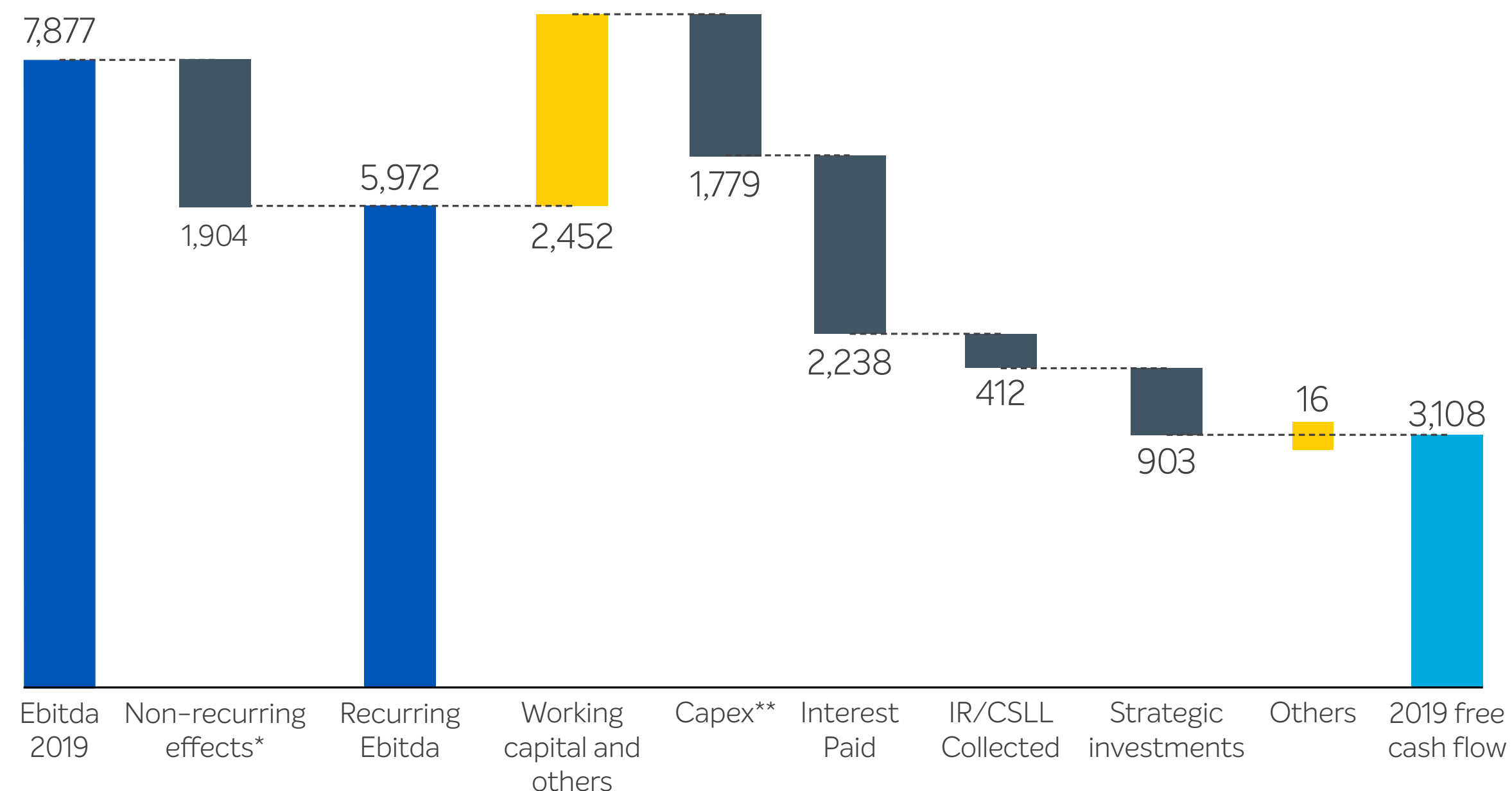


## Free cash generation

Our free cash flow generation was R\$ 3.108 billion, down 56% from 2018, due to the drop in EBITDA and to the payment of interest associated with the total/partial early settlement of some of the Company's bonuses (breakfund costs), partially offset by:

- Reduction in accounts receivable as a result of lower sales volumes and price of goods sold.
- Lower inventory levels of raw materials and finished products.
- Larger purchase of imported naphtha with longer payment term.
- Monetization of R\$ 281 million from the PIS/COFINS balance (exclusion of the ICMS calculation base).
- Receipt of advances from customers related to the future sale of chemical products in the Brazilian market and the future export of PE and PP.
- Lower Income Tax and Social Contribution (IR/CSLL) payment in Brazil and the United States.

## 2019 FREE CASH FLOW GENERATION (R\$ MILLION)



\* Mainly considers: (i) PIS / Cofins recognition elimination of the ICMS calculation base

\*\* Considers Braskem Idesa CAPEX and Cetrel / Does not consider associated fees that are allocated to working capital

## Liquidity and Indebtedness

During the year, we highlight the issuance of US\$ 2.25 billion in debt securities in the international market, of which US\$ 1.5 billion with a ten-year term and US\$ 750 million with a thirty-year term and the issuance, in the Brazilian market, of R\$ 550 million in promissory notes with a term of up to 5 years. These operations contributed to improving our financial health, extending our debt profile to 17 years.

Still in line with this strategy, we ended the year at a liquidity level of US\$ 2,373 million, without considering the international revolving credit line of US\$ 1,000 million that we have at our disposal. Thus, the coverage of the payment of our debts is guaranteed for 71 months.

Thus, we maintained our investment grade by Standard & Poor's and Fitch Ratings, however, our credit risk outlook went from stable to negative at both branches.



To learn more about the results and our business strategy, visit [www.braskem-ri.com.br/home-en](http://www.braskem-ri.com.br/home-en)







## VALUE ADDED STATEMENT (VAS)

\_201-1\_

	2017	2018	2019
<b>Revenues (R\$ thousand)</b>	58,000,752	68,923,212	60,034,002
Sales of goods, products and services (R\$ thousand)	57,958,099	68,255,566	62,059,664
Other (expenses) revenues, net (R\$ thousand)	1,202	567,793	(2,018,593)
Provisions for credits of doubtful debtors (R\$ thousand)	41,451	99,853	(7,069)
<b>Inputs acquired from third parties (R\$ thousand)</b>	(41,147,077)	(51,627,620)	(50,638,127)
Costs of products, goods and services sold (R\$ thousand)	(38,845,377)	(48,993,132)	(47,587,989)
Materials, energy, third-party services, and other (R\$ thousand)	(2,237,835)	(2,574,232)	(2,677,752)
Loss/Recovery of asset values (R\$ thousand)	(63,865)	(60,256)	(372,386)
<b>Gross value added (R\$ thousand)</b>	16,853,675	17,295,592	9,395,875
<b>Depreciation, amortization, and depletion (R\$ thousand)</b>	(2,928,855)	(2,990,577)	(3,632,265)
<b>Net value added produced by the entity (R\$ thousand)</b>	13,924,820	14,305,015	5,763,610
<b>Value added received in transfer (R\$ thousand)</b>	652,527	1,856,981	1,206,836
Equity income (R\$ thousand)	48,832	(888)	10,218
Financial income (R\$ thousand)	603,630	1,857,793	1,196,535
Other (R\$ thousand)	65	76	83
<b>Total value added for distribution (R\$ thousand)</b>	14,577,347	16,161,996	6,970,446



## VALUE ADDED STATEMENT (VAS)

\_201-1\_

	2017	2018	2019
<b>Personnel (R\$ thousand)</b>	1,421,214	1,565,468	1,693,827
Direct remuneration (R\$ thousand)	1,147,158	1,239,606	1,316,668
Benefits (R\$ thousand)	212,815	263,294	293,156
FGTS (government severance fund) (R\$ thousand)	61,241	62,568	84,003
<b>Taxes, fees and contributions (R\$ thousand)</b>	4,232,072	4,925,801	1,954,184
Federal (R\$ thousand)	2,214,611	2,235,453	(402,790)
State (R\$ thousand)	1,995,068	2,639,015	2,307,732
Municipal (R\$ thousand)	22,393	51,333	49,242
<b>Remuneration of third-party capital (R\$ thousand)</b>	4,790,740	6,763,517	6,219,408
Financial expenses (includes exchange rate variation) (R\$ thousand)	4,545,979	6,495,041	5,922,853
Leases (R\$ thousand)	244,761	268,476	296,555
<b>Remuneration of equity capital (R\$ thousand)</b>	4,133,321	2,907,210	(2,896,973)
Net income (loss) for the year (R\$ thousand)	3,074,114	2,866,675	(2,797,570)
Dividends	1,000,000	-	-
Non-controlling shareholding interest in subsidiaries (R\$ thousand)	50,331	40,535	(99,403)
Result from discontinued operations	8,876	-	-
<b>Total value added distributed (R\$ thousand)</b>	<b>14,577,347</b>	<b>16,161,996</b>	<b>6,970,446</b>



## EXPANSION OF OPERATIONS IN FUELS

In view of the growing demand of the sector and Braskem's evolution in this segment, Fuels became a business area in 2019. Thus, all fuels in our portfolio, such as Gasoline, Fuel Oil, ETBE (Ethyl Tert-Butyl Ether), MTBE (Methyl Tert-Butyl Ether), LPG, Diesel, Octane Boosters, among others, are under the same structure, allowing greater focus on customer service, as well as the generation of new solutions for the market.

Our main product in Fuels is Gasoline A. Produced in petrochemical plants, it places us as an important player in the markets where we operate. In Rio Grande do Sul, for example, we have a 20% market share, while in Bahia, we reached 30%.

In recent years, Braskem has increased its share of the Brazilian Fuels market, with a consequent gradual reduction in the volume of Gasoline exports. Despite the difficulties in the economic scenario in 2019, which led to a reduction in the operating rate of the crackers, our teams managed to overcome bottlenecks, optimize industrial units and produce as much gasoline as possible. This allowed us to end the year with record production, as well as record sales volume, with more than 1 million tons sold.

Considering a greater focus on customer demands, we had an important initiative in the year which was the development of our Premium Gasoline, a segment with growth potential and limited availability in the market. After a survey conducted in our laboratories, involving the various technical and operational teams, it was possible to develop a viable new product and achieve sales volume of 1,961 tons in 2019



FOR THE SECOND CONSECUTIVE YEAR, WE RECEIVED THE SITIVESP AWARD IN THE SOLVENTS CATEGORY. ORGANIZED BY THE UNION OF PAINTS AND VARNISHES INDUSTRIES OF THE STATE OF SÃO PAULO. THE AWARD RECOGNIZES THE WORK OF SUPPLIERS OF RAW MATERIALS AND PACKAGING IN THE SECTOR.

## IN 2019, WE REACHED THE RECORD SALES VOLUME IN FUELS WITH MORE THAN 1 MILLION TONS SOLD

## GOOD NEWS IN SOLVENTS

We have produced solvents since the beginning of our history. With its constant evolution, we decided to transform the area, in 2019, into a more consolidated business, just as we did with fuels.

To overcome the adverse scenario in the petrochemical sector, we base our strategy on innovating our portfolio and diversifying the market. We expand business opportunities and advance market share through new commercial partnerships, since the main market for solvents, the paint sector, accounts for nearly 60% of our total sales volume and has historically grown linked to Brazilian GDP.

We took advantage of the demand for more sustainable solutions and launched new products, such as the HE-70S, our first oxygenated solvent, partially renewable, and our first recycled hydrocarbon solvent, resulting in the registration of two patents for application **[learn more in section Innovative and Sustainable Solutions - Expanding the paths of the Circular Economy]**.

Thus, we achieved amazing results in 2019, both in terms of production volume and sales. Our market share exceeded 40% in Brazil in hydrocarbon solvents and we reached the mark of 190,000 tons of sales, up 18% from 2018, a record for the segment.



## NAVIGATING THE DIGITAL TRANSFORMATION ERA

We are a forward-looking company and, for this reason, we strongly believe in the value of innovation. This means going beyond developing new products in our laboratories. It's about rethinking the way we operate in all strategic areas of the business. We use leading-edge technology to overcome this challenge and help us tell this story of evolution and growth.

That is how, in 2017, we reorganized our Information Technology (IT) team, which began to focus on a strategy more connected to the business. The main purpose of the program, called Braskem 5.0, was to align the main structural challenges of the company and legacy systems, always thinking about new sustainable and scalable technology solutions.

Braskem 5.0 was created with seven operating pillars: Supply Chain and Logistics, Digital IT, New Business Models, People, Industry 4.0, Enterprise 2.0, and Customer Experience. Among its main achievements, we can highlight:

- We gave greater mobility and productivity to our Sales team through the implementation of different tools, such as CRM, for example.
- We enhanced our infrastructure to ensure that Team Members had remote access to the entire Braskem network, from anywhere in the world, with quality and security.
- We increased productivity in our Supply Chain, automating transport functions, improving processes and providing valuable information about logistics data through visual panels.
- We advanced our back-office operations using automated and intelligent processes.
- We implemented the COBIT<sup>1</sup> governance and change management model to support the organization in the areas of regulatory compliance and audits.

In the following year, we started an extensive digital transformation work that engaged dozens of Team Members around the world. Their task? To integrate digital technologies into our operations and business processes to find new performance dimensions and generate sustainable competitive advantages. That's when we created the Digital Center, whose objective is to accelerate this process by creating a cultural environment that fosters even more innovation and new ways of working, combined with leading-edge technologies such as artificial intelligence, machine learning, Internet of Things and advanced analytics. We mapped over 50 initiatives that cover topics such as process optimization, preventive maintenance, quality control, product tracking, among others. In addition, the center works as a type of incubator for new business models.

<sup>1</sup> More comprehensive framework of good corporate governance and IT management practices to enable a more holistic, integrated view and covering the organization from end to end. [www.opservices.com.br/oque-e-cobit-governanca-ti/](http://www.opservices.com.br/oque-e-cobit-governanca-ti/)



## BRASKEM 5.0

One of the program highlights in 2019 was the strengthening of quality control. Using new laser sensors and analytics tools, it was possible to capture and organize information from the plants, allowing teams to find important standards and connections to predict product quality based on previous production. The initiative also streamlines the necessary corrections in each plant, thereby reducing waste and overall costs and guarantees chemicals and plastics of the highest quality.





In 2019, our teams used different innovative digital technologies to develop and test the minimum feasibility of 13 new digital products and two new business models at Braskem. The results could not have been better: 10 initiatives proved their ability to create value, expanding our leadership position in the digital transformation of the chemical industry. These 10 initiatives may, starting in 2020, represent gains of more than R\$ 40 million/year, a number that is expected to grow exponentially as these solutions are scaled. Two solutions that stood out were:

- Quality control: using laser sensors and advanced analytics, we collect and process data from our plants that can help predict product quality based on previous production. This also helps when making adjustments to plants, reducing expenses and waste, in addition to guaranteeing higher quality products.
- Predictive maintenance: using drones, advanced analytics and mobile apps we have set a goal of using digital tools to monitor more than 7,000 pieces of equipment. With this, we managed to anticipate the likelihood of plant failures and even avoid machine breakdowns, reducing unplanned downtime and maintenance costs.

Although new technologies are an exciting topic, it is our Team Members who are instrumental for the success of Braskem's digital transformation. Everyone has opportunities to get involved in digital initiatives. In addition, our Digital Center is dedicated to ensuring that everyone at Braskem ac-

quires digital skills through training and tangible practical experiences. In 2019, Braskem trained more than 1,200 Team Members worldwide in new digital skills, such as Agile, Design Thinking and Data Science.

Seeking to create value for the business through technology, Braskem advanced in its multi-year plan for the implementation and support of Industrial Automation solutions in 2019 with the use of electromechanical machines, software and specific equipment to automate industrial processes. Two programs stood out:

- Advanced Process Control (APC): use of advanced control algorithms and equations of physical and chemical phenomena to simulate effects of individual operations in our processes in order to optimize the performance of the industrial plants. Today, we have APC systems installed in most of them, with annual benefits in excess of R\$ 100 million. New investments are made each year and, in 2019, 12 new projects were implemented, highlighting the first application in Vinyls (MVC-BA) and in the DCX cracker (Q4).
- Energy Real Time Optimization (ERTO): through mathematical models and real-time simulation, we are optimizing the energy configuration of operations and reducing energy costs. The solution was implemented in the Camaçari (Q1) crackers, with financial gains of about R\$ 10 million per year, and in Triunfo (Q2), where projections indicate that we will have similar gains as of 2020. In the coming years, the solution should be expanded to other crackers in Brazil.







## CONTINUOUS EVOLUTION

To continuously capture new opportunities to use technology to advance our business and serve our Customers, the Digital Center created a methodology called Push and Pull.

First, through the “Push” process, the team connects Braskem to the most innovative technologies on the market and global megatrends, such as 3D printing, urban agriculture and clean energy. We do this through strategic partnerships with startup accelerators, venture capital and marketing intelligence companies, universities and more in order to drive innovation from the outside.

Afterwards, the “Pull” process always starts off based on a need – or pain – in the business. The goal is to drive innovation from the inside out, using a tool called the “Innovation Sprint.” The Digital Center performs these sprints with different parts of the business to understand current pain points, examine how other industries approached similar challenges, establish priorities to overcome these challenges and create a roadmap for digital solutions.

In 2019, the Digital Center conducted four sprints with different areas, such as Polyolefins, Feedstock, Shared Services and Legal Department. During the more than 150 interviews with leaders and other important stakeholders, we identified 868 unique pain points, which resulted in 30 opportunities prioritized. These will now compose the digital transformation roadmap and guide future explorations.

## GEOGRAPHIC AND RAW MATERIAL DIVERSITY

In order to expand our geographies and diversify the raw materials we use in our operations, in 2019 we continued to build the new polypropylene plant in the United States – the sixth PP industrial unit in the country. At the end of the year, nearly 85% of the plant – located in La Porte, Texas – had been completed and production is scheduled to start in 2020. With a total investment of US\$ 675 million, this will be the largest PP unit and the one with greatest energy efficiency in North America, with an installed production capacity of 450,000 tons per year.

In addition, we announced the completion of the Idesa Petrochemical Plant, in Veracruz, Mexico. The US\$ 5.2 billion project increased our resin production by 1.05 million tons, reaching 8.7 million tons of global production capacity.

Another important point of the year was the increase in the acquisition of naphtha via Braskem BV, proving our continuous effort to diversify our Supplier network, increasing the share of natural gas in our raw material matrix.





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# INNOVATIVE AND SUSTAINABLE SOLUTIONS

KNOWLEDGE AT THE  
REACH OF EVERYONE

EXPANDING THE PATHS OF  
THE CIRCULAR ECONOMY

IDEAS AND PRODUCTS  
THAT CREATE VALUE

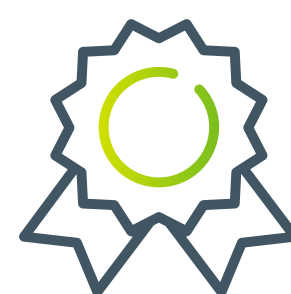




## WE FEATURED IN THE 2<sup>ND</sup> EDITION OF THE *WHOW! DE INOVAÇÃO* AWARD, WHICH RECOGNIZED BRASKEM AS THE MOST INNOVATIVE COMPANY IN THE CHEMICAL INDUSTRY

To innovate is to search for new ways of operating, to come up with bold solutions to everyday problems, to have the courage to dare and go beyond. This way of thinking and acting is in our essence. We are always willing to find different answers to the demands and expectations of our stakeholders, using technology to shape our business and improve people's lives responsibly.

Innovation is part of each of our Team Members. We insist on promoting the sharing of experiences, ideas and knowledge, because we believe that the combined efforts makes us a more agile, efficient, creative and competitive company, capable of making an important contribution to the development of a more conscious and sustainable future.



IN JULY 2019, WE WERE RECOGNIZED AS ONE OF THE MOST INNOVATIVE COMPANIES IN THE OIL & GAS AND PETROCHEMICAL SECTOR IN THE 5TH EDITION OF THE *VALOR INOVAÇÃO BRASIL* AWARD, PROMOTED BY THE *VALOR ECONÔMICO* JOURNAL



For us, innovation is directly associated with the development of solutions, products and processes that cause increasingly better environmental impacts and meet the needs of Customers and consumers. This ambition is connected with at least three of our macro-goals: development of solutions, renewable resources and post-consumption, and converges with our positioning within the circular economy and supports our initiatives in connection with the seven priority SDGs defined by the Company.



DEVELOPING SOLUTIONS



RENEWABLE RESOURCES



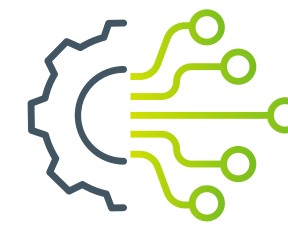
POST-CONSUMER





## THE SCENARIO OF INNOVATION AT BRASKEM

The focus on innovative solutions, products and processes is essential to consolidate the business and guide our efforts towards building a chemical and petrochemical sector that looks to the future. For this reason, we constantly invest in training people, research, infrastructure and strategic partnerships.



- 2 TECHNICAL CENTERS for polymers, one in Wesseling (Germany) and one in Coatzacoalcos (Mexico).

- 2 TECHNOLOGY AND INNOVATION CENTERS, in Triunfo (Brazil) and Pittsburgh (USA)

- 1 PROCESS TECHNOLOGY DEVELOPMENT CENTER, in Mauá (Brazil)



- 1 RENEWABLE CHEMICALS RESEARCH CENTER in the city of Campinas (Brazil)

- CHEMICAL AND MECHANICAL RECYCLING PLATFORM

- 34 NEW PATENT APPLICATIONS AND 152 EXTENSIONS

- 282 PATENTS GRANTED



- 6 NEW GRADES OF RECYCLED PRODUCTS added to the portfolio in 2019

- 513 CLIENTS received support from the Technology and Innovation Center in Brazil (over 50,000 analyses carried out)

- 57 CUSTOMERS received support from the Technology Center in the United States (close to 16,000 analyses)



## KNOWLEDGE AT THE REACH OF EVERYONE

In January 2018, we started a project to develop a solution that would allow for efficient and comprehensive management and sharing of knowledge at Braskem. In addition to a new organizational structure dedicated to this subject, we created an online platform for knowledge sharing: the Knowledge Hub, which integrates documents available in different systems and knowledge sources currently used in the organization.

Through this platform, which allows us to be an even more agile, efficient, collaborative and competitive organization, our Team Members can share and find content and colleagues with specific knowledge to guide them when necessary. In addition, the tool drives great sharing of experiences and generates opportunities for the co-creation of solutions in discussion forums, benefiting the internationalization of knowledge and addressing the gaps in order to increase individual and collective productivity of our Team Members.

Launched in March 2019, the platform has 2,277 active users, 99% of whom are involved. On the platform, Team Members are the leading players and, in 2019, we recorded stories of success, among them:

- **Collaborative problem solving:** we had low performance on a piece of equipment and, on a discussion on KHub, Team Members shared experiences that validated the strategy built by the responsible team.
- **Generating connections:** we had conversations between Team Members seeking information on the Oil & Gas market on KHub. The shared information and external connections made available by the professionals helped to better understand the scenario and to identify new opportunities to develop applications.
- **Information management:** the Innovation and Technology Laboratory in Triunfo (RS) needed a control system with a history of requests for sample quality analysis. To this end, a digital dashboard with access via KHub was developed. In total, since 2007, there have been around 464,000 requests for analysis to handle complaints and customer support, innovation projects, product development and support for industrial plants.

### KNOWLEDGE HUB IN 2019\*

➤ **2,227**  
ACTIVE USERS

➤ **29,930**  
NUMBER OF QUERIES

➤ **2,253**  
USERS INVOLVED  
LOCATED IN 8 COUNTRIES  
(BRAZIL, ARGENTINA, PERU, MEXICO,  
UNITED STATES, GERMANY, THE  
NETHERLANDS AND SINGAPORE)

➤ **195**  
NUMBER  
OF DEBATES  
INITIATED

➤ **25**  
ORGANIZATIONAL  
UNITS INVOLVED

➤ **96%**  
NUMBER OF QUESTIONS  
ANSWERED: 306

\* The reporting period runs from 2/25/2019 to 12/31/2019







## GLOBALIZATION OF PRACTICES

Braskem has a structured management process for guiding documentation, through which decisions, rules and fundamental guidelines are described, registered and disseminated to guide the work of Team Members in the Company.

The Guiding Documentation Library (BDO) is a tool used by the Knowledge Management team to manage internal documentation. Robust and secure, it currently stores close to 20,000 documents to support business units in Brazil, USA and Europe, which can be accessed at any time. Among them, 130 are global, which favors the strengthening and global standardization of our practices.

In 2019, we also created and revised policies, guidelines, procedures and work instructions. In all, almost 1,000 documents were published and 2,500 revised, ensuring that our practices are up to date and globally aligned.

