



Ketjen

POWERING
THE WORLD OF
**Today &
Tomorrow**



SUSTAINABILITY
REPORT

23



About This Report

IN OUR SECOND ANNUAL SUSTAINABILITY REPORT, WE OUTLINE KETJEN CORPORATION'S (KETJEN OR COMPANY) APPROACH TO SUSTAINABILITY AND THE STEPS WE ARE TAKING TO INCORPORATE SUSTAINABILITY INTO OUR BUSINESS PRACTICES.

The report is structured according to the aspects of environmental, social, and governance disclosure, and the information presented in this report covers the 2023 calendar year, unless otherwise stated.

For any feedback on this report or questions about sustainability at Ketjen, please contact Sustainability@Ketjen.com.

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Welcome Message from Our President

It is my pleasure to introduce Ketjen's 2023 Sustainability Report.

During our first year as Ketjen, we embarked on a new chapter in our Company's history. We executed a turnaround strategy focused on operational and commercial excellence, delivering safe and sustainable performance and developing Ketjen's culture and talent. For each of these areas, we set ambitious goals and objectives. We took a disciplined approach to rightsizing our operations, streamlined our product portfolio, and put in place a leadership team with the capabilities and accountability necessary to position Ketjen for growth.

Throughout this time of change, we continued to deliver on our commitment to develop the right products and technologies to help our customers achieve their short- and long-term success, which contribute to a safer and more sustainable world. The title of this report, *Powering the World of Today and Tomorrow*, speaks to how we are responding to the markets we serve. From the traditional cracking and upgrading of fossil-based crude to renewables processing, Ketjen offers the catalytic and clean fuels technology solutions that maximize our customers' current production as well as innovative solutions for customers looking to pivot further to renewable feedstocks as part of their energy transition.

Work progressed on expanding our ZSM-5 production to offer our customers security of supply as the Fluidized Catalytic Cracking (FCC) market further shifts from gasoline to greater demand for petrochemical feedstocks. In addition, we successfully completed our first commercial trial of ReNewFCC™ with 100% renewable feedstock consisting of soybean oil. We also continued our work to develop the optimal catalyst solution for the processing of waste plastics. These are some examples of how we are meeting the needs of our customers today and innovating to develop the solutions for the market demands of tomorrow.





THROUGH CONTINUOUS IMPROVEMENT EFFORTS, OUR FOCUS ON INNOVATION TO DEVELOP INDUSTRY-LEADING PRODUCTS, AND OUR INVESTMENT IN INITIATIVES THAT ARE HELPING US REDUCE OUR ENVIRONMENTAL IMPACT, WE WILL CONTINUE TO DRIVE POSITIVE CHANGE WITHIN OUR BUSINESS AND ACROSS THE INDUSTRIES WE SERVE.”



Mike Simmons
President

We also made progress on our internal sustainability ambitions. We laid the foundation for the development of Ketjen’s sustainability strategy. We are setting goals and targets to reduce our energy consumption and are making the capital investments needed to run our operations more efficiently. Importantly, we remain on track to reach our 2030 carbon emissions targets on an absolute basis.

I would like to thank all Ketjen employees and our joint venture partners worldwide for their dedication and hard work over the past year. Without them, the turnaround of our Company would not have been possible. As we continue our path to growth, our commitment to business excellence and sustainability remains steadfast. Through continuous improvement efforts, our focus on innovation to develop industry-leading products, and our investment in initiatives that are helping us reduce our environmental impact, we will continue to drive positive change within our business and across the industries we serve.

Sincerely,
Mike Simmons, President

About Ketjen

WE CREATE VALUE-ADDED AND PERFORMANCE-BASED SOLUTIONS DESIGNED TO ENABLE A SAFER AND MORE SUSTAINABLE FUTURE.

Ketjen, a wholly-owned subsidiary of Albemarle Corporation (Albemarle), manufactures advanced catalysts solutions for leading producers in the petrochemical and refining industries. Our portfolio of products offers tailored, safe, and reliable solutions that increase production performance, provide business value, and promote sustainability. With headquarters in Houston, Texas, we serve global customers through operations in 25 countries and through joint ventures in Japan, France, Germany, Brazil, India, Saudi Arabia, and the United States.