## CRITICAL KNOWLEDGE: A RESPONSIBILITY OF ALL

Critical knowledge is the most relevant knowledge to allow the organizational process to successfully fulfill its ambitions in the coming years. Among them, there are those who are critical organizational knowledge because they impact the company's strategy.

Each organizational process must manage its critical knowledge in order to identify them and map the respective knowledge holders, the type of content already encoded and their repositories, in addition to preparing an action plan to address their gaps.

In 2019, we managed the critical knowledge of 68% of the organizational processes based on a self-assessment of focal points and knowledge holders. Among the identified gaps, we highlight the lack of registration and sharing of tacit knowledge (acquired in practice), including during Maintenance Shutdowns.

**IN 2019, WE MANAGED THE  
CRITICAL KNOWLEDGE OF  
68% OF THE ORGANIZATIONAL  
PROCESSES BASED ON A SELF-  
ASSESSMENT OF FOCAL POINTS  
AND KNOWLEDGE HOLDERS.**



To address this issue, we developed a single repository and a mobile app to facilitate the registration of opportunities for improvements and best practices from Shutdowns, in addition to the initial use of the application of BIM 4D technology (Building Information Modeling) in the project successfully executed to extend the period of future interventions in the primary cracker tower (from 6 to 9 years), an important milestone for the project to extend the campaign of the Crackers.

## OPTIMIZATION OF EXTERNAL INFORMATION

In 2019, we created Global Committees to Manage External Information to optimize the external information acquired by Braskem to support strategic

decisions. These Committees evaluate usability, overlap and quality of the content of the external information acquired.

The improvement in governance coupled with trade negotiations and the reduction of taxes withheld allowed savings of approximately R\$ 1.5 million, a reduction of 9.87% in 2019 subscription costs (compared to budget).

For the exponential dissemination of external information bases, we created the Virtual Library (repository of abstracts of subscription of external information acquired by Braskem) and disclosed it on KHub, reaching 152 Team Members who accessed it 624 times during the year. Based on these results, we understand the importance of including and integrating ever more information to KHub.





## EXPANDING THE PATHS OF THE CIRCULAR ECONOMY

103-2, 103-3

Investing in innovation and sustainability has been an integral part of our business strategy. But the desire to consistently contribute to sustainable development has led us to assume a public commitment to the topic: our positioning within the Circular Economy.

Unlike the linear economy, a concept based on the disposal of products as waste without going through the recovery and the recycling process, the circular system proposes a continuous reuse and recycling process, transforming waste into raw material to create new products, in addition to a more efficient process with fewer negative impacts, using renewable raw materials and with greater energy efficiency.

Following this precept, we have defined eight main goals to guide our actions, including partnerships with Customers to develop new products and investments in education and support for innovation - both in terms of technologies and products and of business models and systems for collection, sorting, recycling, recovery of materials and consumer engagement.

We also set a goal to reduce the loss of pellets (millimetric granules of raw material that can disperse and reach the environment) in our industrial units by 2020 and we have made industry commitments to reuse, recycle or recover 100% of plastic packaging by 2040.

## COMMITMENT TO CIRCULAR ECONOMY

To support the development and achievement of our Circular Economy goals, we've developed eight key points:

1. Work with customers and the value chain to design new products to increase efficiency, recycling and reuse.
2. Invest in the development of new renewable products in order to support the circular economy at the beginning of the value chain.
3. Develop new technologies, business models and systems to improve the recycling and material recovery chain.
4. Encourage consumer engagement in recycling and recovery programs, using education to promote the value of plastic waste to the economy.
5. Use scientific tools, such as LCA, to choose the option with the best economic, social and environmental impact.
6. Measure and inform recycling and recovery rates for plastic packaging materials.
7. Support partnerships aimed at understanding, preventing and solving poor plastic waste management, especially the problem of trash in the oceans.
8. Support public policies to improve waste management and the recycling chain, especially plastic waste.



Find out more about our  
Circular Economy Manifesto at  
[www.braskem.com.br/  
economicircular](http://www.braskem.com.br/economicircular).





## FOCUS ON CIRCULARITY

Our green ethylene plant, which will celebrate 10 years in operation in 2020, has helped us focus on a more dedicated and oriented manner towards creating a sustainable portfolio. Since then, our flagship product has been the green polyethylene produced from sugarcane ethanol, presented under the I'm green™ brand and used worldwide.

In 2019, we decided to expand our efforts and announced the expansion of the brand to cover not only entirely renewable solutions, but the entire product line with a circular economy approach: products made from recycled content and the mix between renewable and recycled. The official launch was in October during the K Fair, the world's largest event in the plastics and rubber sector, in Düsseldorf, Germany. Consumers can identify products using Green Plastic through the I'm green™.

In addition, during Feiplastic 2019, the largest Latin American plastics fair, we presented two new renewable grades of polypropylene: CG 600NA polypropylene, which has greater rigidity and can be used to produce more resistant buckets with thinner walls, maintaining the high stacking capacity; and CG 220NA Polypropylene, also intended for application in impact-resistant industrial buckets. The new grades can also be used in food packaging that requires low transfer of odor and flavor.



## RECYCLABLE INSOLE FOR TENNIS SHOES

In August 2019, the one-year anniversary of our I'm green™ Green EVA (ethylene-vinyl acetate copolymer made from sugarcane), we announced its use in the production of insoles for children's sneakers by Brazilian footwear maker Tnin Shoes, a brand that uses recycled raw materials, such as textile trimmings and PET bottles, in its production. With our renewable EVA, the company guarantees a reduction in the use of resources and its carbon footprint, in addition to greater safety, resistance, quality and product useful life. Furthering its efforts in sustainability, the shoes use water-based glue.

## BOTTLES IN GREEN PLASTIC

In March 2019, Dutch water company Join The Pipe started distribution of sustainable and reusable water bottles in the United States and in countries in Africa and Europe. The bottles are made with Green Plastic I'm green™ and the income generated from their sale will go to more than 300 social projects in developing countries - most of them in Africa and Asia - intended to address the problem of plastic waste.



## PARTNERSHIP IN PACKAGING

Expanding the list of the more than 150 companies that use our Green Plastic I'm green™, we established a partnership, in 2019, with Athletica Nutrition, which provides sports food supplements. The agreement provides for the application of renewable polyethylene in the packaging of the products of a new line, Best Vegan, a vegan protein marketed in Brazil and other Latin American countries such as Paraguay, Ecuador, Peru and Chile, in addition to Mexico and China.

We also entered into a partnership to use recycled resin in Tramontina chairs, maintaining the same quality, design and beauty, using material originating from post-consumption of Braskem's big bags.

Another partnership signed in 2019 was with the company Biowash, which develops natural and 100% biodegradable cleaning products. The agreement involves the production of packaging for 1 and 5-liter products from the mixture of renewable plastic I'm green™ and post-consumer resins (PCR).



## VALUING RECYCLING

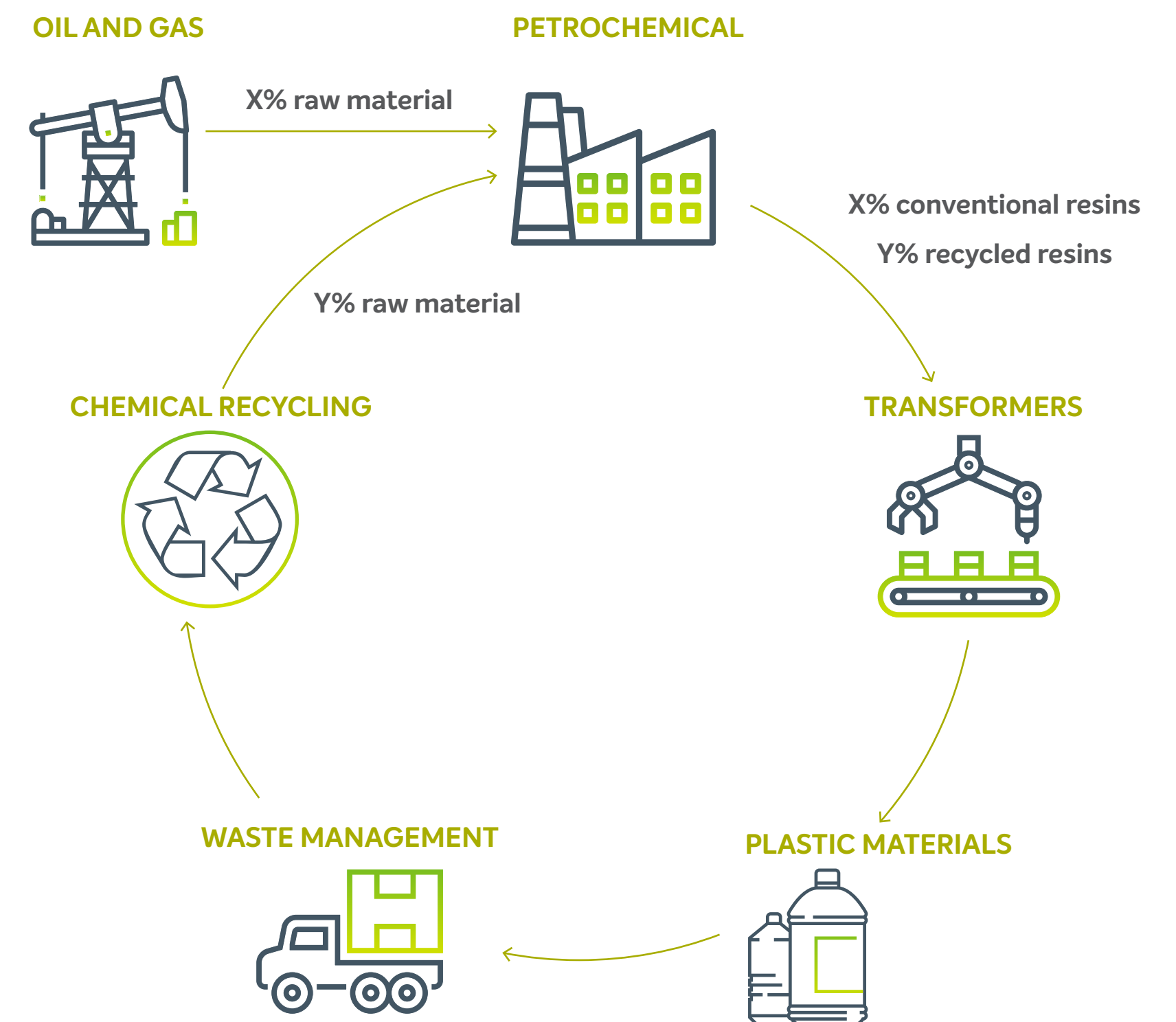
To drive projects related to recycling and circular economy of plastic, in 2017 we created the Circular Economy area in South America, which was expanded in 2019 in North America, Europe and Asia. The area is responsible for developing businesses, products and processes that value post-consumer waste, involving all links in the plastic recycling chain, as well as actions to leverage the circularity of plastic materials.

One of the focuses of this work is the search for new technologies, going beyond mechanical recycling, such as chemical recycling, an important solution for plastic waste that is not mechanically recycled, because it makes it possible to process and transform the waste that can then be used to generate to other chemicals, closing the cycle of the circular economy of plastics.

The chemical recycling process is a project under development, but it is already showing important advances, with partnerships signed with COPPE/UFRJ (Instituto Alberto Luiz Coimbra de Pós-Graduação e Pesquisa de Engenharia of the Rio de Janeiro Federal University e SENAI's institute of Biosynthetics Innovation (SENAI CETIQT). In addition, we expect to carry out industrial scale tests with post-consumer plastics at plant 2 of Q2, Chemicals unit in Triunfo (RS), in 2020. The laboratory results show the feasibility of transforming recyclable plastic waste into raw material for the production of new chemicals and polymers.

## HOW DOES CHEMICAL RECYCLING WORK?

The chemical recycling process chemically transforms plastic waste into products of greater value added, such as fuels, raw materials and even final products from the chemical industry. The technologies are still being developed, but they represent an important path for the circular economy and more sustainable production.





## RECYCLING IN SPACE

In November 2019, a plastic recycler was launched into space as a result of our partnership with Made In Space - a U.S. company that develops, for NASA, technologies to operate in zero gravity.

This initiative, the first commercial plastic recycling operation in the history of space missions, is part of our Circular Economy strategy and represents another stage of the "Printing the Future" project, which in 2016 took to the International Space Station a 3D printer using Braskem's I'm green™ Green Plastic for the production of parts in space. With the machine, astronauts could transform the plastic waste generated at the station into raw material with which new items can be created.

## PLASTICS UNDER TRANSFORMATION

In order to contribute to the growth of plastic transformation, since 2013 we have been working in partnership with ABIPLAST (Brazilian Plastics Industry Association) in the development of PICPlast (Plastics Chain Incentive Plan). The initiative has two main fronts:

**1. Competitiveness and Innovation:** responsible for the training offered to transformation companies so that they can improve their products, processes and solutions. In 2019, actions were held focusing on Innovation (Rio Grande do Sul, with 14 companies), Productivity (São Paulo, with 10 companies) and 5S (Goiás and São Paulo, with 11 companies), in addition to technical seminars on topics such as Sales and Competitiveness, Compliance, LCA, among others. We also participated in the Agrishow fair, in Ribeirão Preto (SP), exhibiting 25 applications from 19 companies.

**2. Plastic Transformation Movement:** seeks to show the importance of plastics in the lives of people. Within this program, several projects were developed in 2019. The highlights were:

- **PlastCoLab:** interactive space that presents, in a playful way, relevant information about plastics, its production chain, the different uses and how the responsible handling of this material combined with innovation and technology can transform the future. In 2019, PlastCoLab was held in Salvador (BA), São Paulo (SP) and Brasília (DF) and gathered more than 40,000 visitors.





- **KidZania:** between January and December, the KidZania theme park, in São Paulo (SP), received the Plástico Transforma Station. In all, more than 17,000 children visited the installation. The main goal was to inform and educate, in a fun way, about the importance of correct disposal of plastics.

- **São Silvestre:** in partnership with Yescom, Fundação Cásper Líbero and Gazeta Esportiva, we promoted the collection, recycling and transformation of plastic cups of mineral water consumed by the runners of the 95th International São Silvestre Street Race. The 500,000 plastic cups consumed during the race will be turned into waste bins for selective sorting, which will be donated to different schools and institutions.

## BRASKEM PROJECTS FOR PLASTIC TRANSFORMATION

In addition to partnership projects, we also develop solutions for the transformation of plastic with our own investment.

- **Recycled cups:** Through a partnership with Heineken and Natura, we invested in yet another Circular Economy action – the recycling of plastic cups consumed during a major music festival in Rio de Janeiro. In total, the action in the event that lasted seven days and attracted an audience of 700,000 people, resulted in the collection of 10 tons of disposable cups, which will be transformed into resin to be used in the production of more than 650,000 caps of Deo Body Spray, Humor.

- **Reverse Logistics:** The program guides and encourages companies to properly dispose of used plastic cups. The initiative is a partnership between Braskem and Dinâmica Ambiental, with supporters such as Copobras, Altacoppo and Jaguar. The cups are collected and transformed into new products, such as caps for cosmetics and domestic utensils. A total of 3.6 tons of plastic have already been collected, corresponding to approximately 2.2 million cups.

- **Reverse packaging logistics:** the initiative encourages Customers to return resin packaging for Braskem to reprocess and transform into recycled resins. Thus, we aim to foster the circular economy alongside Customers and society and support recyclers and the value chain.







## IDEAS AND PRODUCTS THAT CREATE VALUE

Innovation, sustainability and challenges. Driven by these three keywords and motivated to meet different demands, in 2010 we started the *Dormentes* project, which becomes increasingly consolidated, expanding our borders and leading us to the creation of new businesses.

The initiative was born out of a need in the railway market for ties – structural parts used on the track to ensure support for the train tracks – produced with more accessible raw materials than hardwood. We accepted the challenge developing, from scratch, an efficient and reliable solution using virgin plastic.

In 2019, we obtained technical approval of our product at MRS, which manages and operates one of the main railway networks in Brazil that crosses the states of Minas Gerais, Rio de Janeiro and São Paulo. Products are also being tested at Rumo and VLI. Also in 2019, patents were granted in Japan and South Africa. In 2020, efforts are already focused on validating the technology in order to scale production. For the coming years, the goal is to increase the use of the product as a solution that delivers the best value option for our customers.

In order to diversify our specialty chemicals portfolio, in 2019 we launched two important solvents: HE-70S and Hexane RC. In line with the search for sustainable solutions, HE-70S is our first oxygenated solvent, from renewable sources (produced from sugarcane ethanol) and with low carbon emission. Its properties allow it to be used in segments such as paints, thinners and adhesives. In Europe and the United States, the solution has been expanding our market, being used in the pharmaceuticals industry.

Hexane RC is our first recycled hydrocarbon solvent, a product that reinforces our commitment to the circular economy. The solution was developed from byproducts generated in the production of polyethylene and, before being delivered to the market, undergoes a treatment process to acquire greater purity and guarantee quality, safety and good performance, closing the production chain internally.

### SUSTAINABLE PITCH AT THE OLYMPIC GAMES

The grass hockey competitions in the Tokyo Olympic Games will be held on a sustainable lawn called Poligras Tokyo GT (Green Technology). The material has 60% of the filaments produced using our renewable polyethylene technology I'm green™, obtained from sugarcane ethanol.

The product is part of the strategy of the organization of the Tokyo Games, which will be the first carbon neutral edition in history. The solution uses 66% less water than traditional fields and the choice of the I'm green™ Green Plastic was made to add a sustainable dimension to the synthetic grass field.

### SUPPORT FOR PARA ATHLETICS

We have been sponsors of the Brazilian Para Athletics team since 2015. In addition to supporting athletes in their development and technical preparation for competitions, such as the Tokyo Paralympics, we invest in innovation: the prostheses used in sports activities are made of plastic, an application that makes them lighter and more comfortable, allowing athletes to achieve maximum performance. The sponsorship supports more than 40 athletes who are part of the Brazilian national Para Athletics team in track and field competitions.

### BRASKEM AND AMERICAN FOOTBALL

2019 was our second year of a partnership with the Philadelphia Eagles football team. The contract involves the collection and recycling of bottle caps and other plastic products consumed both at the Lincoln Financial Field stadium and at the team's training center, which is located in the state of Pennsylvania, USA. In addition, we developed an educational project presented at all public schools in the region to promote career opportunities in science, technology, engineering and mathematics.

### 2019 RESULTS

We also started a partnership with another North American soccer team: the Philadelphia Union, which is part of Major League Soccer (MLS). Due to the recycling program, all cups and lids sold at the Talen Energy Stadium in Chester, Pennsylvania, will be made exclusively of polypropylene, which facilitates the segregation of materials.

1 KG  
OF GREEN  
POLYETHYLENE  
PREVENTS THE  
EMISSION  
OF ALMOST  
5 KG OF  
CO<sub>2</sub>





## DESIGN CHALLENGE

In partnership with Colgate-Palmolive and Kimberly-Clark, in 2019 we held the 7<sup>th</sup> edition of our Design Challenge, which instigated the creativity of Design, Architecture and Engineering students to develop solutions considering the Design concept for the Environment. Using an innovative format, there were three different days of hackathons and more than 30 hours of work with students from four universities in São Paulo who needed to rethink the sustainability of the brands' toothpaste and toilet paper packaging taking into account the product life cycle assessment.

The winning group presented a refill tube design for toothpaste and a packaging based on our Green Plastic. The idea presented by the students encourages proper disposal, stimulating circular economy, in addition to using raw material from renewable sources in production, which could reduce the environmental impact of product packaging by up to 78%.

## LIFE CYCLE ASSESSMENT

Monitoring and reducing environmental impacts generated by our businesses is a fundamental part of our strategy. For this reason, we assess the life cycle of products considering the entire value chain, from the extraction of raw materials to disposal, verifying the benefits that our solutions can bring to sustainable development.

Throughout 2019, we completed 20 life cycle assessment studies. From 2006 to 2019, a total of 146 studies were conducted, of which 84 were completed, 17 reviewed and 45 simplified.

One of the highlights of the year was the study on anti-glare devices, published in the academic magazine Journal of Cleaner Production. We also

conducted the Plastic Leak Project study in partnership with the international consulting firm Quantis, which led a coalition of 20 organizations to develop a methodology to determine the volume of poorly managed plastic waste, which can impact land and, especially, marine ecosystems. In this project, a general methodological guide was developed, three industry methodological guides for packaging, textiles and tires, and two case studies.

In addition, we continue with a strong participation in the Brazilian Business Network for Life Cycle Assessment, which in 2019 became a member of the Life Cycle Initiative (UNEP/SETAC), an international LCA organization.

## RESULTS OF THE DESIGN CHALLENGE IN 7 EDITIONS

▶ **440+**  
STUDENTS  
REGISTERED

▶ **150+**  
STUDENTS  
TRAINED

▶ **10**  
PARTNER  
UNIVERSITIES

▶ **20%**  
OF PARTICIPATING  
STUDENTS LEAVE THE  
PROJECT DIRECTLY  
TO THE JOB MARKET







## BRASKEM LABS

Braskem Labs is an entrepreneurship platform developed by Braskem in 2015 to support startups with innovative solutions that use chemicals and/or plastic to create a positive impact on society or the environment. The acceleration programs are focused on different stages of development as a way to promote the entrepreneurial ecosystem and strengthen the relevance of our value chain to sustainability through concrete solutions. In 2019, Braskem Labs continued to strengthen its relationship with entrepreneurs whose projects bring positive social and environmental contributions with products from the chemicals or plastics chain, accelerating 22 startups that operate in sectors such as water, recycling, health, agriculture and energy.

There are two acceleration programs: Scale, which is dedicated to startups in the traction and scale phase, in other words, operational, with customers and revenues; and Ignition, which aims to support business at an early stage, still developing its business model.



## RESULTS IN 2019

### Scale

➤ **12**  
ACCELERATED  
STARTUPS

➤ **25%**  
OF STARTUPS ARE  
NEGOTIATING  
PARTNERSHIPS  
WITH BRASKEM

➤ **20+**  
BUSINESS  
CONNECTIONS MADE

➤ **50+**  
BRASKEM LEADERS  
AND MEMBERS  
PARTICIPATED IN  
THE PROGRAM

### Ignition

➤ **10**  
STARTUPS  
ACCELERATED

➤ **40%**  
OF THE STARTUPS  
MANAGED TO DEVELOP  
AN MVP THROUGH  
THE PROGRAM

➤ **30+**  
CONNECTIONS  
WITH POTENTIAL  
CUSTOMERS



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# VALUE CREATION

TEAM MEMBERS

COMMUNITIES

CUSTOMERS

SUPPLIERS

GOVERNMENT







## TEAM MEMBERS

\_103-2, 103-3, 404-2, 405-1\_

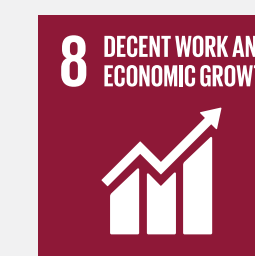
As a people-oriented company, we constantly seek to develop the potential of all Team Members, in addition to devising strategies to improve the work environment, creating opportunities for people to grow professionally and personally.

Throughout 2019, we put in place several Integration, Development and Training programs, in addition to initiatives to prepare and train Leaders. Diversity & Inclusion issues were considered on all project fronts and we encourage the creation of a digital mindset in all deliverables in the People & Organization area.

Within our Value Proposition called BeUx, which presents new possibilities for the development and learning of Team Members and their workplace experience, we finalized the new layout of the five floors of the corporate office in São Paulo (SP) and we opened a lounge area for Team Members at the Camaçari plant (BA).

In 2019, we celebrated five years of our Diversity and Inclusion Program and, in celebration, we launched a video manifesto about our work purpose regarding this topic. The purpose of the program is to generate a more diverse, representative and inclusive work environment, to make Braskem recognized as an inclusive company and collaborate to building a society that respects and values diversity and inclusion.

IN 2019, WE WERE FEATURED IN THE CHEMICAL AND PETROCHEMICAL CATEGORY OF THE GUIA EXAME DE DIVERSIDADE, THE MAGAZINE'S FIRST PUBLICATION CREATED TO RECOGNIZE COMPANIES THAT WORK FOR GENDER AND RACIAL EQUALITY, INCLUSION OF PEOPLE WITH DISABILITIES AND PROMOTION OF LGBTI+ RIGHTS



Our strategy for sustainable development considers meeting the needs of all stakeholders today and in the future. We base all of our actions - from business activities, to operational and management processes, services, investments, relationships and products - on this strategy, and in an integrated manner with the planning of the several areas of Braskem.



HEALTH & SAFETY



STRENGTHENING PRACTICES



LOCAL DEVELOPMENT





WE WON BRONZE IN THE UN WOMEN WEPS AWARD, WHICH RECOGNIZES BEST PRACTICES IN PROMOTING GENDER EQUALITY, AND WERE RECOGNIZED BY THE WILL (WOMEN IN LEADERSHIP LATIN AMERICA) AWARD AS THE BEST BRAZILIAN COMPANY IN THE DEVELOPMENT OF ACTIONS TO ENHANCE REPRESENTATIVENESS AND INCLUSION OF WOMEN IN LEADERSHIP POSITIONS.