Workforce distribution:



1,096
Employees¹

3
Production Facilities

All data is as of or for the year ended 12/31/2023.

1. Includes permanent Ketjen employees. Excludes temporary employees and employees of our JVs.

Our Values

At Ketjen, we pride ourselves on being a value-driven organization. Our core values guide us in our work and in our interactions with our stakeholders.

Care

We improve the safety and support the well-being and resilience of our communities, employees, and environment.

Collaboration

We work together, value each other, and encourage diverse thought to drive better outcomes.

Accountability

We act with courage to take ownership of what matters and responsibly deliver results.

Curiosity

We continuously learn and are comfortable taking informed risks to innovate.

Humility

We share the credit and value the ideas of others to achieve goals together.

Integrity

We do what we say with honesty and transparency for the benefit of all.

KETJEN UNLEASHES THE POTENTIAL OF ADVANCED CHEMISTRY FOR INDUSTRIES THAT POWER THE WORLD.



Our Vision

To be the leading provider of advanced catalyst and specialty chemical solutions, technologies, and insights that help meet the changing needs of our customers today and through their energy transition journey.

Our Mission

To develop and produce safe, effective, and sustainable products that help our customers maximize the performance and economic potential of their assets.



Our Product Portfolio

KETJEN DELIVERS FLEXIBLE, PERFORMANCE-BASED CATALYSTS, TECHNOLOGIES, AND RELATED SERVICES THROUGH THREE PRODUCT DIVISIONS:

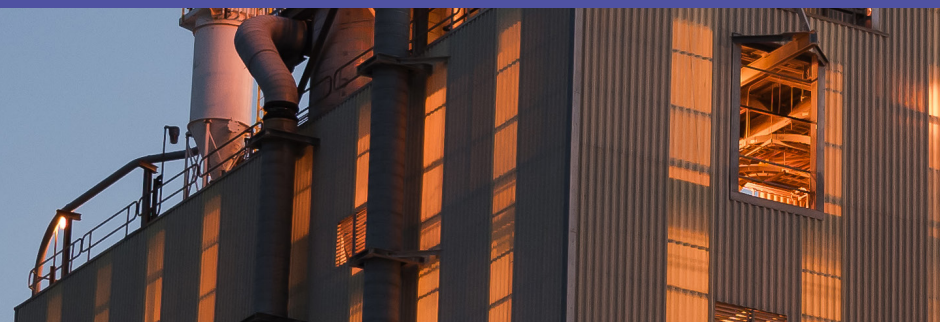
Fluidized Catalytic Cracking (FCC) Solutions

Our portfolio of fluid cracking catalysts and additives allows our customers to increase their unit operating window and achieve the flexibility to process heavier, less expensive feedstocks, and maximize conversion. The catalysts are engineered to maximize efficiency, minimize waste, and improve the quality of the final products and work with a wide range of feedstocks.

Clean Fuels Technology (CFT)

We offer a wide range of hydrotreating and hydrocracking catalyst solutions designed to remove sulfur, nitrogen, and other impurities from the lightest to the heaviest refinery feedstocks to improve the product properties. Hydroprocessing catalysts (HPCs) contribute to a cleaner environment by enabling the production of clean fuels.

Additional information on our product portfolio can be found on our [website](#).