In Brazil, we reached 30% of women in leadership positions and made some changes to the University Internship Program, which included blind résumés and monitoring the percentage by race and ethnicity, gender identity and disability at each stage of the selection process. We also worked to attract black university students to the University Internship Program, and promoted, in São Paulo and Salvador, the first edition of the Braskem Meeting of Black University Students and Career, in which students had the opportunity to talk to black Braskem Team Members about the different professions within the organization and career development challenges. Both events attracted more than 800 subscribers and 150 participants.

We also completed the training of leaders on the topic, totaling 627 leaders trained in classroom on diversity, inclusion, minority groups, privileges and on their role in the day-to-day work in order to have more diverse and inclusive teams.

In the month of LGBTQIA+ Pride, we launched a video internally and externally to provide support and visibility to this population. We were also present at the 23rd LGBTQIA+ Pride Parade in São Paulo with Team Members of our LGBTQIA+ Affinity Network.

In the United States, 80% of leaders and Team Members were trained and celebrated these important dates through communications and events. In Mexico, 2019 was the first year of the Diversity and Inclusion Program in which a survey was conducted with all leaders and members on the topic that generated inputs for building a strategy for the next steps.

## WHO WE ARE

### TOTAL NUMBER OF TEAM MEMBERS (WORLDWIDE)

	2017	2018	2019
	6,010	6,176	6,121
	1,703	1,832	1,819
<b>TOTAL</b>	<b>7,713</b>	<b>8,008</b>	<b>7,940</b>

### TOTAL NUMBER OF TEAM MEMBERS (WORLDWIDE)

	2017	2018	2019
	22%	23%	23%
<b>in leadership positions</b>	25%	27%	30%
<b>Blacks*</b>	29%	30%	30%
<b>Blacks in leadership positions*</b>	12%	13%	13%

Note: Braskem does not yet have specific indicators for PwD and LGBTQIA+  
\* Indicator considered only in Brazil





PROFESSIONAL CATEGORY	AGE GROUP	TOTAL NUMBER OF TEAM MEMBERS (INCLUDES EXPATRIATES WORKING AT THE SITE AND EXCLUDES INTERNS)			% OF TEAM MEMBERS	
		MEN	WOMEN	TOTAL	MEN	WOMEN
Operational/technical	<=30	817	209	1,026	80%	20%
	31-50	2,747	359	3,106	88%	12%
	>=51	1,093	38	1,131	97%	3%
	<b>Total</b>	<b>4,657</b>	<b>606</b>	<b>5,263</b>	<b>88%</b>	<b>12%</b>
Administration	<=30	223	296	519	43%	57%
	31-50	493	571	1,064	46%	54%
	>=51	156	94	250	62%	38%
	<b>Total</b>	<b>872</b>	<b>961</b>	<b>1,833</b>	<b>47.6%</b>	<b>52.4%</b>
Leaderships (Grades from 3 to 14 who have direct reports)	<=30	12	16	28	43%	57%
	31-50	429	209	638	67%	33%
	>=51	151	27	178	85%	15%
	<b>Total</b>	<b>592</b>	<b>252</b>	<b>844</b>	<b>70%</b>	<b>30%</b>
<b>TOTAL</b>	<=30	1,052	521	1,573	67%	33%
	31-50	3,669	1,139	4,808	76%	24%
	>=51	1,400	159	1,559	90%	10%
	<b>Total</b>	<b>6,121</b>	<b>1,819</b>	<b>7,940</b>	<b>77%</b>	<b>23%</b>

Note: Braskem does not yet have specific indicators for PwD and LGBTQIA+  
\* Indicator considered only in Brazil







\_102-8\_

COUNTRY	EMPLOYMENT TYPE						
	MEN	WOMEN	PERMANENT	MEN	WOMEN	TEMPORARY	TOTAL
Brazil	4,674	1,358	<b>6,032</b>	7	11	<b>18</b>	6,050
United States	613	146	<b>759</b>	0	0	<b>0</b>	759
Germany	120	76	<b>196</b>	6	0	<b>6</b>	202
Mexico	637	193	<b>830</b>	0	0	<b>0</b>	830
International Offices	The Netherlands	43	<b>61</b>	1	3	<b>4</b>	65
	Other countries	20	<b>34</b>	0	0	<b>0</b>	34
<b>Total</b>	6,107	1,805	<b>7,912</b>	14	14	<b>28</b>	7,940

\_102-8\_

COUNTRY	EMPLOYMENT TYPE						
	MEN	WOMEN	FULL TIME	MEN	WOMEN	PART TIME	TOTAL
Brazil	4,676	1,365	<b>6,041</b>	5	4	<b>9</b>	6,050
United States	613	144	<b>757</b>	0	2	<b>2</b>	759
Germany	121	70	<b>191</b>	5	6	<b>11</b>	202
Mexico	637	193	<b>830</b>	0	0	<b>0</b>	830
International Offices	The Netherlands	44	<b>65</b>	0	0	<b>0</b>	65
	Other countries	20	<b>34</b>	0	0	<b>0</b>	34
<b>Total</b>	6,111	1,807	<b>7,918</b>	10	12	<b>22</b>	7,940



**\_103-2, 103-3\_**

The Team Members database is built from the corporate consolidation, in spreadsheet format, of the information extracted from each people management system in the countries in which we operate - United States, Mexico, Brazil (data from Latin America) and Germany (Europe data), emphasizing that all data are validated during the generation process and subsequently there is a final approval with all focal points of the localities involved for release in the annual report.

Braskem outsources some activities, services or part of them, which support the essential activities of the Business, such as: information technology, product logistics, property security, food services, specific technical consultancy, some industrial maintenance activities, among others.

**PROPORTION OF SENIOR MANAGEMENT HIRED FROM THE LOCAL COMMUNITY \_202-2\_**

	2017	2018	2019
Brazil	56%	58%	57%
United States	N/A	N/A	N/A
Germany	67%	75%	64%
Mexico	29%	28%	26%
International offices	0%	10.5%	9.1%
Grand Total	51%	53%	51%

\* Team Members of senior management are Team Members from grades 3 to 10 who have direct reports (Managers, Directors, Vice Presidents, and President). To calculate the number of leaders from the local community (born in the same state where they work), we used the number of leaders in senior management positions versus the place of birth, with the exception of the United States, which does not have this information (for legal reasons). This indicator is monitored for all countries where Braskem operates, for those with industrial units and those with commercial offices only.

**RATIOS OF STANDARD ENTRY LEVEL WAGE BY GENDER COMPARED TO LOCAL MINIMUM WAGE \* \_202-1\_**

	2017	2018	2019	
Brazil**	Alagoas	1.5	1.5	1.6
	Bahia	1.6	1.6	1.6
	Rio de Janeiro	2.1	2.1	2.2
	Rio Grande do Sul	1.8	1.8	1.8
	São Paulo	1.7	1.7	1.7
United States	3.1	3.5	3.5	
Germany	2.0	2.1	2.0	
Mexico	3.6	3.3	3.4	

\* The calculation method used considers the lowest salary paid by Braskem using the Hay table (a table of salaries and wages established by Braskem) valid until December/2019 using 85% of the range in Brazil and Mexico (lowest percentage of the range that varies between 85 and 115) and 80% of the range in the United States and Germany (smallest percentage of the range that varies between 80 and 120) of the smallest wage compared to the local minimum wage established through local bargaining agreements, for Brazil, and the local minimum wage for non-unionized Team Members. At all locations, Braskem offers Team Members salaries above the minimum wage in the region.

\*\*Without interns

**VOLUNTARY TERMINATION RATE \_103-2, 103-3, 401-1\_**

Some reasons for dismissal are related to opportunities for movement in the market or when there is a need for the Team Member to accompany their family, due to mobility. Regardless of gender, some dismissal requests are associated with the search for new challenges, career development, entrepreneurship, academic activities and others, with less impact, due to retirement. In some regions where we operate, economic growth was above the others, reinforcing the market warming and justifying some reasons presented.

2017			2018			2019		
Men	Women	Overall	Men	Women	Overall	Men	Women	Overall
1.5%	2.2%	1.7%	1.8%	2.6%	2.0%	2.1%	3.9%	2.5%





## DEVELOPING TALENT

[\\_103-2, 103-3, 404-2\\_](#)

In 2019, we began to redesign our operational model of the People & Organization area to turn it into a content and training application factory, unifying the portfolio of courses, which provides budget gains and better experience for Team Members.

In addition to training 627 leaders through classroom courses across the country, we defined actions intended to prepare and train Leaders and offered distance learning programs in three environments: Self-Development Portal, LMS Platform, and Technical Development Platform.

We also focused on BeUx initiatives, such as New Career Philosophy (BR/USA), Insight (Global), Boomerang (Global), New Layout (BR/MX) and Health/Wellness (MX/USA). In addition, we created a program to explain the possibilities and challenges in career development and restructured the language teaching model.

Another initiative part of BeUx was the new Recruitment and Selection tool, Gupy, giving more transparency to the selection processes, in compliance with the General Data Protection Law - all of this in a system that helps match the right person with the company. right spot. This platform considered the importance of increasing the diversity of Team Members and reducing the negative impact of unconscious bias in the selection of candidates.

For new talent in Brazil, we launched a more modern and attractive campaign, focused on promoting our University Internship Program and Technical Internship Program. It should be noted that, in order to make the selection process more inclusive, actions were taken to target black students, which generated 42% of registrations by candidates who self-reported being black/brown in the University Internship Program.

## MORE ATTRACTION

➤ University Internship Program:  
**25,084** applications

➤ Technical Internship Program:  
**8,937** applications

ONCE AGAIN, WE  
WERE CHOSEN AS  
ONE OF THE BEST  
COMPANIES TO  
START A CAREER  
BY VOCÊ S/A







For our Operator Training program we hired 71 interns and 56 trainees, supporting our strategy of renewing the industrial team. We have also adopted a new evaluation tool in the selection process for operators: through artificial intelligence and machine learning, the tool optimizes the process and ensures a hiring process in line with human safety and reliability standards.

In Mexico, we hired 75 interns, six of whom were hired in 2019 for positions in industrial and support areas such as analysts and technicians. In the United States, as part of the integration process with the company, 113 new Team Members took part in Culture Integration Training and seven associates initiated their career at the company. As part of the planning for the kick-off of the Delta project, 22 new operators were certified.

In all, we invested R\$ 29.9 million in training 7,652 Team Members worldwide throughout 2019.

Technology training: our Team Members are an essential part of the success of the digital transformation project. Therefore, the Digital Center strives to provide training so everyone can acquire digital skills. In 2019, more than 1,000 Team Members were trained around the world in tools such as Agile Methodology, Design Thinking and Data Science.

### THE ROLE OF LEADERS AND PERFORMANCE MANAGEMENT AT BRASKEM

404-3

With the rapid changes in working models, we understand the need to evolve our internal culture, reflect on the role of leaders and review the performance evaluation model. Thus, we put together seminars for senior leaders intended to reflect and discuss the evolution of the role of leaders at Braskem, with the development of a competence model based on the Self-knowledge, People Management and Business Management dimensions.

Among the BeUx actions intended to improve the experience of Team Members at Braskem and as a result of the dialogue with our Team Members, we reviewed the performance evaluation model. As of 2020, we have more possibilities for collaboration, integration, clarity and new ways of setting goals that are in line with the company's strategy and the potential for individual and collective development. The model strengthens meritocracy, encourages engagement between teams and the development of Team Members, reinforcing the connection between the search for results and the career aspirations of each one.

### TRADE UNION RELATIONS

102-41

Unions are the legal representatives of our Team Members. For this reason, we have a relationship of dialogue and understanding with them to solve any possible labor and union conflicts. In Brazil, all collective bargaining negotiations are conducted directly by Braskem Brazil's Labor Relations team or through Employers' Unions, always with the support and participation of the company's internal team.

In the case of expatriates working in Brazil, employment contracts are also bound to collective labor agreements/conventions. Apprentices from São Paulo (offices, ABC and Paulínia) have a salary linked to the CCT (Collective Labor Convention).

In regard to Team Members abroad: in the United States, only a few hourly Team Members from the Neal factory are covered by collective agreements. In Germany, none of the plants have had an agreement since 2014, since the country does not offer this option for the chemicals and petrochemicals category. In relation to Mexico, only unionized Team Members of the operation are covered by collective bargaining agreements.

It should be pointed out that, in all countries, membership and the choice of entities is a free option for Team Members.

	BRAZIL	USA	GERMANY	MEXICO	INTERNATIONAL OFFICES	TOTAL
Team Members covered by collective bargaining agreements	5,995	60	0	346	0	6,401
Total number of Team Members <sup>1</sup>	6,050	759	202	830	99	7,940
% Team Members covered by collective bargaining agreements	99.1%	7.9%	0.0%	41.7%	0.0%	80.6%

<sup>1</sup>Without interns

IN 2019, WE WERE LISTED AMONG “THE 50 BEST PLACES TO WORK – CHOICE OF PROFESSIONALS” BY THE PORTAL GLASSDOOR, ONE OF THE MAIN RECRUITMENT SITES IN THE WORLD





## COMMUNITIES

[\\_103-2, 103-3, 203-1, 413-1\\_](#)

All of our operations have actions to engage with the Community. Our Private Social Investment (ISP)<sup>2</sup> strategy is driven by three priority causes: consumption, sustainable post-consumption and circular economy; sustainable innovation and entrepreneurship; and local development. In order to be included in our ISPs, projects must fulfill three important objectives: expand the positive social and environmental impact, promote the company as a provider of sustainable solutions and establish trusting relationships with communities and other stakeholders.

Throughout 2019, more than 530,000 people were directly benefited in the various areas where we operate. All local and global actions were conceived to positively impact the community and the environment.

<sup>2</sup> Private Social Investment is the voluntary, planned, monitored and evaluated use of Braskem's private resources to carry out public interest initiatives, guided by the company's strategy and by a participatory action by the community, government and other companies.

	2018	2019
Direct Beneficiaries	199,281	533,447
Number of ISP Projects	32 (28 BR, 4 MX)	101
Number of Donation Projects	53 (1 EUR, 27 BR, 13 U.S. and 12 MX)	75 (3 EUR, 21 BR, 42 U.S. and 9 MX)
Sorted waste (Kg)	31,968 (Ser + Realizador)	28,120
Plastic waste collected and repurposed (ton)	28 (Plastianguis)	71.68
Students benefited	5,388	35,066
Teachers benefited	2,095	2,347
Schools benefited	523	858
Donated items	32,010	54,198

### GLOBAL INVESTMENT SCENARIO (ISP + DONATIONS)

REGION	INVESTMENT 2018	INVESTMENT 2019	NUMBER OF PROJECTS 2018	NUMBER OF PROJECTS 2019	BENEFICIARIES 2018	BENEFICIARIES 2019
BRAZIL	R\$ 19,673,614	R\$ 24,668,302.04	55	47	191,781	206,794
USA*	R\$ 226,846	R\$ 2,578,121.92	13	42	2,010	321,853
MEXICO	R\$ 964,766	R\$ 74,694.97	16	9	5,490	4,800
EUROPE	R\$ 2,160	R\$ 10,902.30	1	3	0	0
<b>TOTAL</b>	<b>R\$ 20,867,386</b>	<b>R\$ 27,332,021.22</b>	<b>85</b>	<b>101</b>	<b>199,281</b>	<b>533,447</b>

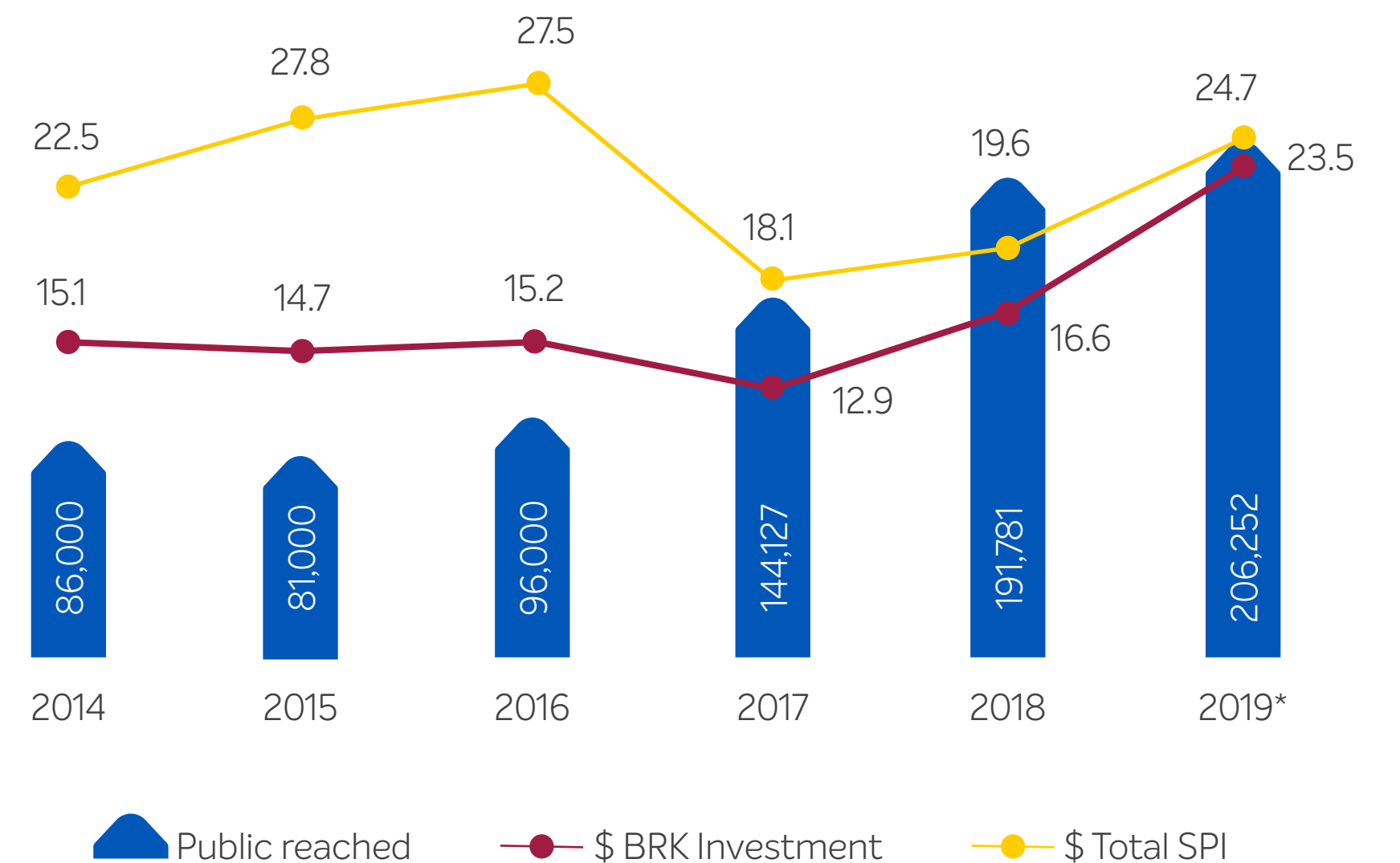
\*Q4 2018 number not computed due to data inconsistency





OUR VOLUNTEERING INITIATIVES ARE DEVELOPED IN BRAZIL, THE UNITED STATES, MEXICO AND EUROPE ON TWO FRONTS: SCAVENGER HUNTS AND COMMUNAL WORK.

### HISTORY: PUBLIC AND SOCIAL INVESTMENT BRAZIL + GLOBAL VOLUNTEERING





**X-RAY OF PROJECTS**  
**Volunteering Program**

The purpose of our global volunteering program is to generate a positive social and environmental impact on the communities located around Braskem’s operations. In 2019, the engagement rate of our Team Members in the program grew, reaching 26%, more than a quarter of our Team Members in all countries where we have operations, and with about 90,000 people from the communities where we operate. The average of other corporate volunteering programs surveyed is close to 14%.

Our volunteering initiatives are developed in Brazil, the United States, Mexico and Europe on two fronts: Scavenger hunts and Communal work. In a Scavenger hunt, teams of two or more Team Members are formed and choose a social organization close to their unit to work for a specific period. The initiative works as a collaborative competition and lasted four months (May to August). In the end, the teams with the highest score received a prize to donate to the entities they supported.

In the Communal work, the groups convene to carry out specific initiatives in each of the locations where we operate. The program encourages initiatives with socially vulnerable community and donation campaigns.

	2017	2018	2019
Investment	R\$ 290,511.63	R\$ 954,439.98	R\$ 958,031.55
Direct beneficiaries	36,167	70,954	94,016
Participants	856	2,759	4,672
Braskem employees	359	1,271	2,159
External guests	497	1,488	2,513
Donated hours	4,550	15,964	32,747
Institutions benefited	47	64	79
Cities involved	14	15	26
Actions carried out	1,222	2,226	1,336
One-off donations	18,786	32,010	54,172
Communal work	-	15	61
Engagement rate (% of total number of employees)	4.7%	16%	26%

**WE CARE WEEK**

As a new feature in our Volunteering Program, between October 19 and 27, 2019, we held the We Care Week, a global volunteering week focusing on circular economy and post-consumption.

A total of 18 activities were carried out in five countries: Brazil, Mexico, the United States, Germany and the Netherlands). Our Team Members and their guests take part in actions in the communities surrounding the company’s operations. Among the initiatives we cleaned four beaches and five parks, lectured on environmental education in six schools and helped three recycling cooperatives.

**WE CARE WEEK IN NUMBERS**

**559** VOLUNTEERS

(232 VISITORS AND 327 TEAM MEMBERS)

OVER **2,000** HOURS DONATED

**7,500** PEOPLE BENEFITED

**3.7** TONS OF WASTE COLLECTED







## Ser+Realizador

The project aims to promote social inclusion and socioeconomic development of people who work in the collection and sorting of recyclable materials and cooperated by fostering the development of the national recycling chain and circular economy.

In 2019, through a partnership with Mãos Verdes, we invested and expanded the Sorting Units (UT) and approved 12 cooperatives to serve Braskem's WeCycle program. There were 14 training seminars on management and governance and more than 5,000 hours of technical assistance to the UT.

One of the most important results of the year was the 29% increase in the monthly income of the beneficiaries of the project. Of the total amount contributed, 35% went to the purchase of equipment, 33% to construction works, 13% to services, 10% to training and 9% to inputs in order to improve the condition and productivity of cooperatives and sorters.

	2017	2018	2019
INVESTMENT	R\$ 1,966,508.50	R\$ 1,698,489.70	R\$ 898,970.97 *
Sorting units / Cooperatives served	35	37	43
Number of cooperatives apt to serve Wecycle	-	2	12
Sorters benefited	1,278	1,057	1,264
Sorters trained	326	472	692
Volume of waste sorted (kg)	14,352	25,022	28,101
Weight sold/month - T/UT	-	72	67.9
Percentage of Sorters with Increased Income	-	52%	40%
Income Increase/Month	42%	26%	29%

\* Value lower than 2018, due to the reallocation of resources and restructuring of the project.





## Edukatu

Online learning network that addresses concepts of conscious consumption and sustainability among elementary school teachers and students in schools across Brazil. In 2019, Edukatu's awareness-raising and mobilization activities were mostly concentrated in the states of Alagoas, São Paulo, Rio de Janeiro, Bahia and Rio Grande do Sul.

In the year, the platform received 277,244 views. Three new partnerships were made official with the Boards of Education of Marechal Deodoro (AL), Candeias (BA) and Camaçari (BA), in addition to 52 in-person workshops and mobilization of the municipal education networks in the municipalities of Triunfo (RS), Montenegro (RS) and Dias d'Avila (BA).

Work was also initiated on teaching topics focusing on the Sustainable Development Goals (SDG) and Life Cycle Assessment (LCA). In 2020, Edukatu intends to continue focusing on gains in scale and greater coverage, fostering in-person mobilizations, dissemination to and training of teachers to use the platform and the content already produced with partner education networks.

	2018*	2019
Total number of participants	42,073	49,610
Teachers engaged	1,315	2,021
Students engaged	1,294	5,674

\* The data for 2018 differs from what had been presented in previous reports because the methodology for calculation has changed (from the average users to single users in the last twelve months)

▶ IN THE YEAR, THE PLATFORM RECEIVED **277,244** VIEWS.





### Plastitroque

This project highlights the importance of selective sorting and proper disposal of waste, promoting post-consumption in schools in Bahia and Alagoas. The action consists of exchanging plastic waste for Plasticoins, the currency used to purchase gifts. In Bahia, we held lectures and workshops on conscious consumption and proper disposal of waste, mobilizing 450 children. A total of 376 kg of plastic waste were collected, sent to COOPMARC - Camaçari Recyclable Materials Cooperative, supported by the Ser+ Program. In Alagoas, the actions were carried out in Marechal Deodoro and had the support of 16 volunteers (Team Members and guests), in addition to collecting nearly 500 kg of plastic, directly impacting 400 people.

### OUTRO OLHAR

This project is developed in the community of Vila Mangueira, in Rio Grande (RS). The goal is to promote socialization and human development experiences, especially for children and adolescents. In 2019, the action directly impacted 178 students and indirectly approximately 350 residents.

### Ecobarreira

Since 2017, we have supported this project, the Safeweb Institute in Porto Alegre, whose efforts are aimed at preventing solid waste from reaching the Guaíba Lake. We participate in Environmental Education initiatives, aimed especially at children and adolescents. Since its launch, the project has already avoided 671 tons of materials from reaching the lake, an average of 168 tons per year.

	2017	2018	2019
Investment	R\$ 50,000	R\$ 78,000	R\$ 80,000







### Rede de Maré

In 2019, we renewed the Rede de Maré project, which we have supported since 2015. The initiative aims to promote sustainable management of artisanal fishing in communities of fishermen and shellfish gatherers on Ilha da Maré, which is close to our operations in Salvador (BA). We also work to maintain traditional local cultures and their livelihoods, in addition to advocating for environmental education in the community with a focus on marine ecosystems. From the beginning of the project up to December 2019, 154 fishermen/shellfish gatherers were monitored in the participating communities.

### Pescadores de Mel

In order to improve the income of fishermen in Alagoas during the annual fishing ban and promote social inclusion and technical training, we support this initiative in partnership with Uniprópolis. The project encourages the teaching of the craft of honey production and hydroponic cultivation to fishermen from four regions: Maceió, Barra de São Miguel, Marechal Deodoro, and Coqueiro Seco.

	2017	2018	2019
Investment	R\$ 50,000	R\$ 50,000	R\$ 300,000
People trained in beekeeping	91	178	56





### Plastiferia

Also in Mexico, we developed the Plastiferia project, an event in a game format aimed at children and young students that promotes the importance of recycling plastic waste and fosters environmental education. We have 50 volunteers for each game module and a total of 800 children were benefited in 2019.

### Plastianguis

Held in Mexico, the purpose of this program is to encourage recycling and teach the community to sort plastic waste. The materials can be exchanged for currencies called PlastiPesos and, with them, it is possible to buy cleaning products and food for an amount subsidized by Braskem.

	2017	2018	2019
Families benefited	+400	800	1,500
Community participants	1,000	3,200	3,000
Products delivered (food staples basket)	6,000	19,824	21 Tons
Volunteers	66	130	150
Hours of volunteer work	600	1,170 (average of 9 hours per person x 130 people)	1,170 (average of 9 hours per person x 130 people)
Tons of plastic collected	7	28,3	49,6
Tons of food staples basket distributed	-	21,7	21 Tons
Investment (MXN)	603,889.51	1,192,338.40	2,000,465.08
Investment (R\$)	R\$ 102,243.37	R\$ 227,563.28	
Plastipesos distributed	79,534	201,967	
Staples baskets distributed	494	1,239	2,000

### Science Leadership Academy

In the U.S., we support the Science Leadership Academy (SLA) in the science, technology, engineering and mathematics education program. The project allows freshmen- or sophomore SLA students to do an internship at our plant in Marcus Hook. In addition, through the Capstone Acceleration Program, our Team Members act as mentors to senior students in preparing their undergraduate thesis.

### Braskem Entrepreneurs

In 2019, in partnership with Rede Mulher Empreendedora (Entrepreneur Women), we launched the program called “Empreendedoras Braskem” program, which trains residents in the region close to the Greater ABC region (SP) and Duque de Caxias (RJ) Petrochemical Plants to generate and increase income through employability, in addition to encouraging the promotion of business led by women.

The program is intended for women who wish to undertake or are already in the process, formally or informally, and who have not had access to any type of training and are looking for professional and personal growth. In 2019, two classes were held that trained 57 women and five new businesses were created.



## CUSTOMERS

We work hand in hand with our Clients to build and foster a more sustainable future for our entire value chain. Acting in an integrated manner, we are able to think and create efficient products and solutions, considering the commercial demands while we follow and strengthen the principles of the Circular Economy. Our outstanding initiatives are:

**Circular Economy:** We have entered into partnerships with several customers to develop more sustainable products, such as renewable products, that expand and facilitate recycling and reuse of plastic packaging. In addition, we develop actions and solutions to value post-consumer plastic waste and the recycling chain as a way to mitigate environmental and social risks. To this end, we entered into partnerships with Customers, recyclers, cooperatives and consumer brand companies. **[Learn more in section Innovative and Sustainable Solutions]**

**PICPlast:** Through our partnership with the Brazilian Plastics Industry Association (ABIPLAST) we promote initiatives that encourage the export of transformed products. **[Learn more in section Innovative and Sustainable Solutions]**

**MAXIO® SEAL:** this family of products offers eco-efficient resins that help reduce energy consumption during the production process and the weight of final products, in addition to increasing productivity, which contributes to reducing production costs and environmental impacts.

IN 2019, THE INDEX THAT ASSESSES THE GLOBAL REPUTATION BY CUSTOMERS IN THE DIMENSION **PRODUCTS AND SERVICES** REACHED 72.6%, EXCEEDING THE GOAL OF 70%.





## GREEN PLASTIC IN AGRICULTURE

In 2019, we entered into a partnership with the Israeli-Indian company Naan-DanJain, which supplies equipment and technologies in the area of localized irrigation, to develop a drip irrigation system for sugarcane. The initiative increases the productivity of sugarcane fields by 65% compared to the traditional method (rainfed). In some cases, the gain can reach 200%.

The polyethylene tubes used in the process are manufactured with our renewable resins, aligning agribusiness to sustainability. Through drip irrigation, it is possible to improve productivity while minimizing the consumption of fertilizers and water per ton produced.

## SINGLE MATERIAL PACKAGING

We teamed up with the Brazilian company Antilhas Flexíveis, renowned in the market for packaging innovations, to create a single material stand-up pouch, launched during Feiplastic 2019, in São Paulo (SP). This type of single material product is made from a single raw material, benefiting the plastic recycling chain, since it facilitates the process of separating the materials.

The stand-up pouch packages – which stand upright regardless of the material used – were made with polyethylene without lamination using EB (Electron Beam) technology, an innovative procedure for curing printing using an external beam of electrons, exclusively patented by Antilles. They can be used in applications in the cosmetics and food industries.

## STATIONERY SOLUTIONS

In partnership with the company Ledesma, a leader in natural agro-industrial products, we created the Ledesma+Bio line, with more sustainable notebooks produced from sugarcane. The products have front and back covers made with our Green Plastic I'm green™, while the paper sheets are made of naturally colored sugarcane fiber, since chemical bleaches are not used in production. The launch was awarded the “Sustainable Product of the Year 2019” by the Business Intelligence Group, which, since 2012, has awarded companies and people with innovative solutions.

## SUSTAINABILITY IN THE CLEANING SECTOR

In May 2019, we entered into a partnership with Boulder Clean, a North American manufacturer of cleaning products that will use our Green Plastic I'm green™ in the new packaging of their laundry detergent with a sustainable focus. As a result, the product packaging, for sale in some states, becomes fully recyclable.

## NEW BUSINESS MODELS

To accelerate our digital transformation, we created a Digital Center, which commands and integrates, at a global level, the more than 50 initiatives that we develop in this area. One of its goals is to improve our processes and increase productivity. For this reason, we used new digital tools, such as those that employ Artificial Intelligence and Analytics. In addition, the Digital Center explores new business opportunities and services for our Clients. Thus, in 2019 we promoted two internal startups that, together, operated more than 1,000 transactions.

### • Edge Portal

This e-commerce platform allows customers to search and compare products, place orders and view their history – just like all other shopping sites. They can also track orders and access transaction documents. All of this can be done via a computer or mobile app. Close to 65% of Solvents are already sold through the platform, which is expected to soon be extended to Fuels and Vinyls.

### • LoadShark

This logistics tool was designed to improve the way we schedule deliveries for Customers. In Brazil alone, nearly 1,500 trucks leave our plants every day. Programming deliveries is a manual process that involves different people, papers and spreadsheets. With LoadShark, data such as orders, location of trucks, receiving windows, destinations and delivery times are evaluated by algorithms used by the app to create a more efficient delivery schedule – positively impacting freight costs and fleet productivity. The solution can also be used to share trucks when Braskem partners with delivery companies on similar routes. A solution that reduces costs and contributes to sustainability.

WE WORK HAND IN HAND WITH OUR CLIENTS  
TO BUILD AND FOSTER A MORE SUSTAINABLE  
FUTURE FOR OUR ENTIRE VALUE CHAIN.





## SUPPLIERS

[\\_103-2, 103-3, 308-1, 414-1\\_](#)

We have in place a decentralized management structure, with different areas working on spend analysis, evaluating the quality of products and services and adherence to the Third Party Code of Conduct. The Code is based on widely accepted documents ranging from the UN Universal Declaration of Human Rights to the procedures recommended by the International Labor Organization (ILO) and the laws and regulations of countries where we operate. In the case of contracts for industrial areas, all Suppliers must respond and meet the minimum requirements for Health, Safety and Environment based on our HSE Policy.

### PERCENTAGE OF PURCHASES BY SUPPLIERS BY COUNTRY\* [\\_204-1\\_](#)

		2017	2018	2019
Brazil	Domestic	71%	59%	56%
	Foreign	29%	41%	44%
USA	Domestic	93%	96%	97%
	Foreign	7%	4%	3%
Germany	Domestic	93%	98%	97%
	Foreign	7%	2%	3%
Mexico	Domestic	75%	71%	49%
	Foreign	25%	29%	51%

\*To calculate this indicator, we considered as “local” domestic suppliers, and “locations with significant operations” are the countries where we have industrial units.



See our Third Party Code of Conduct by [clicking here](#).

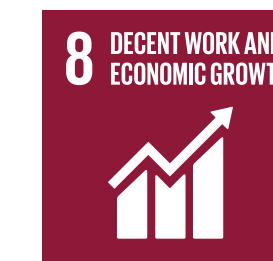
## SUPPLIER CATEGORIES

[\\_102-9, 308-1\\_](#)

**Ethanol:** to guarantee a quality resin and social and environmental responsibility throughout the production cycle, this product and its suppliers rely on one of Braskem’s most rigorous management processes. Since 2016, we have been guided by the Responsible Ethanol Purchase Program, which assesses compliance with mandatory requirements and excellence in parameters, such as slash-and-burn processes, biodiversity, best environmental practices, human and labor rights.

**Fossil raw materials:** Suppliers in this category are strategic for our business. Among these products we have naphtha, condensate, ethane, propane, and LRH in Brazil, ethylene and propylene in the United States and Germany, and ethane in Mexico.

THIS INITIATIVE IS IN LINE WITH SDG 8 - DECENT WORK AND ECONOMIC GROWTH (GOALS 8.7 AND 8.8)





## PROCUREMENT

### \_102-9\_

This is an essential area for our business. Its duties include the contracting of services (industrial and corporate) and the purchase of direct (input) and indirect (MRO) equipment and materials. Based on its negotiation strategies with Suppliers, the area provides the necessary resources both for the operation of industrial plants and for the administration sectors, always seeking greater competitiveness, financial gains, efficiency and compliance. The area operates globally and serves all Braskem locations, identifying synergies and optimizing operations.

This is all done through transparent procurement processes and following the organization's formal guidelines. We also use tools that help predict financial and managerial impacts of negotiations, such as the Suppliers Radar - which identifies companies with greater exposure to labor and economic risks - and due diligence processes, in addition to a bi-annual assessment of Suppliers, which produces the Supplier Performance Index (IDF). The tool is applied to all companies deemed critical after an assessment of sustainability criteria. Any non-conformities identified are handled with an action plan involving users, Suppliers and Procurement areas.

WE ALSO USE TOOLS  
THAT HELP PREDICT  
FINANCIAL AND  
MANAGERIAL IMPACTS  
OF NEGOTIATIONS







## Technology and sustainability in the procurement area

In 2019, we completed the validation process of the Sustainable Procurement Tool, which improves the process of assessing social and environmental risks during the technical analysis of bids, helping the various procurement teams to embed sustainability issues in the selection of Suppliers. For now, the tool is used only in some categories of services, but the idea is to extend its application to other categories in 2020.

Also in 2019, we started implementation of the Coupa tool, a global and digital platform for the area of Procurement. In May, the tool began to be used in some purchasing processes in Brazil, Mexico and the United States and Europe. The goal is to expand the use of the platform and to concentrate on the tool the entire system for purchase and acquisition of products and services in all countries where Braskem operates. As a result, these purchasing processes and the relationship with Suppliers will become simpler, more agile, efficient and sustainable, in addition to making the process more reliable and in line with global compliance requirements.

Another major change in 2019 was the creation of a new inventory and warehouse management system in Brazil. Called WMS, the digital tool will simplify and modernize receipt, handling and delivery operations, maximizing productivity and stock accuracy. The idea is for the system to generate savings of up to R\$ 6.2 million per year with the increase in inventory accuracy.

## RECOGNIZING BEST PRACTICES

In April 2019, the Procurement area, supported by Braskem's Sustainable Development area, held the first event to recognize suppliers with best performance in management of water resources and climate change issues. The event had 96 participants, including suppliers, speakers and Team Members.

The initiative is relevant because, within our risk matrix, water and climate have a high potential for impact. Thus, we select only the most critical suppliers that can be impacted by the potential scenarios of severe droughts or extreme climate change events. The criterion for recognizing suppliers was the performance at the 2018 CDP: everyone was on the "A List," i.e., they were all companies with excellence in managing greenhouse gas emissions, water consumption and use of forests.

Suppliers that received recognition were:

- Water resource management: BASF
- Climate change management: Siemens, BASF, Invensys, Schneider Electric, Hitachi, Praxair (White Martins), Air Liquide, Arkema, and Ricoh

## Engagement

In 2019, the Procurement area was once again recognized by the CDP Supply Chain program, which highlights the companies that most encourage their Suppliers to adopt in their businesses issues related to sustainability, such as reporting greenhouse gas emissions and water management.

We also kept the top score "A" in the CDP Water ranking, being recognized for our leadership in topics relating to Water and Climate for the third and fifth consecutive years, respectively. In "Climate" we ranked among the best companies in Latin America, and featured in the "A List Water Global" among the five Latin American companies listed.

Furthermore, we are part of the CDP Brazil Index - Climate Resilience (ICD-PR-70), launched in March 2020, which assesses the performance of companies with best practices in these areas and in line with global trends and recommendations of international agreement such as Task-Force for Climate-Related Financial Disclosure (TCFD), created by the Financial Stability Board to facilitate the reporting of climate-related financial information by companies worldwide.

We were also recognized as a "Supplier Engagement Leader," as a result of our efforts to minimize climate risks in our operations by supporting our Suppliers in joining the Action Exchange, a free consultancy that identifies opportunities to reduce costs, emissions and energy consumption in our processes.



## LOGISTICS

The Logistics area works alongside the Health, Safety and Environment (HSE) team to ensure that all social and environmental requirements critical to operations are met through the hiring of transportation, terminals and other logistics services. The evaluation process is based on Braskem's performance analysis system, vetting 11 and ABIQUIM's Safety, Health, Environment and Quality Evaluation System.

Hiring of vessels for import, export, coastal shipping, and inland shipping follows international safety standards based on the vetting criteria and recommendations set out by the Oil Companies International Marine Forum (OCIMF).

### Focus on safety

One of the concerns of the Logistics area is the safety of all stakeholders. For this reason, we partnered with the largest risk managers in Brazil and tracked freight. In addition, we hold regular meetings with service providers to ensure compliance with internal Health, Safety and Environment processes, and annual audits at the carriers' headquarters.

We also promote important programs that address road safety. Among them, are:

- **Na-Mão-Certa Program:** We have been part of this program since 2007. It was created by OSCIP Childhood Brasil and aims to influence the country's agenda to protect children and adolescents, ensuring that issues associated with abuse and sexual exploitation are addressed by public and private policies. In 2019, awareness actions impacted 1,644 truck drivers and 373 Team Members. Overall engagement increased by 55% compared to 2018.

- **Olho Vivo na Estrada Program:** created by ABIQUIM in partnership with ABICLOR, the purpose of this program is to prevent unsafe behavior when transporting hazardous products by raising awareness of drivers.

- **Transportadora da Vida:** an initiative of the Trade Union of Carrier and Logistics Companies (SETCERGS) to certify cargo transport companies that conduct actions with a great emphasis on safety.







## GOVERNMENT

### 201-4

In all of our processes and in all relationships with stakeholders, we adopt attitudes and strategies of responsibility, integrity and transparency. To this end, we promote open dialogues and are guided by a commitment to ethical management.

This is no different from our relationship with governments. We also have a tax incentive of ICMS (Tax on Circulation of Goods and Provision of Services) granted by the State of Alagoas through the State Integrated Development Program (PRODESIN) as a result of an investment of US\$ 500 million in our PVC plant installed in 2012 in the Industrial District of Marechal Deodoro.

	2017	2018	2019
<b>Total tax incentives/credits*</b>	<b>167.4</b>	<b>81.9</b>	<b>77.0</b>
PRODESIN - ICMS (R\$ million)	95.7	81.9	67.8
SUDENE - IR (R\$ million)	71.7	-	-
REINTEGRA (R\$ million)	-	-	9.2
<b>Total Subsidies (R\$ million)</b>	<b>-</b>	<b>-</b>	<b>-</b>
Subsidy - National Agents (R\$ million)	-	-	-
<b>Total Financing (R\$ million)</b>	<b>420</b>	<b>1,732.1</b>	<b>964.6</b>
Financing - National Government Agents	-	0.45	266.4
Financing - Foreign Government Agents - ECAs (R\$ / million)**	420.4	1,731.7	698.2

\* BNDES - FINEM (Local Gov. Agent) - Contract signed in Dec/2018 to finance the company's maintenance CAPEX (Total volume contracted R\$ 476 million). Amount disbursed in January 2019.

\*\*Euler Hermes (ECA Germany). Contract signed in 2018. 4 withdrawals were made in 2019, totaling R\$ 83.984 million.

\*\* SACE (ECA Italy). Signed and disbursed in Dec/2019 - R\$ 614,235 million.

Like the 2018 report, for the ECAs, the conversion rate from USD to BRL was considered on the date of entry of the resource.



FOREWORD

LETTER FROM THE  
BUSINESS LEADER

FUTURE-ORIENTED

RESPONSIBLE PERFORMANCE

GOVERNANCE  
AND COMPLIANCE

BUSINESS PERFORMANCE

INNOVATIVE AND  
SUSTAINABLE SOLUTIONS

VALUE CREATION

RESPONSIBLE  
PRODUCTION

GRI STANDARDS  
CONTENT  
SUMMARY

CORPORATE  
CREDITS

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# RESPONSIBLE PRODUCTION

\_103-2, 103-3, 403-1\_

HEALTH, ENVIRONMENT AND SAFETY

OCCUPATIONAL HEALTH AND SAFETY

PROCESS SAFETY

PRODUCT SAFETY

WATER EFFICIENCY

SUSTAINABLE ENERGY

WASTE MANAGEMENT

CLIMATE CHANGE



► **100%**  
OUR UNITS  
TOOK PART  
IN THE GAP  
ASSESSMENT

## HEALTH, ENVIRONMENT AND SAFETY

We ended 2019, and once again, registered zero fatal accidents. This is the result of our efforts to find ever better ways and solutions in terms of safety, efficiency and sustainability in our operations.

Throughout the year, we work every day to create opportunities and positive results for Braskem employees, Communities near our plants and for the environment. One of the highlights was the final implementation and training of Intelius, our new Integrated Management System.

The system meets all the HES, Quality and Industrial Excellence requirements, providing guidelines and reporting on best international practices on the necessary actions in the industrial areas. Despite its global nature, the tool considers local requirements and encourages Braskem employees to collaborate to reinforce the culture of risk prevention based on discipline and respect for safety processes and procedures.

### INTERNAL ASSESSMENT

In 2019, we conducted the first internal audit in all our units worldwide to assess the impacts of the process called Gap Assessment, which was finalized in 2018. At the time, all plants participated in a self-assessment to determine which points met the basic requirements and the evolution of performance indicators defined by Intelius and which aspects that could be improved.

The purpose of the 2019 audit was to analyze the topics considered by the units to be in accordance with requirements. Thus, we verified the level of understanding of these requirements. For this, we set up a multi-disciplinary team, formed by Braskem employees from different plants, constituting a cross-audit.

Since the mapping showed inconsistencies between the perception of some plants and what, in fact, they were doing, we established an action plan to address all gaps. We considered this work as a continuous effort, so in 2020, we are planning a new audit to verify the implementation of these corrections and carry out new sampling.



One of the pillars of our strategy is the commitment to offer increasingly sustainable operations and services. We see ourselves as part of the solution and our focus is on expanding the positive impacts arising from Braskem's operations, as well as controlling and/or mitigating negative impacts, especially in terms of major global challenges, which include topics such as water, Climate Change, sustainable production and consumption.





## OCCUPATIONAL HEALTH AND SAFETY

\_103-2, 103-3, 403-2, 403-3, 403-4, 403-5, 403-9, 403-10\_

One of our macro-goals for Sustainable Development is to care for the health and safety of our Braskem employees and of third parties/contractors. We constantly reinforce concepts, follow all requirements and work towards prevention; however, despite our efforts, in 2019 the Total Recordable Injury Rate (injuries with and without lost time), considering Braskem employees and Third Parties workers per million manhours, increased by 22% compared to the previous year.

In contrast, the Lost Time Injury Rate, considering Braskem employees and Contractors and also calculated based on one million manhours, decreased by 26%. The Severity Rate of Lost-Time Accidents dropped by 77%.

The events are of low severity, related to falling and stumbling while walking and going up or down stairs;

however, we are concerned with the growth of factors such as distraction and lack of risk perception in routine activities. Therefore, our work had an even greater focus on accident prevention. As a highlight, we rely on the actions and campaigns of our human reliability program, implemented in all units, covering industrial professionals, from operation to administrative areas. Among the initiatives, we developed videos and interactive games that, in a playful way, highlighted the importance of an accident prevention culture.

In terms of health, we continued our program to reduce the impact on the handling of potentially carcinogenic agents. The highlight was the program aimed at reducing exposure, since, despite the correct use of Personal Protective Equipment (PPE), we intend to reduce the exposure of Braskem employees to such agents.



### NUMBER OF ACCIDENTS X 1MM/MHW

	2015	2016	2017	2018	2019
Total Recordable Injury Rate (WLT + W/OLT)*	0.68	0.8	1.02	1.07	1.31
Lost Time Injury Rate (WLT)*	0.26	0.24	0.33	0.53	0.39
Severity rate*	47.38	179.58	35.33	183	42.32
Number of fatal accidents*	0	1	0	0	0
Occupational illnesses Frequency Rate**	0	0.06	0	0.12	0.18
Number of Cases of occupational illnesses**	0	1	0	2	3

\*Braskem employees and Third Parties

\*\*Braskem employees

THE TOTAL RECORDABLE INJURY RATE (WLT + W/OLT) WENT FROM 10.07 IN 2002 TO 1.31 IN 2019. THIS NUMBER REPRESENTS AN AGGREGATE IMPROVEMENT OF NEARLY 87% WITH AN AVOIDED COST OF OVER US\$ 65 MILLION.







## INNOVATION IN SAFETY

In the second quarter of 2019, we launched a challenge to students in the third year of the Mechatronics Engineering school at FIAP School of Technology to find new ways to optimize production and increase the operational safety of our plants in São Paulo.

For ten months, the groups had access to the units in São Paulo for an immersion in the petrochemical environment, in addition to having training and mentoring promoted by professionals from different areas. At the end of the year, we selected an outstanding project - with a focus on worker safety - to test its technical and economic viability.

The idea of the chosen group was to install identification chips on the badges of Braskem employees, allowing the company's safety team to quickly locate people in an emergency. The concept was used during the general maintenance shutdown in November and December 2019 at our Camaçari units.



## ONE OF OUR MACRO-GOALS FOR SUSTAINABLE DEVELOPMENT IS TO CARE FOR THE HEALTH AND SAFETY OF BRASKEM EMPLOYEES AND OF THIRD PARTIES

At Braskem, the Occupational Hygiene and Occupational Health disciplines are part of the same area with the same coordination. The objective is integration, since the risks mapped and controlled by one area are monitored by the other through the worker's health profile. Regarding the facilities, almost 100% of Braskem's units have medical assistance in the workplace, facilitating access and health surveillance for workers. The exception is remote offices, where we have between one and ten employees.

The health services are equipped with certified equipment and have legally qualified doctors and nurses, in addition to nursing technicians. Occupational health assessments are carried out mainly in the medical services, in the workplace. All health-related information, electronic or printed, of employees is classified as confidential and only medical personnel can access it. The scope of the management system includes auditing of medical facilities, processes and information management.