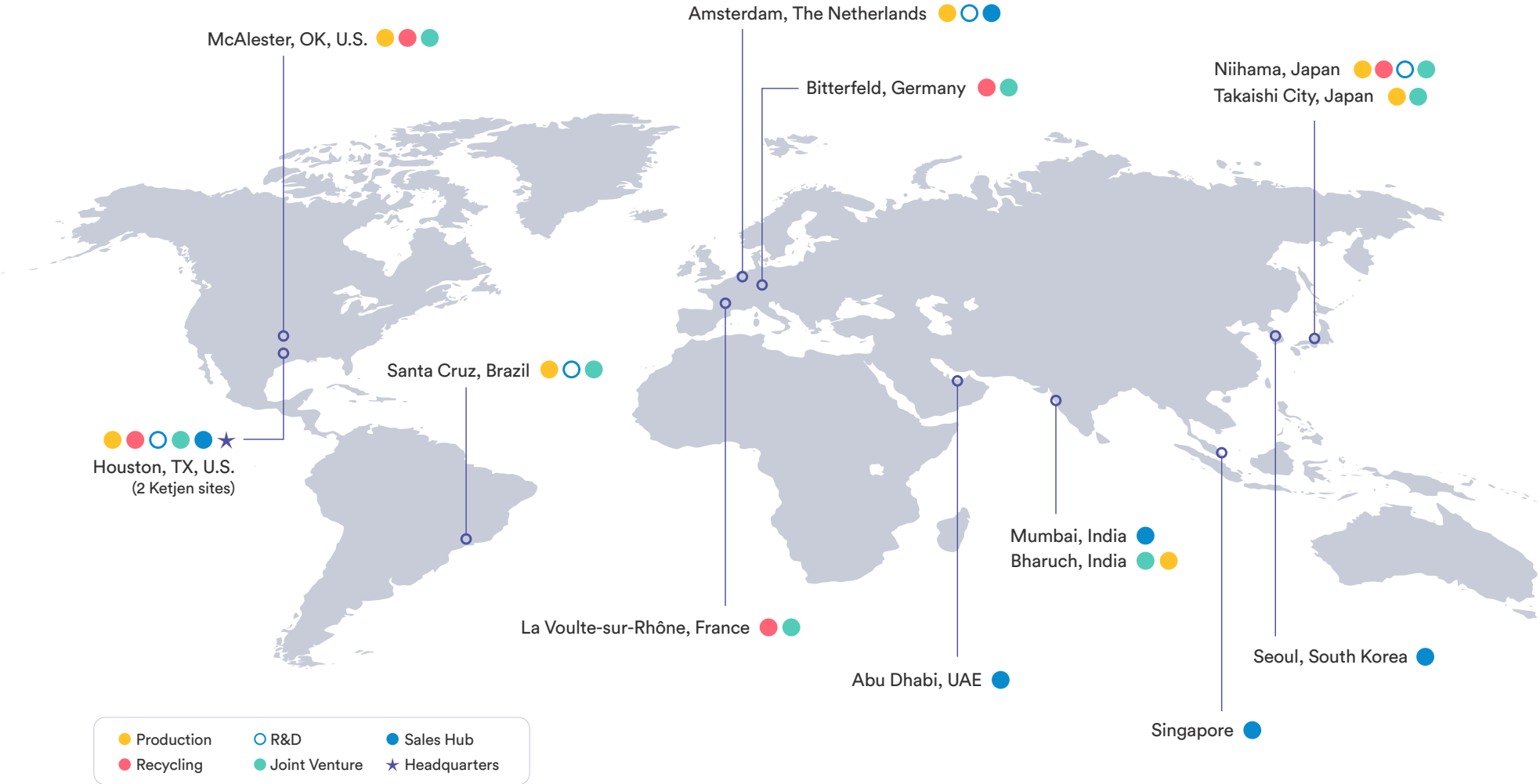
Performance Catalysts and Curatives Solutions (PCS)

We provide critical catalyst solutions, primarily organometallics and curatives to produce everyday household goods such as polyethylene packaging, toys, pharmaceuticals, and electronic devices. We also offer a portfolio of high-purity, liquid curatives that are easy to blend and handle, that are used to cure polyurethanes, epoxies, and polyureas.

Ketjen's catalyst solutions are well-positioned to play a key role in the energy transition by unleashing the potential of advanced chemistry to enable a safer and more sustainable world.



Ketjen Global Snapshot



Our Leadership

Ketjen's leadership team brings decades of business experience and expertise in the catalyst industry, sharing diverse perspectives, innovative approaches, and customer-centric solutions. The team is responsible for setting the direction and strategic approach of the Company, including how we engage on sustainability.