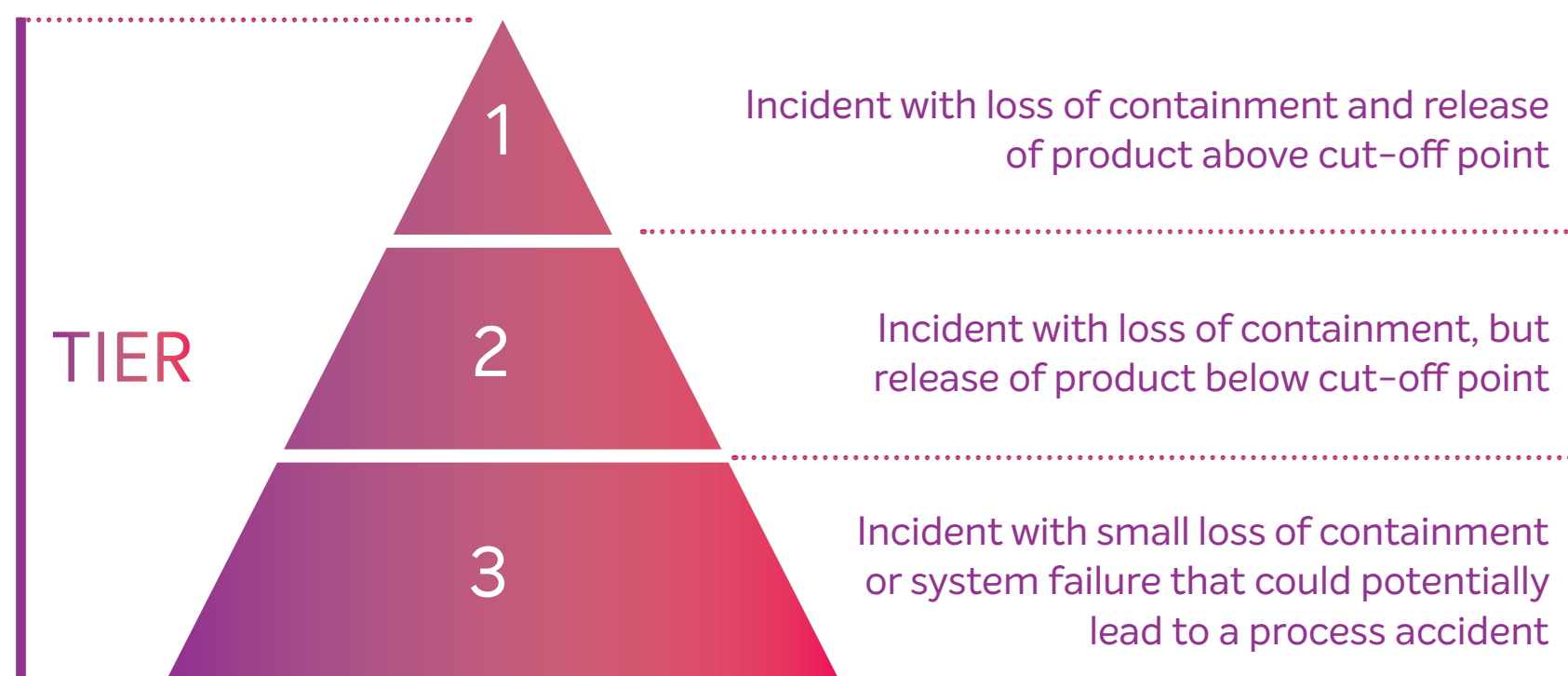
## PROCESS SAFETY

\_103-2, 103-3, 413-2\_

In 2019, we continued to make progress in relation to the safety of our production processes with indicators within the range of previous years. Our mapping and reporting methodology is used in all plants, globally, and we had a greater engagement of Braskem employees in recording of incidents.

Nevertheless, we believe that our work has shown positive results and we continue with the objective, for the coming years, to keep improving these indicators, focusing on human reliability and on the integrity of our assets.

In 2019, we recorded seven TIER 1 events (2 more than in the previous year), with a rate of 0.15 per million manhours (25% higher than 2018) – a number still compatible with the global benchmarks in process safety for companies in the chemical sector. In the United States, for example, the average value of companies is 0.34. The TIER 1 event frequency rate evolved from 0.7 to 0.15 in the period from 2013 to 2019, representing an aggregate improvement of close to 79% and an avoided cost in excess of US\$ 1.1 million.



### TIER 1 – NUMBER OF ACCIDENTS

2015	2016	2017	2018	2019
11	9	6	5	7

### TIER 1 – RATE OF ACCIDENTS

2015	2016	2017	2018	2019	2020 GOAL
0.32	0.22	0.14	0.12	0.15	0.10

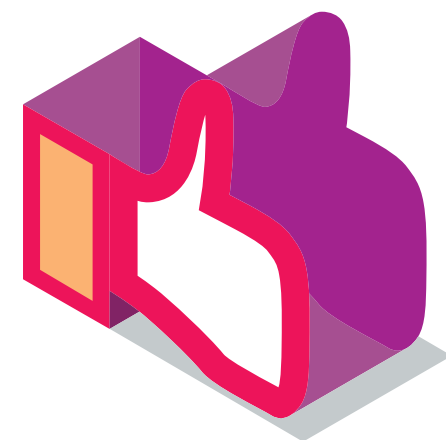
### TIER 1 – SEVERITY RATE

2015	2016	2017	2018	2019
3.41	0.68	0.77	0.30	0.71



OUR MAPPING AND REPORTING METHODOLOGY IS USED IN ALL PLANTS, GLOBALLY, AND WE HAD A GREATER ENGAGEMENT OF BRASKEM EMPLOYEES





For Tier 2 events, 28 events occurred in 2019 (2 more than in 2018; 3 less than in 2017). Despite the events mentioned above, the accident rate dropped to 0.58 per million manhours (3% lower than 2018), as a result of the higher volume of hours worked in 2019.

### TIER 2 – NUMBER OF ACCIDENTS

2015	2016	2017	2018	2019
40	37	31	26	28

### TIER 1 – RATE OF ACCIDENTS

2015	2016	2017	2018	2019	2020 GOAL
1.17	0.90	0.74	0.60	0.58	0.55

In relation to Tier 3, considered as minor incidents, throughout 2019 we noticed an upward trend in these occurrences. This is due to the strengthening of the safety culture of processes and to the commitment of Braskem employees to the tool that records and reports all deviations that impact on loss of primary containment.

### RISK RATING

ALL OF OUR PLANTS CONTINUE TO ADHERE TO THE INTERNATIONAL RISK RATING STANDARD AT THE “STANDARD” LEVEL – HALF OF THEM ARE AT THE “ABOVE STANDARD” LEVEL. BRASKEM DOES NOT HAVE A GOAL FOR THIS INDICATOR.

THE TIER 1 EVENT FREQUENCY RATE EVOLVED FROM 0.7 TO 0.15 BETWEEN 2013 AND 2019, REPRESENTING AN AGGREGATE IMPROVEMENT OF CLOSE TO 80% AND AN AVOIDED COST IN EXCESS OF US\$ 2.6 MILLION.







## PRODUCT SAFETY

\_103-2, 103-3, 416-1, 416-2, 417-1, 417-2, 417-3\_

Our products are the core of our business, so we work to maintain health and safety not only in terms of production, but also in our services. In this sense, we have in place an ongoing international evaluation and benchmarking process to analyze our practices and consider possible improvements.

We also partnered with key stakeholders (including the Brazilian Chemical Industry Association – ABIQUIM, American Chemistry Council – ACC, the Plastics Industry Association and Plastics Europe) to recognize and mitigate the risks for people and the environment associated with using the products.

### Investments and gains in environmental protection

\_103-2\_

Our strategic plan is permeated by ideas for sustainable products and solutions. Therefore, we invest in safety and in the continuous improvement of our processes to generate positive impacts in all aspects of HES.

Every year, we establish goals and investment plans considering variables such as the needs of each plant, region, maintenance shutdowns schedules, recertification and business strategy. In 2019, we invested almost 40% more in these initiatives compared to 2018. Total spend with HES increased by almost 16%.

## INVESTMENTS AND GAINS IN ENVIRONMENTAL PROTECTION

TYPE OF EXPENSE (R\$ MILLION)	2017	2018	2019
Occupational Safety	7.5	16.5	48.0
Process safety	87.6	113.3	139.4
Investments in HES			
Health	3.9	5.6	8.7
Environment	13.1	10.2	7.3
Total	112.1	145.4	203.5
Spend to treat effluents and waste			
Treatment of liquid effluents	52.6	60.1	57.1
Waste management	57.2	82.0	48.0
Total	109.8	142.1	105.0
Management of emissions	8.8	6.7	7.8
Environmental permits	1.0	1.1	1.4
Depreciation	46.0	46.0	46.0
Provision for recovery of environmental damages (environmental liabilities)	102.5	89.4	141.5
Other environmental management costs	48.9	57.9	60.6

**40%**  
MORE  
INVESTED  
IN 2019

WE INVEST IN SAFETY AND IN THE CONTINUOUS IMPROVEMENT OF OUR PROCESSES TO GENERATE POSITIVE IMPACTS





HES management is also responsible for monitoring savings and avoided costs with improvement projects. In 2019, internal and external events had negative impacts on our avoided costs, especially those related to eco-indicators: with the exception of waste generation, they did not reach the targets for the year, which led to additional expenses instead of savings.

Among these external events, we had the chlor-alkali unit in Alagoas, which interrupted its operation, and commercial restrictions that led to load reduction, with direct impacts on the efficiency of the units.

It is important to note that our energy consumption is predominantly thermoelectric. Therefore projects involving improvements in energy efficiency also positively impact reduction of air emissions (regulated pollutants and GHG) and avoided costs. In total, this work resulted in gains of R\$ 45 million<sup>4</sup> in the operations in Brazil, the United States, Germany, and Mexico.

<sup>4</sup> Avoided costs through management of health, safety, and environment

**R\$ 45 MILLION**  
**WAS THE GAIN WITH PROJECTS INVOLVING IMPROVEMENTS IN ENERGY EFFICIENCY**



## AVOIDED COSTS – MANAGEMENT OF HEALTH, SAFETY, AND ENVIRONMENT

	DIMENSION (US\$)*	2017	2018	2019*
Safety	Occupational Safety	5,850,000	5,640,000	6,985,443
	Process safety	1,260,274	1,903,968	-1,018,186.42
Health	Occupational Health	1,945,205.48	265,734.25	1,936,708.86
Environment	Waste Generation	27,951,463	25,184,154	33,675,538.79
	Water Consumption	4,021,398	-3,180,674	-4,597,463.71
	Effluent Generation	12,441,199	9,625,041	7,725,150.01
	Energy Consumption	198,391,572	127,833,979	120,548,622.73
	GEE Emission	116,243,528	69,467,138	65,174,129.28
TOTAL		366,159,433	236,473,607	230,429,943.58

\* The exchange rate used was R\$ 3.95





## WATER EFFICIENCY

[103-2](#), [103-3](#), [303-1](#), [303-2](#), [303-3](#), [303-4](#), [303-5](#)

Water is an essential element for the industry. That is why the management of processes that involve this topic is embedded in the risk management of our business, which is done through the Enterprise Risk Management (ERM) platform. It is also reported directly to the Board of Directors and is based on COSO, ISO 31000 and IBGC standards.

Our largest demand for water comes from the production process at our 40 industrial facilities, mainly used in cooling and steam generation systems, processes and products and disposal of effluents. We vary water sources, with surface, ground and third-party resources (including reuse).

We comply with our legal obligations and, therefore, we monitor liquid discharges by measuring parameters such as pH, temperature, sediments, oils, floating materials, hydrocarbons, among others. In addition, since 2017 we have developed action plans for all plants located in high risk basins (four Brazilian river basins), which deal with issues such as water reuse and desalination.

We also assess 100% of our supply chain, offering awareness and training steps with the support of the CDP and, whenever necessary, we help our Suppliers to identify opportunities for improvement and create solutions to face situations of risk. In 2019, 49% of the invited Suppliers responded to the CDP water security questionnaire sent by Braskem.



## RESPONSIBLE USE OF WATER

FOR THE THIRD CONSECUTIVE YEAR, WE HAVE BEEN RECOGNIZED AS ONE OF THE COMPANIES LISTED ON THE “A LIST” ON WATER ISSUES AT CDP WATER, WHICH SELECTS THE BEST PUBLICLY TRADED COMPANIES IN THE WORLD IN RELATION TO MANAGEMENT OF WATER CONSUMPTION.

**GLOBAL ENGAGEMENT**  
AS A RESULT OF OUR EFFORTS IN WATER EFFICIENCY, IN JULY 2019 WE JOINED THE CEO WATER MANDATE, A UN GLOBAL COMPACT PLATFORM THAT BRINGS TOGETHER A COMMUNITY FORMED BY MORE THAN 150 COMPANIES FROM AROUND THE WORLD COMMITTED TO ADVANCING WATER MANAGEMENT.



WATER EFFICIENCY

## 2019 HIGHLIGHTS

**45%**  
OF ENGAGED SUPPLIERS REPORTED TARGETS

**48%**  
OF SUPPLIERS THAT HAVE A CORPORATE WATER POLICY

**61%**  
OF ENGAGED SUPPLIERS ASSESS WATER RISKS

**27%**  
OF SUPPLIERS ENGAGING THEIR SUPPLIERS

**16%**  
OF SUPPLIERS INTERNALIZE WATER SECURITY STRATEGIES IN LONG-TERM BUSINESS STRATEGIES

**124**  
SUPPLIERS INVITED BY BRASKEM ANSWERED THE CLIMATE QUESTIONNAIRE IN 2019 (49% OF TOTAL GUESTS)

## SINCE 2017

WE ARE IN THE LEADERSHIP RANKING OF CDP WATER



## WATER CONSUMPTION

\_103-2, 103-3, 303-3, 303-5\_

Using specific eco-efficiency indicators, we monitor the levels of water consumption in our units every month, relating this consumption to the quantity of products developed and sold. In addition, we have a reuse indicator that correlates the volume of water consumed from reuse with the total volume of water consumed by the organization.

Throughout 2019, water consumption was 4.31 m<sup>3</sup>/t, up 0.7% from the previous year. In absolute numbers, consumption in production processes reached 72.4 billion liters of water.

### WATER CONSUMPTION (m<sup>3</sup>/t)\*

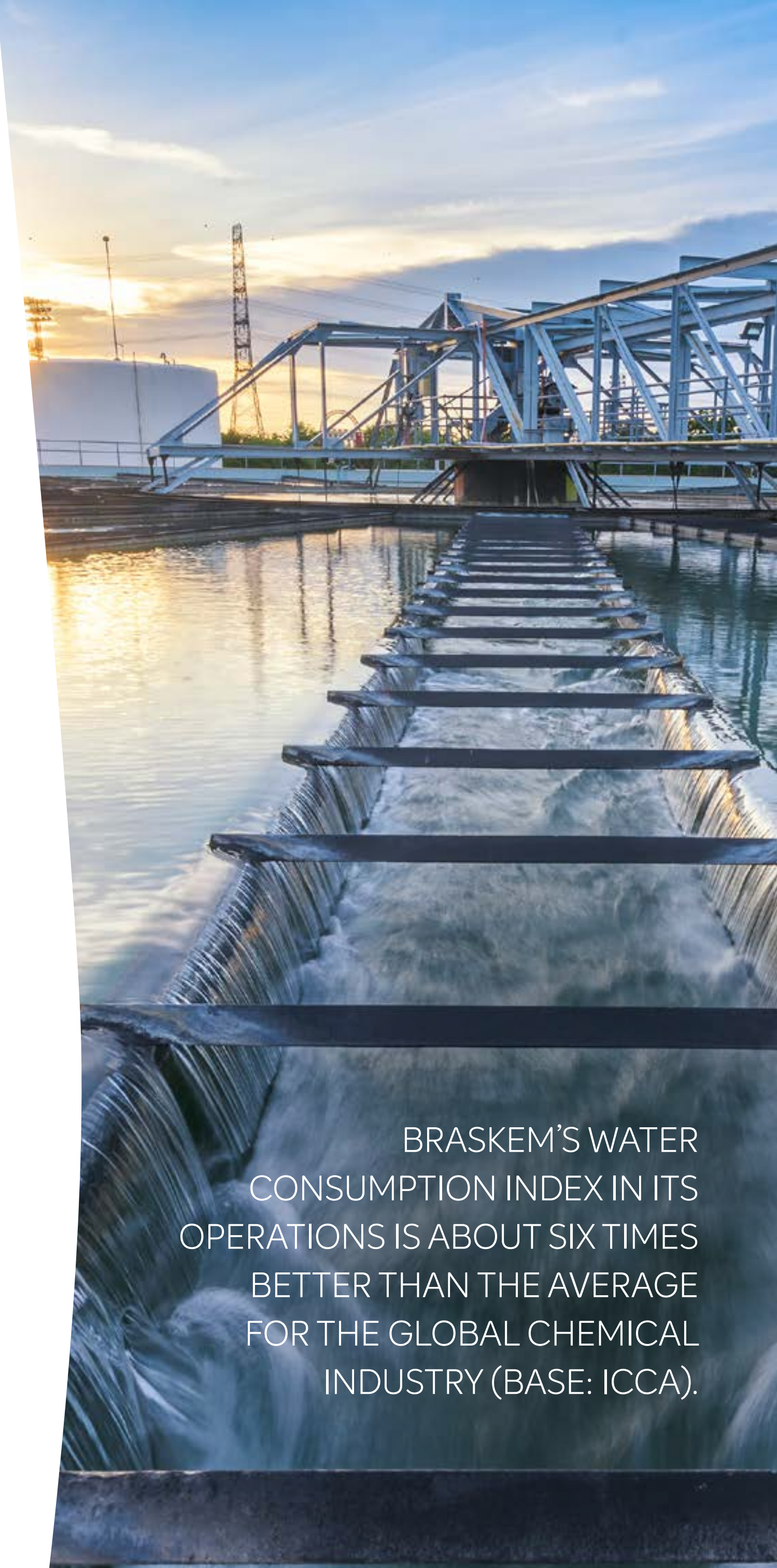
2002	...	2015	2016	2017	2018	2019
4.14		4.05	3.93	3.98	4.28	4.31

\* Total production excludes internal transfers of finished product

Some units receive or abstract water and distribute it to Braskem and other companies. In such cases, consumption, in general, is lower than the volume of abstraction. In 2019, the profile of water supply was:

### CAPTURE VOLUME (MILLION m<sup>3</sup>/YEAR)

SURFACE	GROUNDWATER	SEA	PRODUCED	ACQUIRED (THIRD PARTY)
20.1	2.2	0	0	61.4



BRASKEM'S WATER CONSUMPTION INDEX IN ITS OPERATIONS IS ABOUT SIX TIMES BETTER THAN THE AVERAGE FOR THE GLOBAL CHEMICAL INDUSTRY (BASE: ICCA).





## EFFLUENT GENERATION

\_103-2, 103-3, 306-1\_

In all of our units, wastewater management is based on discharge standards defined in accordance with local legislation and internal procedures. Some plants also have laboratories capable of analyzing effluents and creating internal standards for assessing environmental quality.

We emphasize that each region where we operate is unique, therefore, we respect their operating characteristics, including in relation to the substances of interest and composition of the effluents. These substances are listed in specific legislation or in operating permits.

In 2019, our eco-efficiency in the generation of liquid effluents was 1.31 m<sup>3</sup>/t, a result 10.03% worse than in the previous year and 16.3% below the target set for the year. Total generation of effluents was 21.9 billion liters.

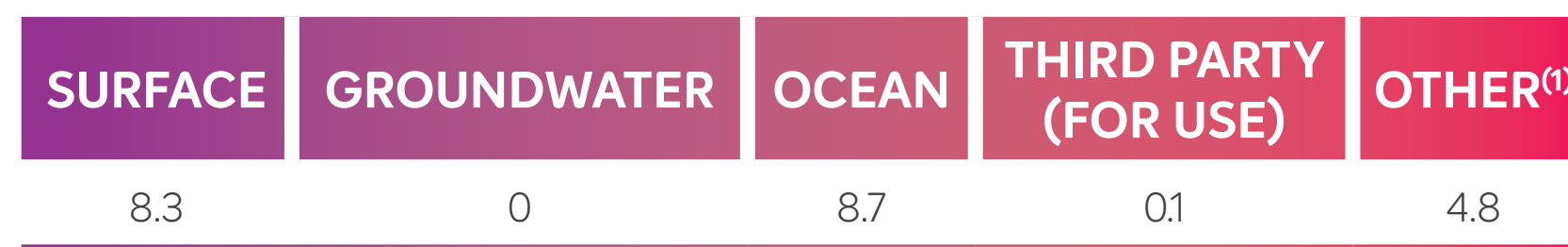
### EFFLUENT GENERATION (m<sup>3</sup>/t)



\* Total production excludes internal transfers of finished product

In 2019, Braskem or the treatment plants that receive our effluents, discharged, after treatment, into the following receiving bodies (in millions of m<sup>3</sup>/ year):

### DISPOSAL (MILLION m<sup>3</sup>/YEAR)



<sup>(1)</sup> 'Other' represents final discharge on the soil in units in Southern Brazil. GRI does not provide this option.

The factors that most influenced these results were the shutdown of the chlor-alkali plant in Maceió (AL), scheduled and unscheduled shutdowns, higher temperatures and more intense periods of rain in some regions, severe winter in Texas (United States), low supply of raw materials in Mexico and the worsening in the quality of the water acquired, which increased consumption of water and purges in the cooling towers.

OUR LIQUID EFFLUENT GENERATION INDEX WENT FROM 1.94 TO 1.31 IN THE PERIOD BETWEEN 2002 AND 2019, REPRESENTING AN AGGREGATE IMPROVEMENT OF ABOUT 32% AND AN AVOIDED COST OF OVER US\$ 107 MILLION.







## SUSTAINABLE INITIATIVES

In addition to all the actions carried out within our units, we advocate the responsible use of water and innovative conservation solutions. The main initiatives are:

### Sewage Treatment

We support the Mogi+Água project, created by Instituto Trata Brasil and the Municipal Agriculture Department of Mogi das Cruzes (SP), which works to install portable sewage treatment plants in rural properties in the municipality. The technology used in the program was developed by one of the startups of the Braskem Labs program and helps to reduce sewage and generate water to irrigate plants and wash floors. This is one

of our joint actions with the Customer chain and has the potential to benefit around 70% of the rural population. The first collection demonstrated that the project has already reached the expected treatment efficiency in relation to organic matter, and the treated effluent was considered suitable for discharge into a seepage pit.

The compact sanitary sewage system called Gota, originating from Braskem Labs, has been approved in 4 collection campaigns for the sewage pilot project for rural areas in Mogi das Cruzes (SP). Braskem continues in alignment with its sustainable development policy, seeking to consolidate its position as a provider of solutions in basic sanitation, in joint actions with its customer chain with the potential to benefit almost 70% of the rural population, representing close to 23 million Brazilians who do not have access to sanitary sewage.



**THIS INITIATIVE IS  
IN LINE WITH SDG 6  
CLEAN WATER AND  
SANITATION (GOAL 6.4)**



## REUSE

In addition to investing in projects that focus on reducing water consumption, we have developed actions to enhance the reuse of this resource in our production units. In 2019, a total of 25.3% of all water consumed in our operations came from reuse processes, 15% of which resulted from process improvement and 10.3% from original plant operation. These initiatives have prevented us from abstracting 10.9 billion liters of water from water sources.

These numbers have remained stable in recent years, but show growth potential in the medium and long term due to water security projects in the Southeast and Northeast of Brazil.

### TYPE OF REUSE (%)

	2015	2016	2017	2018	2019
<b>Process Improvements<sup>1</sup></b>	15.6%	15.1%	15.4%	16.0%	15.0%
<b>Inherent Reuse<sup>2</sup></b>	9.5%	8.3%	10.4%	10.3%	10.3%
<b>Total Reuse</b>	25.1%	23.4%	25.8%	26.3%	25.3%

<sup>(1)</sup> Process Improvement Reuse is anything that comes from modifications to current units, adding or improving processes.

<sup>(2)</sup> Inherent reuse is everything that was originally designed with the industrial unit and is part of the original process of the plant. The previous year's value is used due to the complexity of generating this number.

OUR PERCENTAGE OF WATER REUSED GREW FROM 18.5 TO 25.3 BETWEEN 2011 AND 2019, REPRESENTING AN AGGREGATE IMPROVEMENT OF 37%.



THIS INITIATIVE IS IN LINE WITH SDG 6 CLEAN WATER AND SANITATION (GOAL 6.4)

### AQUAPOLO

Project Aquapolo is the result of a partnership between SABESP (Basic Sanitation Company of the State of São Paulo) and BRK Ambiental, and aims at transforming treated wastewater into reclaimed water for industrial activities. Its production capacity is 1,000 liters of reclaimed water/second, making it the largest project of its kind in South America and the fifth largest in the world. Between 2014 and 2019, we used close to 45 million m<sup>3</sup> of reclaimed water due to the Aquapolo Project. A volume equivalent to 18,000 Olympic swimming pools. In Braskem's operations in the ABC region in São Paulo, practically 100% of the water is reclaimed.

In addition to ensuring operational continuity, the project promoted better water quality, reducing operating costs for maintenance, treatment of liquid effluents and energy.



To learn more about the project, visit [www.aquapolo.com.br](http://www.aquapolo.com.br).



## SUSTAINABLE ENERGY

103-2, 103-3, 302-1, 302-3, 302-4

Energy efficiency is another of our material topics. Thus, we conceive and put into practice solutions that reduce and improve energy consumption in our production units, both from an environmental and economic standpoint. In October 2019, we created a Program to leverage priority energy efficiency initiatives, based on existing synergies between the various sites, identifying opportunities and enabling solutions, and therefore contributing to the low carbon strategy.

Our energy consumption in 2019 was 11.09 GJ/t, which means an increase of 1.4% compared to the previous year. As with the results of water consumption and effluent generation, the results of energy efficiency indicators were impacted by events related to the shutdown of the chlor-alkali plant in Maceió (AL), planned and unplanned shutdowns, issues related to Climate Change and low supply of raw materials in Mexico.

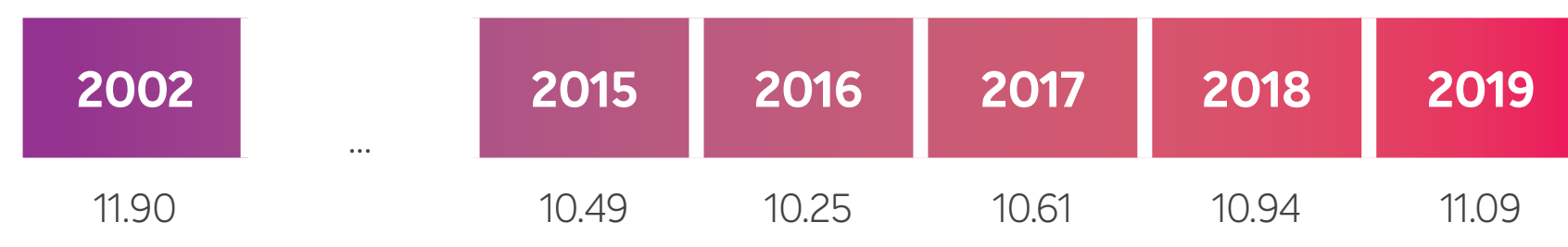
Throughout 2019, we developed several projects with a focus on reducing energy consumption in the industrial units. See the main initiatives below.

### EFFICIENCY INITIATIVES

	ECONOMIC GAIN (R\$ MILLION)	REDUCTION IN ENERGY CONSUMPTION (GJ*)
Improvements in production processes (except furnaces) and sale of electricity	34.5	885,467
Furnace optimization	9.5	329,165
Reduction in steam consumption	9.6	154,574
Improvements in boilers and turbines	6.7	141,571
<b>TOTAL</b>	<b>60.2</b>	<b>1,510,777</b>

\* The calculation methodology considers the total consumed in GJ divided by the total tonnage produced. The reduction in energy consumption is due to the improvement in the ratio between product GJ consumption in the historical series.

### ENERGY CONSUMPTION (GJ/t) \*



\* Total production excludes internal transfers of processed products



OUR ENERGY CONSUMPTION INDICATOR DECREASED FROM 11.9 GJ/T IN 2002 TO 11.09 GJ/T IN 2019. THIS REPRESENTS AN AGGREGATE IMPROVEMENT OF 7% AND AN AVOIDED COST OF OVER US\$ 1.7 BILLION.







## PERCENTAGE OF CONSUMPTION BY TYPE OF ENERGY IN RELATION TO TOTAL CONSUMPTION

	2014	2015	2016	2017	2018	2019
Electricity	10.2%	9.0%	9.0%	9.9%	9.1%	8.6%
Natural gas	13.0%	16.0%	20.0%	22.4%	24.0%	25.0%
Other external fuels	5.2%	5.5%	6.0%	4.7%	6.7%	6.4%
Residual internal fuels from the petrochemical process	71.6%	68.8%	65.0%	62.9%	60.2%	59.9%

In 2019, the significant reduction in electricity consumption compared to previous years is due to various factors. The more relevant events were:

- Shutdown of the chlor alkali plant in Alagoas, a major consumer of electricity
- Planned shutdowns (such as Q 1 BA) and unplanned shutdowns that contributed to lower consumption of electricity

Such reduction, mainly in Brazil, increases the ratio of other energy sources.

## PERCENTAGE OF RENEWABLE ENERGY CONSUMPTION IN RELATION TO TOTAL ENERGY CONSUMPTION

2014	2015	2016	2017	2018	2019
7.17%	8.26%	7.44%	7.60%	7.11%	6.40%*

\* As almost all of Braskem's renewable energy consumption comes from electricity, the reduction in consumption of this income, especially in Brazil, where the percentage of renewable sources is high, reduced significantly this indicator.

## PERCENTAGE OF CONSUMPTION OF RENEWABLE ELECTRICITY BASED ON CONSUMPTION OF TOTAL PURCHASED ELECTRICITY

	2015	2016	2017	2018	2019
% of Renewable Electric Energy	68%	73%	76%	74%	72%

The percentage of renewable sources was calculated considering the burnt hydrogen produced in the chlor alkali electrolysis process as renewable, and the renewable electricity energy of each country.



## IN THE WAY OF ENERGETIC DIVERSIFICATION

In 2019, we went forward the energy agenda searching for initiatives that could improve the efficiency of our processes to make our activities more efficient in terms of energy generation and consumption, reinforcing our commitment to sustainable development and expanding the use of clean and renewable energy in our operations.

In Bahia, the expansion of the project Folha Larga EDF Renewable Windfarm Complex is under construction. Located in Campo Formoso, 350 km from Salvador, the plant, which is due to be completed in 2020 and start up in 2021, will sell wind energy to Braskem for 20 years. The action will contribute to the reduction of the amount of CO<sub>2</sub> emissions by 325,000 tons throughout the contract period.

In 2019, the installation of 1MWp of the 5MWp of the floating solar panels complex project was completed through a partnership between Braskem, Sunlution and the UNIPAC group. The covered area aims to maintain or increase the electricity generation capacity of the São Francisco Hydroelectric Company (Chesf), in Sobradinho (BA), during periods of extended drought.

Also in 2019, as a result of investments in the diversification of our energy mix, we started the operation of the first distributed solar power generation plant in Bahia, on a land in the Camacari Industrial Complex. The station currently has 284 solar panels installed in an area of 2,500 sqm, adding a capacity of 97 Wp, resulting from the implementation of the project's first phase, which started in 2018. This renewable energy production supplies 27% of our Salvador's office demand which has approximately 400 Braskem employees. The plan is to expand the capacity to 131 kWp with the completion of the second and last stage of the plant, which is underway.

Yet targeting the goal of promoting local industries and increasing our competitiveness, we developed an energy mix project for the purchase of the natural gas from the Reconcavo baiano wells, starting up on the current year, by April. Through this initiative, Braskem enable the increase of on shore oil and gas production in the State.

On December 2019, Braskem signed a contract with the french Company Voltalia for the purchase of solar energy that will be consumed in our industrial units in Brazil for a period of 20 years. The contract will enable the expansion of the Solar Complex named Serra do Mel in Rio Grande do Norte. The solar

energy purchased will be sufficient to reduce CO<sub>2</sub> emissions by 130,000 tons over the contract period. As a forecast this project startup will be in 2022.

In Sao Paulo, we started by 2019 the modernization of our plant at the ABC Petrochemical Plant. With a total estimated investment of R\$ 600 million, the purpose of the project is to update the system that serves the cracker, replacing steam turbines with high-yield electric motors. The process will also include a new energy cogeneration plant powered by residual gas from petrochemical production.

For the engineering, implementation, operation and maintenance phase of the Cogeneration Plant, we have established a strategic partnership with Siemens. The term of the contract will be 15 years and was carried out under a Build, Own and Operate (BOO) model.

Due to the project, which should be completed in the first quarter of 2021, we estimate a reduction in energy consumption equivalent to that of a city with a population of one million. In addition it is expected in the Complex a reduction of about 11% in water consumption and more than 6% in CO<sub>2</sub> emissions.





## WASTE MANAGEMENT

\_103-2, 103-3, 301-2, 301-3, 306-2\_

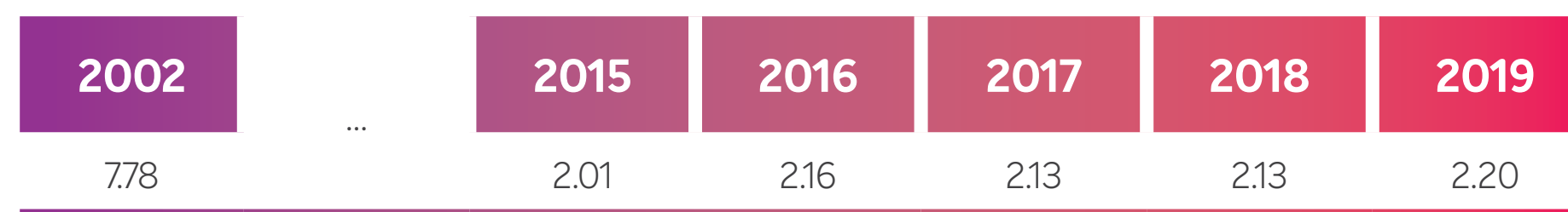
Aside from investing in renewable raw materials, we monitor the operation of our waste management on a monthly basis through eco-efficiency indicators that relate the amount of waste generated with the amount of products produced and sold.

We believe that continuous investment in renewable raw materials and correct management of waste generated in our production process is essential to the continuity and sustainable development of our business, in addition to being in line with our commitment to Circular Economy. That's why we maximize re-use at all industrial plants through a process known as chain return – the equivalent to internal recycling. For the future, we are investing in energy and chemical recycling.

Some of the main non-renewable direct materials that we use are naphtha, condensate, ethane, propane, LRH, and sodium chloride. We also use ethanol made from sugarcane to produce ethylene from a renewable source, reducing our demand for non-renewable resources. In addition, we have strict goals for total waste generation (hazardous and non-hazardous) defined and adjusted annually for five-year periods.

Also in 2019, waste generation totaled 2.20 kg/t, an increase of 3.6% in relation to 2018; however, 2.4% below the target for the year. The main causes in the year were: generation of waste below plan resulting from the postponement or improvements in maintenance and cleaning activities and the internal use of waste streams as fuel.

### WASTE GENERATION (kg/t)\*



\* Total production excludes internal transfers of finished product.







## WASTE DESTINATION (t)

	2015	2016	2017	2018	2019
Recycling	4,628	7,371	6,830	7,889	27,955
Recovery (including energy)	3,975	7,247	6,370	3,355	3,486
Sanitary/industrial landfill	2,804	9,146	8,980	15,990	14,173
On-site storage	1,859	1,303	455	1,260	1,227
Incineration	1,713	8,423	8,199	7,998	7,168
Reuse	739	482	505	457	364
Composting	274	475	299	393	524
Underground waste injection	0	1,931	1,756	899	2
Other <sup>1</sup>	3,700	17,022	5,258	4,829	5,550
<b>TOTAL</b>	<b>19,692</b>	<b>53,400</b>	<b>38,652</b>	<b>43,069</b>	<b>60,450</b>

<sup>(1)</sup> Other: autoclave, vacuum thermal demercuration, co-processing of waste in clinker rotary kilns for cement production, soil decontamination by thermal desorption.

## DESTINATION BY TYPE OF WASTE (t/year)

	NON-HAZARDOUS WASTE	HAZARDOUS WASTE
Recycled	26,362	1,594
Reuse (repurpose)	195	169
Composting	524	0
Recovery (including energy)	1,284	2,202
Incineration	1,603	5,565
Underground injection	2	0
Sanitary and Industrial Landfills	11,497	2,677
Temporary internal storage	287	940
Other <sup>1</sup>	166	5,384
<b>TOTAL</b>	<b>41,920</b>	<b>18,530</b>

<sup>(1)</sup> Other: autoclave, vacuum thermal demercuration, co-processing of waste in clinker rotary kilns for cement production, soil decontamination by thermal desorption.

In 2019, the total destination of waste was negatively impacted by the destination of waste stocks from previous years, major maintenance shutdowns, area/equipment recovery services, operating conditions and processes for the remediation of contaminated areas. The positive impacts were due to process adjustments that resulted in less waste generation and changes in its treatment to seek better alternatives, collaborating with the *Zerolandfil.I Project*.

The waste receives the appropriate treatments through the suppliers selected by the company. Braskem maintains control of the information through its own processes and / or supplementing with the information provided by the contractors involved.





## CLIMATE CHANGE

[\\_103-2, 103-3, 201-2\\_](#)

Within Braskem, we have adopted a comprehensive and robust strategy, and issues related to Climate Change are part of our 10 macro business goals. One of the aspirations of our Global Sustainable Development Policy is to be recognized as a leading company in matters related to the topic.

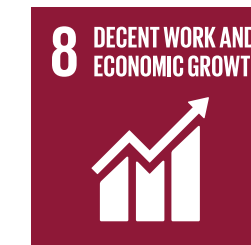
Since 2008, when we structured our internal management of the topic, we have taken Mitigation and Adaptation measures to proactively detect potential risks and business opportunities related to Climate Change. Our actions demonstrate that it is possible for the business sector to be positively involved with the issue, driving towards the development of efficient public policies.

### MITIGATION PLAN

In the field of mitigation, since 2008 we have managed our greenhouse gas (GHG) emissions through an annual inventory. As a result, we managed to establish internal reduction goals, which help us in the quest to be the most efficient company in terms of GHG emissions in the sector by 2030. We have also implemented an internal GHG pricing mechanism, through which our projects are evaluated considering an internal carbon price – in this sense, we highlight our energy efficiency projects, as they become more attractive from a financial standpoint when we consider the cost of GHG emissions.

In 2009, we also made a public commitment called “It needs to ripen to be green,” in which we commit to intensify the development of the market for products that reduce global GHG emissions. We made efforts to develop products that use renewable sources of raw materials – for example, green PE –, which contributes not only to carbon sequestration, but also to other social and environmental benefits aligned with the UN 2030 agenda.

## BIOPOLYMERS ARE ALSO ALIGNED WITH THE 2030 AGENDA



Green PE has generated and still generates jobs throughout its chain, from the field to recycling.



Green PE is a case of innovation and sustainable industrialization.



Green PE, besides being a 100% recyclable, is made from renewable raw material.



Green PE, in addition to being 100% recyclable, is made from renewable raw material, contributing to the mitigation of GHG emissions.



Direct impact on the development of new technologies and all the necessary investments made through various partnerships.





## Management of emissions - GHG inventory

\_305-1,305-2,305-3,305-5\_

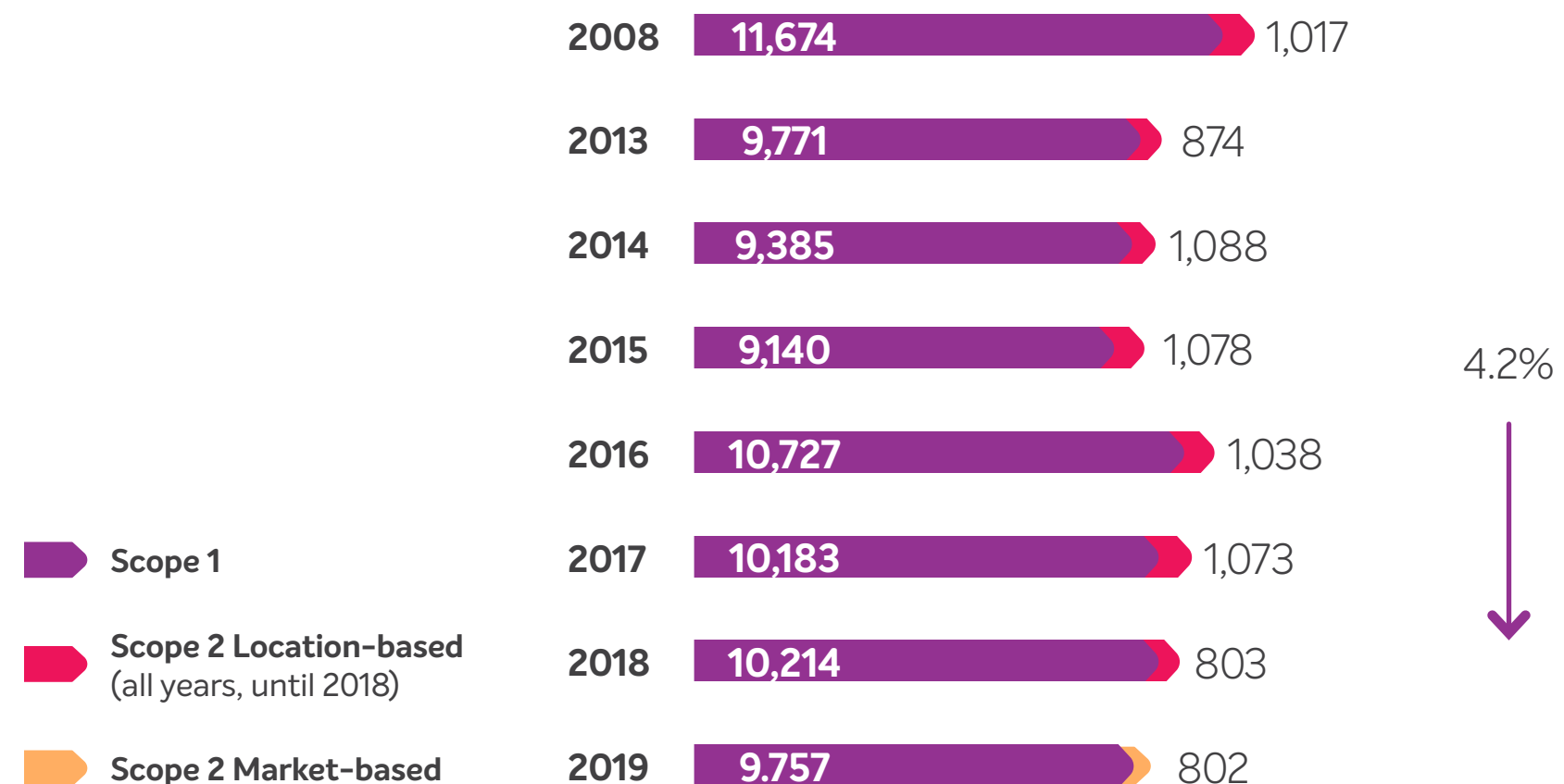
Our corporate GHG emissions inventory considers 100% of our global operations and, in 2019, for the 9<sup>th</sup> consecutive year, received the Gold rating of the Brazilian GHG Protocol Program (PBGHG) due to coverage of Scope 1, 2 and 3 emissions with external assurance of its 2018 inventory from an independent third party.

In 2019, our absolute Scope 1 emissions totaled 9,756,560 tCO<sub>2</sub>e, a 4.5% reduction over the previous year, mainly due to the shutdown of operations at the plants in Alagoas, in addition to a general reduction in production due to the downturn cycle of the petrochemical industry. Scope 2<sup>5</sup> emissions totaled 801,634 tCO<sub>2</sub>e, a reduction of less than 0.5% compared to the previous year. In this case, in addition to the factors mentioned above and despite Braskem having acquired in 2019 on the free market approximately 1.5 million MWh of electricity generated by renewable sources, the reduction in emissions compared to 2018 was not as significant due to the increase in grid emission factors, mainly in the United States.

Scope 1 + 2 emissions in 2019 totaled 10,558,193 tCO<sub>2</sub>e, a reduction of 4.2% when compared to the previous year<sup>6</sup>.

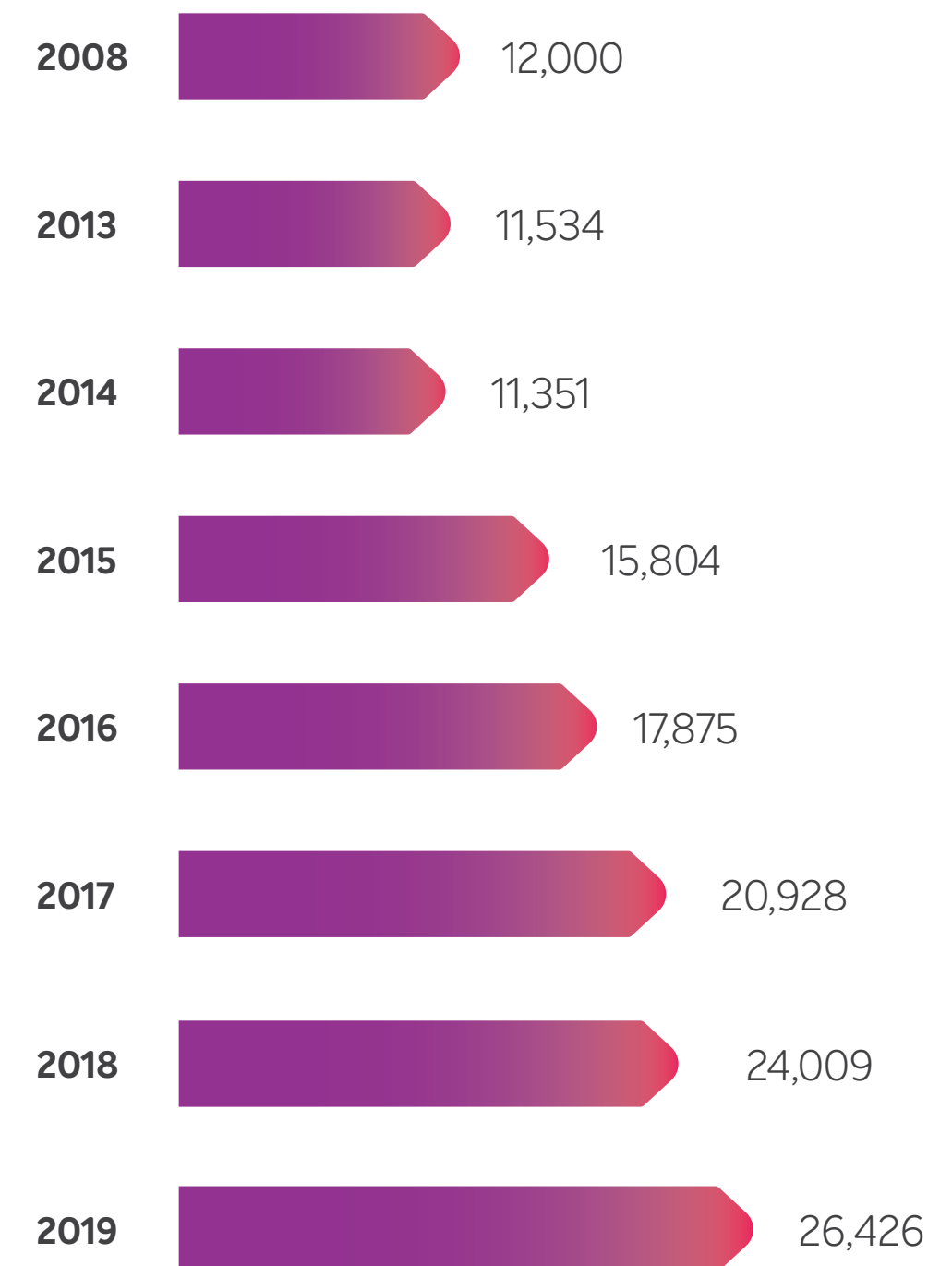
Scope 3 emissions in 2019 totaled 26,426,302 tCO<sub>2</sub>e, an increase of 10% when compared to the previous year. Since 2018, Braskem has been advancing in management of this Scope and, in 2019, we reviewed all life cycle emission factors of the products and inputs reported as well as the operational boundaries of the business, considering Braskem S.A.'s emissions as a whole and not the individual summation of Scope 3 emissions of each plant, avoiding double accounting of emissions for those cases where we have internal transfer of raw materials.

## GHG EMISSIONS (SCOPES 1 AND 2) - KtCO<sub>2</sub>e



<sup>5e6</sup> These emissions are from the Market-Based approach, in other words, they consider our renewable energy purchase contracts in the free market from CHESF companies, which has hydroelectric and wind generation, and Santo Antônio, a company that manages the operations of the Santo Antônio Hydroelectric Plant, on the Madeira River, in Rondônia. Braskem's Scope 2 emissions in 2019 considering the Location-Based approach totaled 892,671 tCO<sub>2</sub>e and, on the date of issue of this report, only these had been assured by an independent third party. Market-Based emissions in 2019 could not be assured due to the setbacks caused by the COVID-19 pandemic.