Mike Simmons
President



Henri Tausch
Chief Commercial Officer



Shane Carr
Chief Operating Officer



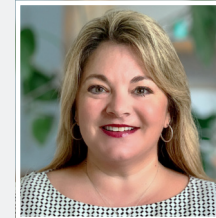
Atif Janjua
Chief Financial Officer



Bob Leliveld
Chief Technology Officer



Beth Radtke
Chief Human Resources Officer



Jenny Hebert
VP of Business Transformation



Rodrigo Pinto
VP of Performance Catalyst and Curatives Solutions



David Chromy
VP and Deputy General Counsel



Romelia Hinojosa
Senior Communications Director



Our Approach to Sustainability

Our approach to sustainability includes environmental, social, and governance aspects. We aim to implement industry best practices to achieve sector-leading performance and help advance our customers' sustainability ambitions. In 2023, under the leadership of Ketjen's Chief Technology Officer and Sustainability Manager, we initiated the development of a sustainability strategy, which, when finalized, will include goals, targets, and key performance indicators (KPIs) to drive continuous improvement. We anticipate the rollout of our new strategy in 2025.

As a company with operations in Europe, we are assessing the scope of the Corporate Sustainability Reporting Directive (CSRD) and are looking to align our reporting with the double materiality recommendations of the CSRD and other international reporting requirements, standards, and frameworks in the future. In early 2024, we began work on a double materiality assessment to help us identify the sustainability issues that are most important to our business and our stakeholders. Through this assessment, we are identifying risks and opportunities that can impact our business as well as the impacts that our operations have on our communities and the environment. As part of the materiality assessment process, we are seeking input from key stakeholders, including customers, suppliers, community members, industry groups, and our employees. Once completed, the outcomes from the materiality assessment will inform our sustainability strategy and goal setting. We look forward to sharing the details of the assessment in our future sustainability reports.



Awards and Recognition¹

In 2023, Ketjen's Bayport and Pasadena sites received Responsible Care® Facility Safety Awards from the American Chemistry Council (ACC) for significant achievements in employee health and safety performance.

Additionally, Ketjen's Bayport site received an ACC Responsible Care® Energy Efficiency Award for commendable achievements in improving energy efficiency and/or reducing greenhouse gas related or other environmental impacts. Please refer to [page 30](#) for more information on our award-winning Spray Dryer Auto Dilution project.



B- on Climate Change and Water Security



1. The CDP, EcoVadis and Bloomberg Gender Equality Index were awarded to Albemarle. Ketjen data was included in the overall assessments.

Sustainable Operations

As responsible stewards of the environment, we recognize the impacts of our operations, and we monitor, measure, and manage the use of resources and materials. Where possible, we mitigate the environmental impacts of our business activities, with a particular emphasis on reducing our carbon emissions.

As a wholly-owned subsidiary of Albemarle, Ketjen is guided by the [principles of Responsible Care®](#), the American Chemistry Council initiative designed to help improve environmental, health, safety, and security performance for facilities, processes, and products. Our manufacturing facilities hold RC14001® certifications, which combine Responsible Care and ISO 14001. Additionally, all our sites also hold ISO 9001 certifications.

Energy and Emissions

To reduce our energy consumption and carbon emissions, we are focusing on operational efficiencies. We are making the necessary investments to replace obsolete, less energy-efficient equipment and machinery, increase the efficiency of existing units by incorporating process improvements, and leveraging the use of renewable electricity at our facilities. As we work toward establishing and implementing a sustainability strategy unique to Ketjen, which will include the development of a decarbonization roadmap, our carbon reduction efforts will continue to be guided by [Albemarle's Climate Strategy](#) developed in 2021.

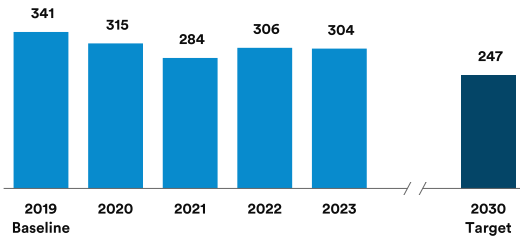
Albemarle, our parent company, reported at a consolidated level certain sustainability metrics including total energy consumed, scope 1 and scope 2 greenhouse gas (GHG) emissions, as well as total water withdrawal, and total water consumed for the year ended December 31, 2023. For the full report, please refer to [Albemarle's 2023 Sustainability Report](#).



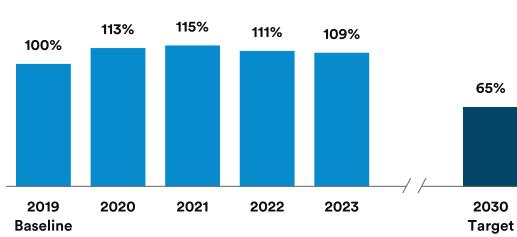
In 2023, our Amsterdam production facility signed a contract to cover an estimated 50% of its electricity consumption with renewable power by means of Guarantees of Origin for 2024-2026.