## GHG EMISSIONS (SCOPE 3) - KtCO<sub>2</sub>e





## GHG emissions mitigation performance

\_305-1, 305-4, 305-5\_

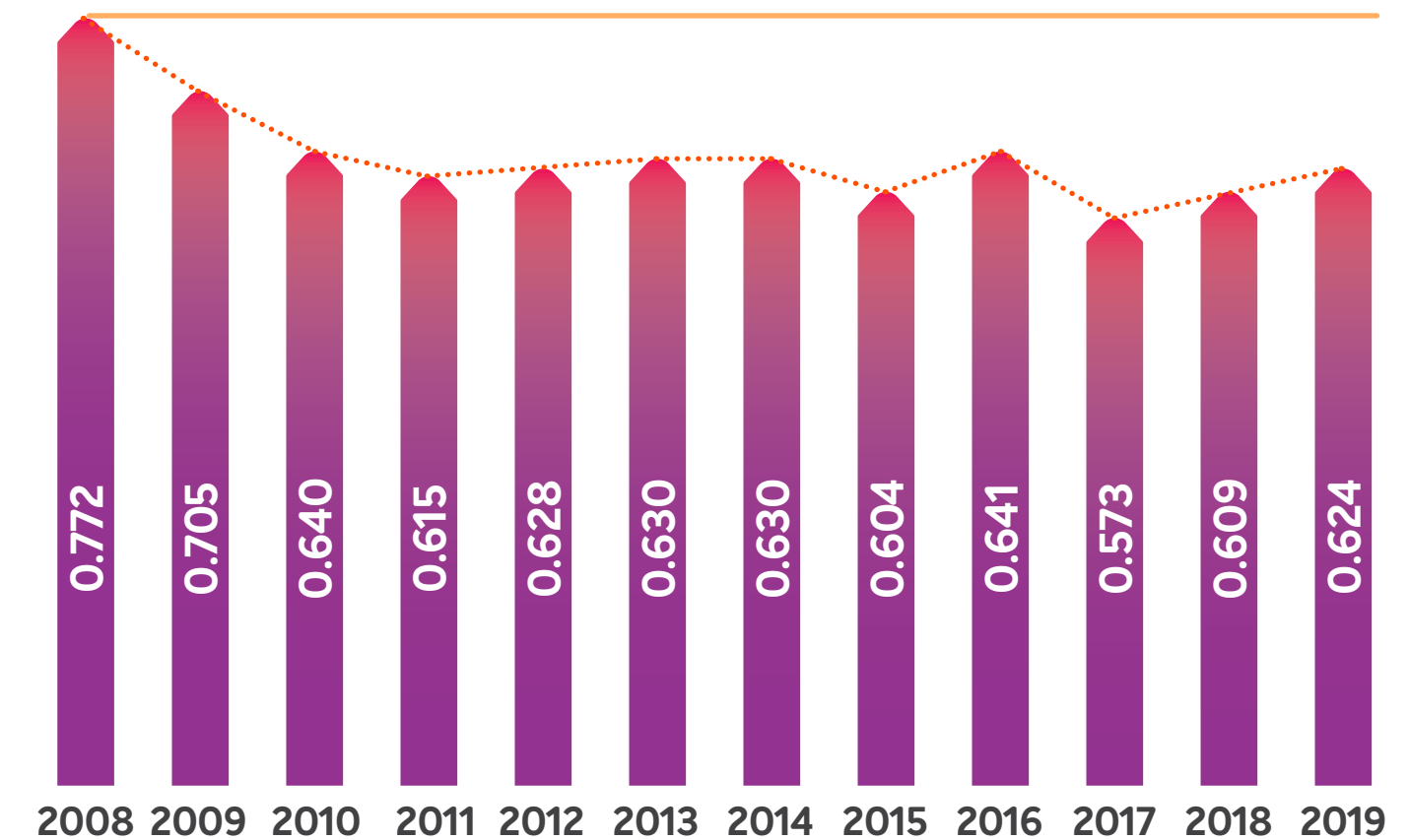
We measure our GHG mitigation performance considering a relative Scope 1 + Scope 2 emissions indicator (Market-based) in relation to the company's total production (tCO<sub>2</sub>e/t produced). In the period between 2008 and 2019, Braskem's GHG emissions intensity decreased by 19%, reaching 0.624 tCO<sub>2</sub>e/t, very close to the target established for 2020, of 0.600 tCO<sub>2</sub>e/t. In absolute terms, the reduction in Scopes 1 and 2 emissions in the same period was 2.1 million tCO<sub>2</sub>e, equivalent to the approximate emissions from the electricity consumed in one year in the State of Bahia (Brazil).



Even with the reduction in absolute Scopes 1 + 2 emissions, our indicator increased by 2.4% compared to the previous year. The main reason, was the drop of just over 6% in our production, driven by the internal and external events mentioned above. Unlike most sectors, our energy consumption (Braskem's biggest source of emissions) is not directly proportional to our production and the lower the production, the worse our efficiency will be. If we had not invested in energy efficiency actions in our plants and in the purchase of renewable electricity on the free market, this increase would have been more significant. With our renewable energy contracts alone, we avoid emissions in the order of 90 thousand tCO<sub>2</sub>e in 2019.

For the coming years, together with the areas of Energy, Production Engineering at the plants, and Strategy and Innovation, our efforts will be focused on mapping an additional reduction potential of 1 million tCO<sub>2</sub>e to be included in our portfolio of mitigation projects and feed our MAC Curve (Marginal Abatement Cost), a tool we use to prioritize actions.

FOR THE COMING YEARS, OUR EFFORTS WILL BE FOCUSED ON MAPPING AN ADDITIONAL REDUCTION POTENTIAL OF 1 MILLION tCO<sub>2</sub>e

EMISSIONS INTENSITY (tCO<sub>2</sub>e/t PRODUCT)



 Performed  
 Reference Scenario  
 2008 intensity



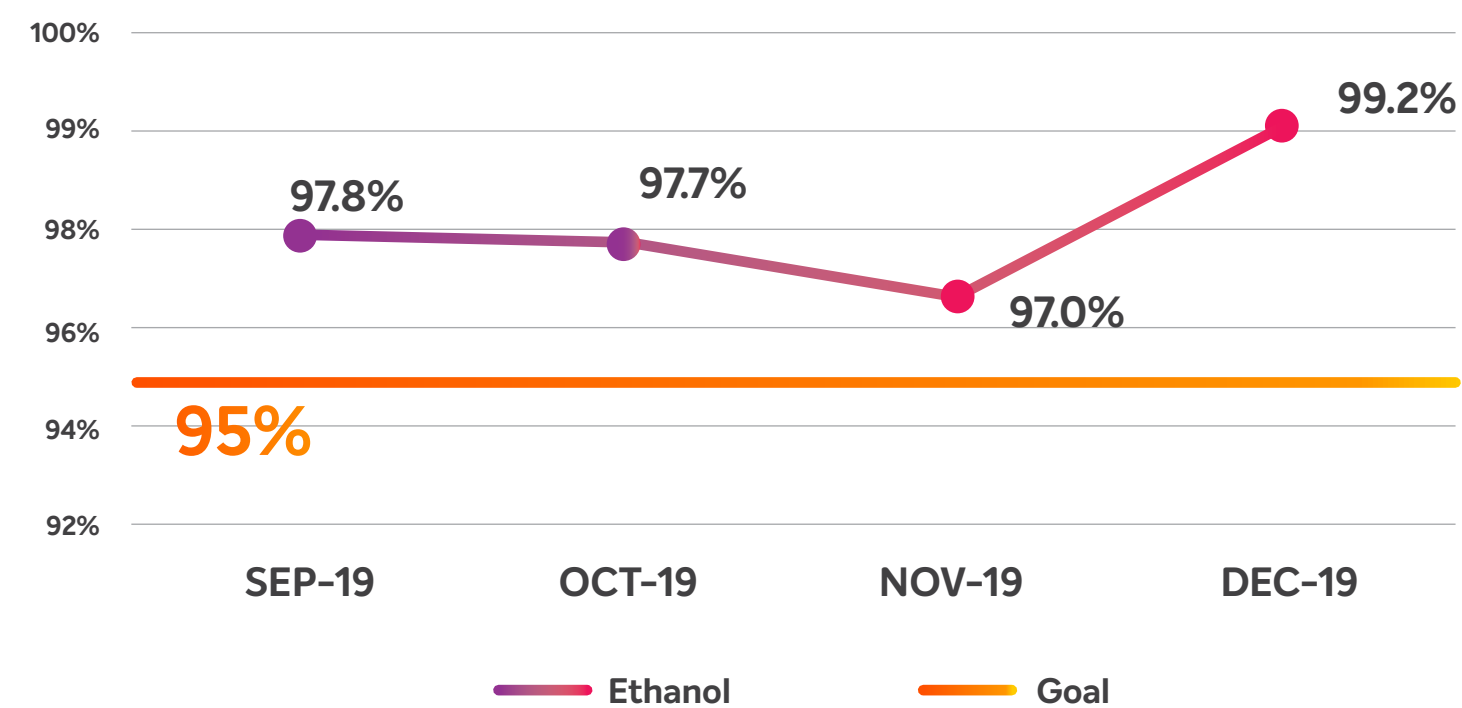




Other mitigation actions:

1. In 2017, together with Ticket Log, we started the project to generate carbon credits from the replacement of automotive gasoline with ethanol in the fleet of corporate vehicles in the state of São Paulo. To be eligible for the credits, our ethanol consumption rate must be maintained at over 95%. In 2019, Braskem's first carbon credit certificates were obtained for having proved the use of renewable fuel (ethanol) in at least 95% of our fleet of vehicles in São Paulo between July 1, 2017 and June 30, 2018. The certificate for the period between July 1, 2018 and June 30, 2019 has already been approved by the audit and is being issued by the credit issuer.

### EVOLUTION OF ETHANOL SUPPLY INDICATOR FOR THE FLEET



2. As a fundamental part of our Climate Change strategy, in 2016 we implemented an internal carbon pricing mechanism. This methodology covers all projects in the "Competitiveness and Productivity" basket in Brazil based on a virtual VPL that considers our internal carbon price. Between 2017 and 2019, a total of 51 projects used the methodology and, of this total, 37 projects were benefited from the investment decision considering their virtual VPL. In 2019, a new internal pricing strategy was designed, considering a global carbon price for all Braskem's Global operations based on the shadow price and on the results on our MAC Curve.



IN 2017, TOGETHER WITH TICKET LOG, WE STARTED THE PROJECT TO GENERATE CARBON CREDITS FROM THE REPLACEMENT OF AUTOMOTIVE GASOLINE WITH ETHANOL IN THE FLEET OF CORPORATE VEHICLES



## US\$ 55 MILLION POTENCIAL PHYSICAL IMPACTS AVOIDED

### ADAPTATION PLAN

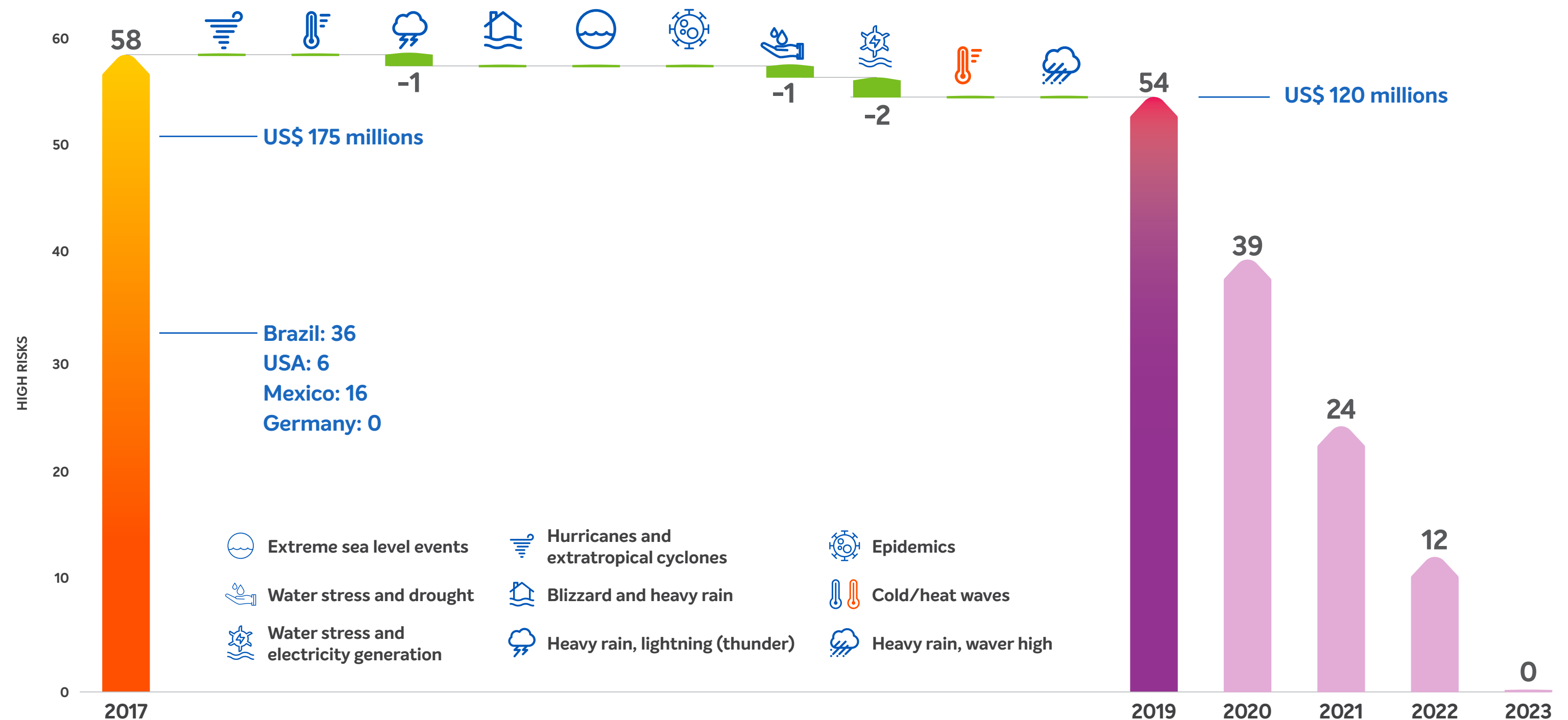
As for the field of adaptation, Climate Change and proper management of our impacts are matters of business continuity. In 2016, we completed a study to identify risks and opportunities in 100% of our operations. This study allowed us to develop an Adaptation Plan with actions to mitigate or reduce the most significant climate risks, classified as “high” in our matrix.

Based on the climate risk scenarios and models used, we identified 58 potential high-risk threats to the business by 2040 with a potential financial impact of approximately US\$ 175 million, 36 in Brazil, 16 in Mexico and 6 in the United States (numbers revised in 2019), for which 110 specific adaptation actions were outlined, both in management and engineering.

The Adaptation Plan, which aims to reduce to zero the climate risks classified as “high” by 2023 and maximize business opportunities, has evolved positively and the projects implemented up to 2019 have reduced potential physical impacts quantified at approximately US\$ 55 million.

Some examples of projects that have already been implemented and have contributed to reducing our vulnerability to climate change are: evaluation and improvements in lightning protection systems (SPDA); slope recovery to direct water flow and protect against flooding; contracting of alternative renewable sources of electricity in order to reduce the dependence on hydroelectric sources in scenarios of water scarcity.

### POTENTIAL THREATS TO THE BUSINESS BY 2040





## OTHER HIGHLIGHTS

1. At the end of 2019, we were invited to take part in the Expert Advisory group responsible for developing the global method of the *Science Based Target Initiative* for the Chemical sector (SBTi-Chemicals), which should be ready by early 2021, contributing to the establishment of goals for reducing GHG emissions, in line with the goals of the Paris Agreement, based on scientific evidence.
2. Since 2016, Braskem has been classified as a leading company in the CDP Climate, a questionnaire focused on managing the climate crisis by companies, aimed at different types of investors (2016 to 2018: A List; 2019: A-).
3. Since 2008, we have integrated the Global Compact Network Brazil Committee and, since 2013, the Global Compact LEAD group, in addition to being part of UNIDO's Green Industry Platform initiatives and of Global Compact Caring for Climate. In addition, we assumed the coordination of the Technical Group on Energy and Climate of the Global Compact Network Brazil in 2017.

## SUPPLIER ENGAGEMENT

Throughout 2019, we continue to motivate the engagement of our Suppliers critical to the issues of Climate Change. This joint effort increases the chain's power through initiatives such as reporting targets to reduce emissions and the Suppliers themselves voluntarily pass on this commitment to their partners. We encourage our Suppliers to join the Action Exchange, of the CDP Supply Chain, a free consultancy that identifies opportunities to reduce costs, emissions and energy consumption in the processes.

## 2019 HIGHLIGHTS

- ▶ **60 %**  
of engaged Suppliers reported initiatives to reduce emissions
- ▶ **39.53 %**  
of engaged Suppliers reported targets
- ▶ **57 %**  
of engaged suppliers identified risks
- ▶ **47 %**  
of Suppliers engaging their suppliers
- ▶ **229**  
Suppliers invited by Braskem answered the Climate questionnaire in 2019 (55% of the total number of guests)





## OTHER EMISSIONS

\_305-6, 305-7\_

At Braskem, in addition to being concerned with greenhouse gas emissions, we monitor other air emissions, such as ozone depleters<sup>7</sup> and pollutants from fuel burning, such as NO<sub>x</sub>, SO<sub>x</sub>, among others.

Braskem has also been replacing ozone depleting substances with other substances outside the Montreal Protocol lists.

## EVOLUTION OF OZONE DEPLETING SUBSTANCES (ODS) EMISSIONS

ODS	2015 (t)	2016 (t)	2017 (t)	2018 (t)	2019 (t)
Tons of CFC-11 Equivalent	55.3	3.0	1.7	2.9	2.6

## EVOLUTION OF EMISSIONS OF SO<sub>x</sub>, NO<sub>x</sub>, AND OTHER SIGNIFICANT SUBSTANCES (TONS)

EMISSIONS <sup>(1)</sup>	2015 (t)	2016 (t)	2017 (t)	2018 (t)	2019 (t)
NO <sub>x</sub>	9,909	10,093	10,926	10,566	11,529
SO <sub>x</sub>	4,496	3,130	3,779	4,871	3,982
Volatile Organic Compounds <sup>(2)</sup>	3,808	6,139	6,754	9,091 <sup>(2)</sup>	8,753
Particulate Matter	911	859	911	1,381	932
Toxic Air Pollutants <sup>(3)</sup>	652 <sup>(2)</sup>	531	677	595	551
Other <sup>(4)</sup>	14,499	4,145	4,746	7,989	6,622

<sup>(1)</sup>The methodologies used are recommended by local environmental agencies. For those place where there is no measurement, estimates (emission factors) based on recognized methods, such as AP-42 from USEPA, are used.

<sup>(2)</sup>The plants have been broadening their assessments. This explains the increase in these parameters.

<sup>(3)</sup> Includes Toxic Air Pollutants and HAP

<sup>(4)</sup> Includes total hydrocarbons and carbon monoxide.

The reduction in emissions of SO<sub>x</sub> and Particulate Matter occurred due to the lower consumption of coal in Q2 RS's energy mix as a result of the maintenance outages in coal-fired boilers and greater use of the natural gas boiler. On the other hand, the higher consumption of NG and the outages led to an increase in NO<sub>x</sub> emissions by thermal dissociation. In any case, the emissions are within the legal standards applied to the unit.

<sup>7</sup> Ozone depletion refers to a decline in the total volume of ozone in the Earth's stratosphere (the ozone layer)





FOREWORD

LETTER FROM THE  
BUSINESS LEADER

FUTURE-ORIENTED

RESPONSIBLE PERFORMANCE

GOVERNANCE  
AND COMPLIANCE

BUSINESS PERFORMANCE

INNOVATIVE AND  
SUSTAINABLE SOLUTIONS

VALUE CREATION

RESPONSIBLE  
PRODUCTION

GRI STANDARDS  
CONTENT  
SUMMARY

CORPORATE  
CREDITS

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# GRI STANDARDS CONTENT SUMMARY

\_102-55\_







GRI Standard	Disclosure	Page and/or answer	Global Compact Principles
<b>GENERAL DISCLOSURES</b>			
	102-1 - Name of the organization	8	8
	102-2 - Activities, brands, products, and services	8	8
	102-3 - Location of headquarters	125	
	102-4 - Location of operations	8	8
	102-5 - Ownership and legal form	Braskem was formed in August 2002 from the merger of six Odebrecht Group companies and the Mariani Group. We are a publicly traded corporation with several industrial units in Brazil, the United States, Germany, and Mexico (through a joint venture with Idesa). Visit <a href="http://www.braskem.com.br/material-issues-assesment">http://www.braskem.com.br/material-issues-assesment</a> for more details.	
	102-6 - Markets served	8	8
	102-7 - Scale of the organization	8, 41	8
	102-8 - Information on employees and other workers	66	6
	102-9 - Supply chain	34, 80, 81	
	102-10 - Significant changes to the organization and its supply chain	There were no significant changes in the reporting period.	
	102-11 - Precautionary Principle or approach	As a principle and in accordance with the Health, Safety, Environment, Quality, and Productivity Policy, Braskem does not produce, handle, use, market, transport, or dispose of any product if unable to do so safely, with a minimum impact of the product on the environment.	
GRI 102: General Disclosures	102-12 - External initiatives	15, 16, 17, 19	
	102-13 - Membership of associations	15, 16, 17	
	102-14 - Statement from senior decision-maker	4	4
	102-15 - Key impacts, risks, and opportunities	28	
	102-16 - Values, principles, standards, and norms of behavior	24, 27	
	102-17 - Mechanisms for advice and concerns about ethics	24, 30	
	102-18 - Governance structure	24, 27	
	102-23 - Chair of the highest governance body	Braskem's Chairman of the Board of Directors is not a managing director at Braskem. According to Article 19, Sole Paragraph of the Company's Bylaws "The position of Chief Executive Officer and Chairman of the Board of Directors may not be held by the same person, except in the cases and under the terms set forth in the Regulations." Regulation = Level 1 Listing Regulation of BM&FBovespa. Pages: 24, 27	
	102-40 - List of stakeholder groups	Members (including Company leaders), Funders, Customers, Suppliers, Academia, Local Stakeholders (NGOs, Community, Trade Associations), Opinion Formers (Government, Press), and the General Public. Visit <a href="http://www.braskem.com.br/materialidade-sustentabilidade">www.braskem.com.br/materialidade-sustentabilidade</a> for more details.	
	102-41 - Collective bargaining agreements	69	3





GRI Standard	Disclosure	Page and/or answer	Global Compact Principles
		Identification and selection of our stakeholders for engagement was based on groups of influencers and facilitators, on those who play an impacting role and those who benefit from the relationship with the Company. Visit <a href="http://www.braskem.com.br/material-issues-assestement">http://www.braskem.com.br/material-issues-assestement</a> for more details.	
	102-42 - Identifying and selecting stakeholders		
	102-43 - Approach to stakeholder engagement	Visit <a href="http://www.braskem.com.br/material-issues-assestement">http://www.braskem.com.br/material-issues-assestement</a>	
	102-44 - Key topics and concerns raised	Visit <a href="http://www.braskem.com.br/material-issues-assestement">http://www.braskem.com.br/material-issues-assestement</a>	
	102-45 - Entities included in the consolidated financial statements	Visit <a href="http://www.braskem-ri.com.br/annual-reports">http://www.braskem-ri.com.br/annual-reports</a>   Page: 34	
	102-46 - Defining report content and topic Boundaries	Visit <a href="http://www.braskem.com.br/material-issues-assestement">http://www.braskem.com.br/material-issues-assestement</a>	
	102-47 - List of material topics	Visit <a href="http://www.braskem.com.br/material-issues-assestement">http://www.braskem.com.br/material-issues-assestement</a>	
	102-48 - Restatements of information	There were no significant changes in the reporting period.	
GRI 102: General Disclosures	102-49 - Changes in reporting	There were no significant changes in the reporting period.	
	102-50 - Reporting period	January 1 <sup>st</sup> to December 31 <sup>st</sup> , 2019.	
	102-51 - Date of most recent report	2018	
	102-52 - Reporting cycle	The report is prepared annually.	
	102-53 - Contact point for questions regarding the report	<a href="mailto:imprensa@braskem.com">imprensa@braskem.com</a>	
	102-54 - Claims of reporting in accordance with the GRI Standards	This report was prepared in accordance with GRI Standards: Core option.	
	102-55 - GRI content index	110	
	102-56 - External assurance	External assurance is carried out by KPMG, an external and independent company, and is performed at the request of the Leaders and is part of the set of annual goals of those responsible for preparing the report.   Page: 122	