We continued to make progress to reduce our scope 1 and 2 carbon intensity by 35% by 2030 in alignment with science-based targets. We remain on track on an absolute basis and behind on an intensity basis.

Progress Toward Target - Absolute
(kt CO₂e)



Progress Toward Target - Intensity
(relative intensity)



ZSM-5 EXPANSION

To support our FCC customers and the growing need for ZSM-5, a highly siliceous aluminosilicate zeolite used by refiners to maximize propylene production from their FCC units, we are expanding Ketjen’s Bayport, Texas, site to increase our production capabilities. Once completed in 2025, we will have the capacity to significantly increase ZSM-5 production, and the additional infrastructure will facilitate capacity expansion as needed in the future. This will allow Ketjen to grow its position in olefins maximization, and ensure consistency and reliability of supply to help our customers meet the future needs of the market.



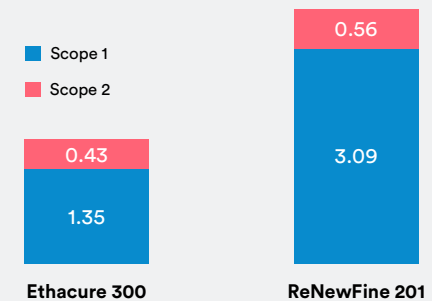
THE ZSM-5 EXPANSION WILL HELP SUPPORT KETJEN CUSTOMERS IN THEIR ENERGY TRANSITION JOURNEY AS THE MARKET SHIFTS FROM GASOLINE TO GREATER DEMAND FOR PETROCHEMICAL FEEDSTOCKS USED IN THE PRODUCTION OF CHEMICALS AND MATERIALS.”

Henri Tausch, Chief Commercial Officer

Life Cycle Assessments (LCA)

We are seeing an increase in customer requests for information on the carbon footprint of our products. In response, we use LCA methodology to evaluate the climate change impacts of our products through the development of product carbon footprints (PCFs). We are working on streamlining our workflows and continuing to expand our work on partial, gate-to-gate PCFs. Enhanced data analytics, resulting from the implementation of advanced digital tools, will help us measure energy use and emissions from various production sources.

GHG Emissions
(kg CO₂e/kg product)



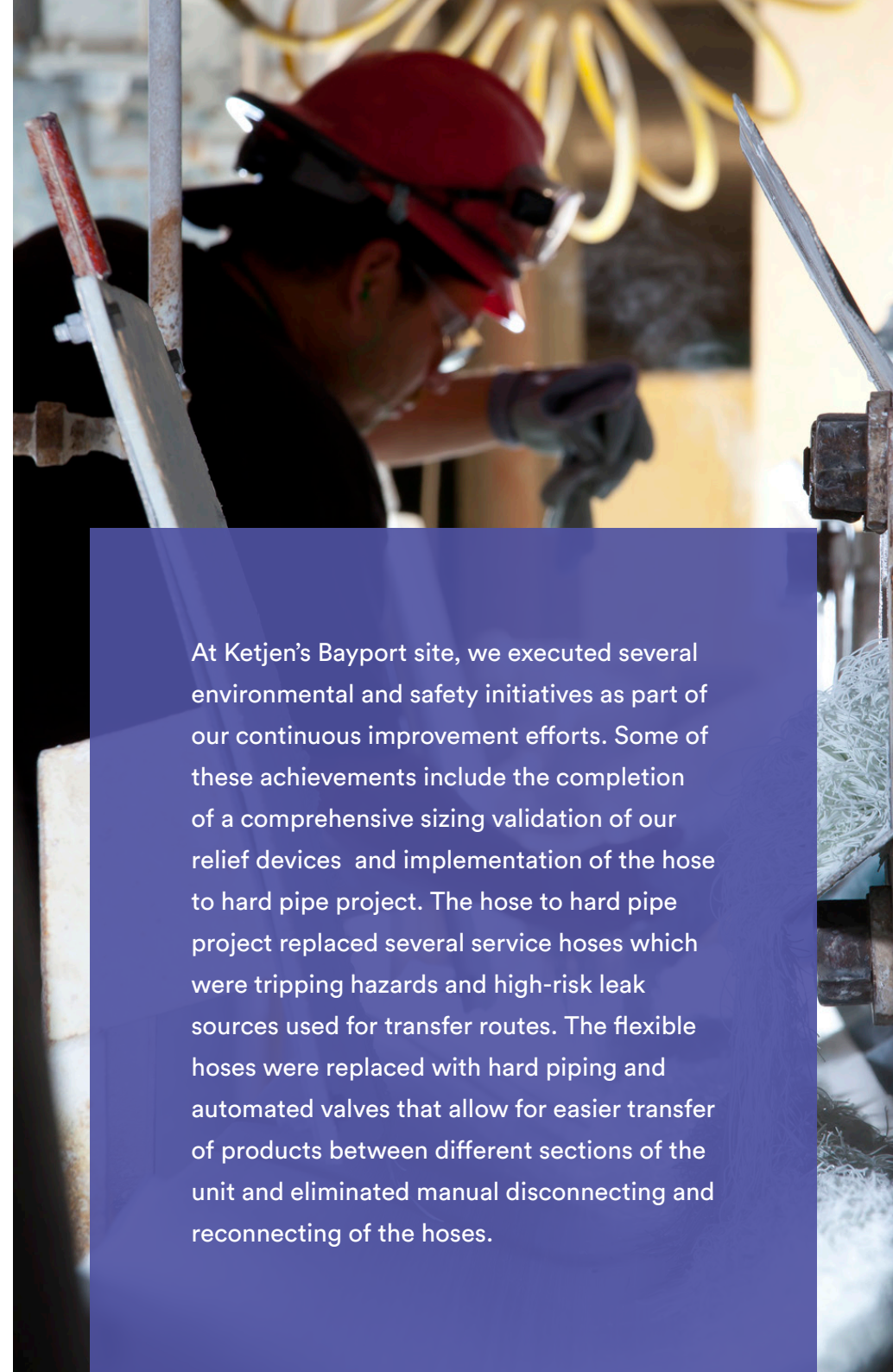
Calculations are based on average 2023 production data allocated to the products using a gate-to-gate product carbon footprint approach.

Safety

At Ketjen, we pride ourselves on our strong safety culture, which places a high priority on creating a safe work environment for our employees, contractors, suppliers, and business partners. In 2023, our safety program continued to be aligned with Albemarle's policies and procedures while we began building out our own safety programs appropriate to Ketjen's business.

Our safety program includes robust global and country-specific safety standards, policies and procedures, safety training, and workflows to ensure conscious hazard recognition, and continuous monitoring of our processes to identify and mitigate safety risks. Site health, safety, and environment (HS&E) managers are responsible for operationalizing our safety protocols. Safety moments at meetings provide opportunities for Ketjen employees to discuss incidents that have occurred, ask questions, and learn about accident prevention and corrective action best practices. To drive safety initiatives and best practices across all our laboratories, we created a global lab safety team in 2023. We anticipate rolling out a similar initiative across our manufacturing facilities.

We are pleased to report that, in 2023, our Amsterdam site had no recordable incidents. At each of our Pasadena and Bayport sites, we experienced a recordable injury in September 2023 following impressive safety records of 1,438 and 870 days without a recordable incident, respectively. We have addressed the root causes of the incidents and have put in place corrective action plans and additional accident prevention measures.



At Ketjen's Bayport site, we executed several environmental and safety initiatives as part of our continuous improvement efforts. Some of these achievements include the completion of a comprehensive sizing validation of our relief devices and implementation of the hose to hard pipe project. The hose to hard pipe project replaced several service hoses which were tripping hazards and high-risk leak sources used for transfer routes. The flexible hoses were replaced with hard piping and automated valves that allow for easier transfer of products between different sections of the unit and eliminated manual disconnecting and reconnecting of the hoses.

Responsible Supply Chain

WE STRIVE TO ENSURE SUPPLY OF PRODUCTS TO MEET CUSTOMER REQUIREMENTS WHILE DECREASING SUPPLY CHAIN RISKS AND DRIVING BUSINESS RESILIENCE.