**MATERIAL TOPIC**

**ECONOMIC PERFORMANCE**

**Macro objectives: Economic-financial results**

	103-1 - Explanation of the material topic and its Boundary	<a href="http://www.braskem.com.br/material-issues-assestement">www.braskem.com.br/material-issues-assestement</a>	
GRI 103: Management Approach	103-2 - The management approach and its components	43	
	103-3 - Evaluation of the management approach	43	
	201-1 - Direct economic value generated and distributed	43	
GRI 201: Economic Performance	201-2 - Financial implications and other risks and opportunities due to climate change	103	7
	201-4 - Financial assistance received from government	84	





GRI Standard	Disclosure	Page and/or answer	Global Compact Principles
<b>MARKET PRESENCE</b>			
<b>Macro objective: Local Development</b>			
GRI 103: Management Approach	103-1 - Explanation of the material topic and its Boundary	www.braskem.com.br/material-issues-assestement	
	103-2 - The management approach and its components	67	
	103-3 - Evaluation of the management approach	67	
GRI 202: Market Presence	202-1 - Ratios of standard entry level wage by gender compared to local minimum wage	67	6
	202-2 - Proportion of senior management hired from the local community	67	6
<b>INDIRECT ECONOMIC IMPACTS</b>			
<b>Macro objective: Local Development</b>			
GRI 103: Management Approach	103-1 - Explanation of the material topic and its Boundary	www.braskem.com.br/material-issues-assestement	
	103-2 - The management approach and its components	70	
	103-3 - Evaluation of the management approach	70	
GRI 203: Indirect Economic Impacts	203-1 - Infrastructure investments and services supported	70	
<b>PROCUREMENT PRACTICES</b>			
<b>Macro objective: Local Development</b>			
GRI 103: Management Approach	103-1 - Explanation of the material topic and its Boundary	www.braskem.com.br/material-issues-assestement	
	103-2 - The management approach and its components	80	
	103-3 - Evaluation of the management approach	80	
GRI 204: Procurement Practices	204-1 - Proportion of spending on local suppliers	80	
<b>ANTI-CORRUPTION</b>			
<b>Macro objective: Strengthening practices</b>			
GRI 103: Management Approach	103-1 - Explanation of the material topic and its Boundary	www.braskem.com.br/material-issues-assestement	
	103-2 - The management approach and its components	27	
	103-3 - Evaluation of the management approach	27	





GRI Standard	Disclosure	Page and/or answer	Global Compact Principles
	205-2 - Communication and training about anti-corruption policies and procedures	27	10
GRI 205: Anti-corruption	205-3 - Confirmed incidents of corruption and actions taken	In November 2019, José Carlos Grubisich, former President of Braskem, was arrested on charges of participating in a bribery scheme to secure government contracts. Braskem's role in this regard has remained the same since 2016, when the company signed the leniency agreement with the Brazilian, Swiss and North American authorities. During this period, we fulfilled all obligations under the agreement, including the external monitoring that evaluated our Compliance Program, a process finalized in 2019 and certified by the Federal Prosecutors Office in March 2020. Page: 30	10
<b>ANTI-COMPETITIVE BEHAVIOR</b>			
<b>Macro objective: Strengthening practices</b>			
	103-1 - Explanation of the material topic and its Boundary	www.braskem.com.br/material-issues-asseessment	
GRI 103: Management Approach	103-2 - The management approach and its components	--	
	103-3 - Evaluation of the management approach	--	
GRI 206: Anti-competitive Behavior	206-1 - Legal actions for anti-competitive behavior, anti-trust, and monopoly practices	Nothing to report. Braskem does not have any such process.	
<b>MATERIALS</b>			
<b>Macro objective: Renewable Resources</b>			
	103-1 - Explanation of the material topic and its Boundary	www.braskem.com.br/material-issues-asseessment	
GRI 103: Management Approach	103-2 - The management approach and its components	101	
	103-3 - Evaluation of the management approach	101	
GRI 301: Materials	301-2 - Recycled input materials used	35, 101	8
	301-3 - Reclaimed products and their packaging materials	101	8
<b>ENERGY</b>			
<b>Macro objective: Energy efficiency</b>			
	103-1 - Explanation of the material topic and its Boundary	www.braskem.com.br/material-issues-asseessment	
GRI 103: Management Approach	103-2 - The management approach and its components	98	
	103-3 - Evaluation of the management approach	98	
	302-1 - Energy consumption within the organization	98	7 and 8
GRI 302: Energy	302-3 - Energy intensity	98	8
	302-4 - Reduction of energy consumption	98	8 and 9





GRI Standard	Disclosure	Page and/or answer	Global Compact Principles
<b>WATER</b>			
<b>Macro objective: Water efficiency</b>			
GRI 103: Management Approach	103-1 - Explanation of the material topic and its Boundary	<a href="http://www.braskem.com.br/material-issues-assesment">www.braskem.com.br/material-issues-assesment</a>	
	103-2 - The management approach and its components	93	
	103-3 - Evaluation of the management approach	93	
GRI 303: Water	303-1 - Interactions with water as a shared resource	93	7 and 8
	303-2 - Management of water discharge-related impacts	93	
	303-3 - Water withdrawal	93, 94	8
	303-4 - Water discharge	93	
	303-5 - Water consumption	93, 94	
<b>BIODIVERSITY</b>			
<b>Macro objective: Strengthening practices</b>			
GRI 103: Management Approach	103-1 - Explanation of the material topic and its Boundary	<a href="http://www.braskem.com.br/material-issues-assesment">www.braskem.com.br/material-issues-assesment</a>	
	103-2 - The management approach and its components	--	
	103-3 - Evaluation of the management approach	--	
GRI 304: Biodiversity	304-2 - Significant impacts of activities, products, and services on biodiversity	In 2018, there were no significant impacts on biodiversity (valid for Mexico, where this aspect is material). Braskem performs activities on some of its sites that guarantee the preservation of species, such as the units in the South of Brazil that have in their area a stretch of riparian vegetation and, next to it, an environmental protection park monitored and controlled by the company. Results show that industrial activities do not affect the local ecosystem. The protection station also has environmental education programs in place that help to increase awareness about preservation.	8
	304-4 - IUCN Red List species and national conservation list species with habitats in areas affected by operations	The complex in Mexico has two species that are listed on the IUCN red list: <i>Ceratozamia miqueliana</i> (Endangered) and <i>Zamia loddigesii</i> (Near Threatened). It is worth mentioning that these species were rescued by the company during the construction of the complex from 2012 to 2016 and are now in a conservation area.	8
<b>EMISSIONS</b>			
<b>Macro objective: Energy Efficiency</b>			
GRI 103: Management Approach	103-1 - Explanation of the material topic and its Boundary	<a href="http://www.braskem.com.br/material-issues-assesment">www.braskem.com.br/material-issues-assesment</a>	
	103-2 - The management approach and its components	104	
	103-3 - Evaluation of the management approach	104	





GRI Standard	Disclosure	Page and/or answer	Global Compact Principles
GRI 305: Emissions	305-1 - Direct (Scope 1) GHG emissions	104, 105	7 and 8
	305-2 - Energy indirect (Scope 2) GHG emissions	104	7 and 8
	305-3 - Other indirect (Scope 3) GHG emissions	104	7 and 8
	305-4 - GHG emissions intensity	All gases regulated by the Kyoto Protocol are considered when accounting for emissions. Page: 105	8
	305-5 - Reduction of GHG emissions	104, 105	8 and 9
	305-6 - Emissions of ozone-depleting substances	109	7 and 8
	305-7 - Nitrogen oxides (NO <sub>x</sub> ), sulfur oxides (SO <sub>x</sub> ), and other significant air emissions	109	7 and 8
<b>EFFLUENTS AND WASTE</b>			
<b>Macro objective: Security</b>			
GRI 103: Management Approach	103-1 - Explanation of the material topic and its Boundary	<a href="http://www.braskem.com.br/material-issues-assesment">www.braskem.com.br/material-issues-assesment</a>	
	103-2 - The management approach and its components	95	
	103-3 - Evaluation of the management approach	95	
GRI 306: Effluents and Waste	306-1 - Water discharge by quality and destination	95	8
	306-2 - Waste by type and disposal method	101	8
<b>ENVIRONMENTAL COMPLIANCE</b>			
<b>Macro objective: Strengthening practices</b>			
GRI 103: Management Approach	103-1 - Explanation of the material topic and its Boundary	<a href="http://www.braskem.com.br/material-issues-assesment">www.braskem.com.br/material-issues-assesment</a>	
	103-2 - The management approach and its components	20	
	103-3 - Evaluation of the management approach	20	
GRI 307: Environmental Compliance	307-1 Non-compliance with environmental laws and regulations	In August 2019, a Public Civil Action was filed by the Federal Public Ministry in Alagoas (MPF / AL) against Braskem and other defendants. The plaintiff claims compensation for social and environmental damages caused by geological events in Alagoas and also payment of damages for the amount of R \$ 28.7 billion. Non-monetary sanctions and processes brought about by arbitration mechanisms are monitored by each of the Company's Business Units, so the indicators are regional and non-corporate and therefore are not addressed in the report. Page: 20	





GRI Standard	Disclosure	Page and/or answer	Global Compact Principles
<b>SUPPLIER ENVIRONMENTAL ASSESSMENT</b>			
<b>Macro objective: Strengthening practices</b>			
GRI 103: Management Approach	103-1 - Explanation of the material topic and its Boundary	www.braskem.com.br/material-issues-assestement	
	103-2 - The management approach and its components	80	
	103-3 - Evaluation of the management approach	80	
GRI 308: Supplier Environmental Assessment	308-1 - New suppliers that were screened using environmental criteria	Less than 1%. In 2018, Braskem started a pilot project to implement the Sustainable Procurement Tool. This tool is applied to suppliers identified as critical in the Risk matrix and makes it possible to incorporate sustainability criteria into the bids. The tools allow comparing suppliers on environmental and social criteria. The result of the evaluation is one of the criteria for bidding decisions. For now, Procurement uses only a few categories of Services, and the intention is to extend its application to other categories in 2020. Page: 80	8
<b>EMPLOYMENT</b>			
<b>Macro objective: Economic-financial results</b>			
GRI 103: Management Approach	103-1 - Explanation of the material topic and its Boundary	www.braskem.com.br/material-issues-assestement	
	103-2 - The management approach and its components	67	
	103-3 - Evaluation of the management approach	67	
GRI 401: Employment	401-1 - New employee hires and employee turnover	67	6
	401-2 - Benefits provided to full-time employees that are not provided to temporary or part-time employees	Life insurance, health plan, disability and incapacity benefits, parental leave, pension/private pension fund, stock purchase plan, among others. There is no distinction between benefits offered to full-time, temporary and part-time employees, which are offered from the moment they are hired.	
	401-3 - Parental leave	In Brazil, we track the number of maternity leaves and the percentage of terminations up to one year after returning from the leave. Number referring to Members in Brazil who returned from maternity leave from January to December 2019: 67 returns and 1 termination post-return. Number referring to Members in Brazil who returned from maternity leave in the previous period (2018): 80 returns. Number of Members who stayed with Braskem at least 1 year after returning to work: 73. The retention rate was 91% (leaves for cases of abortion were not considered). This indicator is not measured in other countries.	6
<b>OCCUPATIONAL HEALTH AND SAFETY</b>			
<b>Macro objective: Security</b>			
GRI 103: Management Approach	103-1 - Explanation of the material topic and its Boundary	www.braskem.com.br/material-issues-assestement	
	103-2 - The management approach and its components	85	
	103-3 - Evaluation of the management approach	85	





GRI Standard	Disclosure	Page and/or answer	Global Compact Principles	
GRI 403: Occupational Health and Safety	403-1 - Occupational health and safety management system	85		
	403-2 - Hazard identification, risk assessment, and incident investigation	87		
	403-3 - Occupational health services	87		
	403-4 - Worker participation, consultation, and communication on occupational health and safety	87		
	403-5 - Worker training on occupational health and safety	87		
	403-6 - Promotion of worker health	To promote the employee's non-occupational health, Braskem offers health plan, which covers general and dental services. Braskem requires its contractors, in the services agreements, to offer health insurance. In addition to health insurance, Braskem promotes other actions to support health, such as: vaccination campaigns, quality of life tests, occupational medical assistance, nutritional monitoring, gym, among others.		
	403-7 - Prevention and mitigation of occupational health and safety impacts directly linked by business relationships	To support the promotion of non-occupational health to employees, Braskem offers a health plan, which covers general and dental services. For contracted companies, Braskem requires health insurance under a service provision contract. Customers and downstream users can find information about substances that contain OEL (Occupational Exposure Limit) in the Braskem Safety Data Sheet. They also obtain the necessary engineering control measures and personal protective equipment from Braskem's Safety Data Sheets.		
	403-8 - Workers covered by an occupational health and safety management system	All Braskem Members and Contractors are covered by the occupational health and safety management system.		
	403-9 - Work-related injuries	87		
	403-10 - Work-related ill health	87		
<b>TRAINING AND EDUCATION</b>				
<b>Macro objective: Strengthening practices</b>				
GRI 103: Management Approach	103-1 - Explanation of the material topic and its Boundary	<a href="http://www.braskem.com.br/material-issues-assestement">www.braskem.com.br/material-issues-assestement</a>		
	103-2 - The management approach and its components	63		
	103-3 - Evaluation of the management approach	63		
GRI 404: Training and Education	404-2 - Programs for upgrading employee skills and transition assistance programs	63, 68		
	404-3 - Percentage of employees receiving regular performance and career development reviews	69	6	





GRI Standard	Disclosure	Page and/or answer	Global Compact Principles
<b>DIVERSITY AND EQUAL OPPORTUNITY</b>			
<b>Macro objective: Strengthening practices</b>			
GRI 103: Management Approach	103-1 - Explanation of the material topic and its Boundary	www.braskem.com.br/material-issues-assestement	
	103-2 - The management approach and its components	63	
	103-3 - Evaluation of the management approach	63	
GRI 405: Diversity and Equal Opportunity	405-1 - Diversity of governance bodies and employees	63	6
<b>NON-DISCRIMINATION</b>			
<b>Macro objective: Strengthening practices</b>			
GRI 103: Management Approach	103-1 - Explanation of the material topic and its Boundary	www.braskem.com.br/material-issues-assestement	
	103-2 - The management approach and its components	30	
	103-3 - Evaluation of the management approach	30	
GRI 406: Non-discrimination	406-1 - Incidents of discrimination and corrective actions taken	24, 30, 31	
<b>RIGHTS OF INDIGENOUS PEOPLES</b>			
<b>Macro objective: Local Development</b>			
GRI 103: Management Approach	103-1 - Explanation of the material topic and its Boundary	www.braskem.com.br/material-issues-assestement	
	103-2 - The management approach and its components	--	
	103-3 - Evaluation of the management approach	--	
GRI 411: Rights of Indigenous Peoples	411-1 - Incidents of violations involving rights of indigenous peoples	No incidents were identified in the reporting period. Considering that traditional populations (fishermen and quilombolas) live in communities close to Braskem's operations in the Port of Aratu, some initiatives have been taken to prevent damage, promote sustainability, and establish a relationship of dialogue and trust with these communities.	
<b>LOCAL COMMUNITIES</b>			
<b>Macro objectives: Local Development</b>			
GRI 103: Management Approach	103-1 - Explanation of the material topic and its Boundary	www.braskem.com.br/material-issues-assestement	
	103-2 - The management approach and its components	20, 70	
	103-3 - Evaluation of the management approach	20, 70	





GRI Standard	Disclosure	Page and/or answer	Global Compact Principles
GRI 413: Local Communities	413-1 - Operations with local community engagement, impact assessments, and development programs	20, 70	
	413-2 - Operations with significant actual and potential negative impacts on local communities	20, 89	
<b>SUPPLIER SOCIAL ASSESSMENT</b>			
<b>Macro objective: Strengthening practices</b>			
GRI 103: Management Approach	103-1 - Explanation of the material topic and its Boundary	www.braskem.com.br/material-issues-assestement	
	103-2 - The management approach and its components	80	
	103-3 - Evaluation of the management approach	80	
GRI 414: Supplier Social Assessment	414-1 - New suppliers that were screened using social criteria	Less than 1%. In 2018, Braskem started a pilot project to implement the Sustainable Procurement Tool. This tool is applied to suppliers identified as critical in the Risk matrix and makes it possible to incorporate sustainability criteria into the bids. The tools allow comparing suppliers on environmental and social criteria. The result of the evaluation is one of the criteria for bidding decisions. For now, Procurement uses only a few categories of Services, and the intention is to extend its application to other categories in 2020. Page: 80	2
<b>PUBLIC POLICY</b>			
<b>Macro objective: Strengthening practices</b>			
GRI 103: Management Approach	103-1 - Explanation of the material topic and its Boundary	www.braskem.com.br/material-issues-assestement	
	103-2 - The management approach and its components	--	
	103-3 - Evaluation of the management approach	--	
GRI 415: Public Policy	415-1 - Political contributions	Zero	10
<b>CUSTOMER HEALTH AND SAFETY</b>			
<b>Macro objective: Security</b>			
GRI 103: Management Approach	103-1 - Explanation of the material topic and its Boundary	www.braskem.com.br/material-issues-assestement	
	103-2 - The management approach and its components	91	
	103-3 - Evaluation of the management approach	91	
GRI 416: Customer Health and Safety	416-1 - Assessment of the health and safety impacts of product and service categories	100% of impacts are assessed. Page: 91	
	416-2 - Incidents of non-compliance concerning the health and safety impacts of products and services	In 2019, Braskem had 2 cases of non-compliance with regulations resulting in a fine, with corrective actions completed. There was 1 incident of non-compliance with regulations that resulted in a notice, also with corrective actions completed. The company had no cases of non-compliance with voluntary codes. Page: 91	





GRI Standard	Disclosure	Page and/or answer	Global Compact Principles
<b>MARKETING AND LABELING</b>			
<b>Macro objective: Strengthening practices</b>			
GRI 103: Management Approach	103-1 - Explanation of the material topic and its Boundary	www.braskem.com.br/material-issues-assestement	
	103-2 - The management approach and its components	91	
	103-3 - Evaluation of the management approach	91	
GRI 417: Marketing and Labeling 2016	417-1 - Requirements for product and service information and labeling	The labeling information corresponds to the SDS information (GHS format) and is handled by each site. The internal procedure used is ANX 6020-00840 - Information on chemical risks. 100% of the significant product categories are assessed according to Braskem's standards and procedures. In addition, they are audited as part of the Braskem Integrated Management System. Page: 91	
	417-2 - Incidents of non-compliance concerning product and service information and labeling	Braskem had 1 incident of non-compliance with regulations that resulted in a notice, with corrective actions completed. The company did not have any events of non-compliance with regulations that resulted in fine nor did it record cases of non-compliance with regulations or voluntary codes in 2019. Page: 91	
	417-3 - Incidents of non-compliance concerning marketing communications	Zero. The Company declares non-existence of non-compliance with regulations and voluntary codes regarding marketing communications, including advertising, promotion, and sponsorship, broken down by type of results. Page: 91	
<b>SOCIOECONOMIC COMPLIANCE</b>			
<b>Macro objective: Strengthening practices</b>			
GRI 103: Management Approach	103-1 - Explanation of the material topic and its Boundary	www.braskem.com.br/material-issues-assestement	
	103-2 - The management approach and its components	--	
	103-3 - Evaluation of the management approach	--	
GRI 419: Socioeconomic Compliance	419-1 - Non-compliance with laws and regulations in the social and economic area	Braskem has lawsuits in the aforementioned period, whether environmental or regulatory, however, the Company does not have definitive decisions on significant fines during the period questioned. For this report, the same criteria used in the "Reference Form" instituted by the "Securities and Exchange Commission" (CVM) was adopted, pursuant to IN CVM 480/209 - R\$ 50 million. Among the lawsuits in Alagoas, there are no cases concluded in 2019 that impose the payment of a fine above R\$ 50 million. Non-monetary sanctions and processes brought about by arbitration mechanisms are monitored by each of the Company's Business Units, so the indicators are regional and non-corporate and therefore are not addressed in the report.	





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## Limited assurance report issued by independent auditors

To the Board of Directors, Shareholders and Stakeholders of  
**Braskem S.A.**  
São Paulo - SP

### Introduction

We have been engaged by Braskem S.A. ("Braskem" or "Company") to apply limited assurance procedures on the sustainability information disclosed in Braskem's Annual Report 2019, related to the year ended December 31<sup>st</sup>, 2019.

### Responsibilities of Braskem's Management

The Management of Braskem is responsible for adequately preparing and presenting the sustainability information in the Annual Report 2019 in accordance with the Standards for Sustainability Report of Global Reporting Initiative – GRI as well as the internal controls determined necessary to ensure this information is free from material misstatement, resulting from fraud or error.

### Independent auditors' responsibility

Our responsibility is to express a conclusion about the information in the Annual Report 2019 based on a limited assurance engagement conducted in accordance with Technical Communication (TC) 07/2012, which was prepared based on NBC TO 3000 (Assurance Engagements Other Than Audits and Reviews), both issued by the Brazilian Federal Accounting Council - CFC and equivalent to international standard ISAE 3000, issued by the International Federation of Accountants and applicable to Non-Financial Historical Information. These standards require compliance with ethical requirements, including independence ones, and the engagement is also conducted to provide limited assurance that the information disclosed in the Braskem's Annual Report 2019, taken as a whole, is free from material misstatement.

A limited assurance engagement conducted in accordance with NBC TO 3000 (ISAE 3000) consists mainly of questions and interviews with the Management of Braskem and other professionals of the Company involved in the preparation of the information disclosed in the Annual Report 2019 and use of analytical procedures to obtain evidence that enables us to reach a limited assurance conclusion about the sustainability information taken as a whole. A limited assurance engagement also requires additional procedures when the independent auditor acknowledges issues which may lead them to believe that the information disclosed in the Annual Report 2019 taken as a whole could present material misstatement.







The selected procedures were based on our understanding of the issues related to the compilation, materiality and presentation of the information disclosed in the Annual Report 2019, on other engagement circumstances and also on our considerations regarding areas and processes associated with material sustainability information disclosed where relevant misstatement could exist. The procedures consisted of:

- a. engagement planning, considering the material aspects for Braskem's activities, the relevance of the information disclosed, the amount of quantitative and qualitative information and the operational systems and internal controls that served as a basis for preparation of the information in the Braskem's Annual Report 2019. This analysis defined the indicators to be checked in details;
- b. understanding and analysis of disclosed information related to material aspects management;
- c. analysis of preparation processes of the Annual Report 2019 and its structure and content, based on the Principles of Content and Quality of the *Standards* for sustainability report of the Global Reporting Initiative - GRI (GRI - Standards);
- d. evaluation of non-financial indicators selected:
  - understanding of the calculation methodology and procedures for the compilation of indicators through interviews with management responsible for data preparation;
  - application of analytical procedures regarding data and interviews for qualitative information and their correlation with indicators disclosed in the Annual Report 2019;
  - analysis of evidence supporting the disclosed information;
  - visits to Braskem's operations and to the corporate office for application of these procedures, and items (b) and (c);
- e. analysis of whether the performance indicators omission and justification are reasonable to be accepted associated to aspects and topics defined as material in the materiality analysis of the Company;
- f. comparison of financial indicators with the financial statements and/or accounting records.

We believe that the information, evidence and results we have obtained are sufficient and appropriate to provide a basis for our limited assurance conclusion.

**Scope and limitations**

The procedures applied to a limited assurance engagement are substantially less extensive than those applied to a reasonable assurance engagement. Therefore, we cannot provide reasonable assurance that we are aware of all the issues that would have been identified in a reasonable assurance engagement, which aims to issue an opinion. If we had conducted a reasonable assurance engagement, we may have identified other issues and possible misstatements within the information presented in the Annual Report 2019.







Nonfinancial data is subject to more inherent limitations than financial data, due to the nature and diversity of the methods used to determine, calculate or estimate these data. Qualitative interpretation of the data's materiality, relevance and accuracy are subject to individual assumptions and judgments. Additionally, we have not examined data related to prior periods, to evaluate the adequacy of policies, practices and sustainability performance, nor future projections.

#### Conclusion

Based on the procedures carried out, described earlier in this report, we have not identified any relevant information that leads us to believe that the information in the Annual Report 2019 of Braskem is not fairly stated in all material aspects in accordance with the Standards for Sustainability Report of Global Reporting Initiative - GRI (GRI- Standards), as well as its source records and files.

São Paulo, May 29<sup>th</sup>, 2020

KPMG Assurance Services Ltda.  
CRC 2SP-023228/O-4

Eduardo V. Cipullo  
Accountant CRC 1SP135597/O-6







## CORPORATE CREDITS

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Vice President of People, Marketing & Corporate  
Communications and Sustainable Development  
**MARCELO ARANTES DE CARVALHO**

Director of Marketing & Corporate Communications  
**ANA LAURA SIVIERI**

Director of Sustainable Development  
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Marketing & Corporate Communications Supervision  
**ANA LUIZA LEITE, CAROLINA PIGNATA AND PEDRO SOBRAL**

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Analysis of Indicators, Project Development,  
and Content Production  
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Graphic Design and Layout  
**MAGENTA LAB**

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