Ketjen is committed to sourcing materials from suppliers who share our values with regard to ethics, environmental responsibility, and human rights. Our suppliers are required to comply with Albemarle's [Code of Conduct for Business Partners](#), which outlines our expectations to operate in full compliance with all applicable laws and regulations. In 2023, we worked with Albemarle to collect primary data on a majority of our raw material scope 3 emissions. In addition, Albemarle embedded a modern slavery and human rights due diligence process that is also incorporated in Ketjen's supplier qualification process.

“OUR PROCUREMENT TEAM’S MISSION IS TO CREATE AND SUSTAIN COMPETITIVE ADVANTAGE THROUGH INNOVATIVE, COLLABORATIVE, AND INCLUSIVE PROCUREMENT STRATEGIES. WE FOSTER LONG-TERM PARTNERSHIPS WITH SUPPLIERS WHO SUPPORT KETJEN’S BUSINESS PRIORITIES, INCLUDING OUR COMMITMENT TO SUSTAINABILITY.”

Theo Moons, Director of Procurement

Through Albemarle's due diligence process, we use the Organization for Economic Co-operation and Development (OECD) and Responsible Minerals Initiative (RMI) standards in the responsible sourcing of minerals. The specific frameworks for due diligence include a Conflict Mineral Reporting Template (CMRT) and Extended Mineral Reporting Template (EMRT) which are used to gather information on and qualify our minerals suppliers. These templates facilitate the transfer of information through the supply chain regarding mineral country of origin and smelters and refiners being utilized. Responses from our suppliers are vetted by both our procurement team and the Albemarle compliance team.



Our People

CREATING A DIVERSE WORKPLACE THAT FOSTERS A SENSE OF BELONGING FOR ALL OUR EMPLOYEES IS A TOP PRIORITY FOR KETJEN.

As such, we are committed to supporting the emotional, physical, and financial well-being of our employees by offering competitive wages, comprehensive health insurance, and performance incentives. We proactively manage employee development and performance to elevate talent and support our diversity, equity, and inclusion (DEI) and belonging objectives.

In 2023, we began to lay the foundation for establishing and launching Ketjen's talent attraction programs, talent management systems, and employee learning and development programs. To do so, we hired a Manager of Talent and Culture, created action plans, and challenged our people leaders to establish objectives and key results (OKRs) with an emphasis on employee engagement, empowerment, and accountability.



Employee and Leadership Development

We promote equitable opportunities to further the potential of our workforce. Ketjen employees can access best-in-class learning and skill-based development programs through Albemarle University as well as Ketjen-specific leadership development programs introduced in 2023.

Our aim is to create a workplace culture where our leaders have the skills and tools to foster high engagement and team performance that will contribute to Ketjen's success. To meet our DEI objectives, we created leadership development programs aimed specifically at advancing the careers of women in manufacturing, and in 2023, we set out to create the Ketjen Leadership Council (KLC), an extension of the Ketjen Leadership Team (KLT). The KLC was created with the purpose of connecting executive leadership with front-line leaders and accelerating the implementation of Ketjen's strategic transformation. It will support the professional growth of leaders and provide opportunities for KLC members to showcase their leadership abilities to the KLT first-hand.

Recognizing our Workforce

As part of our talent recognition efforts, we launched the Ketjen Excellence Awards program in 2024. The program acknowledges and celebrates employee achievements in the areas of technology and innovation, operations, commercial, and talent and culture in alignment with our OKRs. The Awards program includes a President's Award category for outstanding contributions to Ketjen's success. The initial President's Award-winning flagship projects reflect our employees' commitment to safety, sustainability, innovation, and support the broader goals of our businesses:

- The first commercial trial of ReNewFCC™ with 100% renewable feedstock consisting of soybean oil and a formulation specifically designed for the trial responded to urgent customer needs
- The replacement of two outdated blow-down pits used for emergency relief capture from various parts of Ketjen's organometallics production unit in Pasadena provided an enhancement to the site's safety protocols and procedures
- The implementation of "Project Simply Better" to improve our raw material utilization and logistics supported Ketjen's financial turnaround



AT KETJEN, WE ARE FOCUSED ON PROVIDING OUR EMPLOYEES WITH THE TOOLS, RESOURCES, AND DEVELOPMENT NEEDED TO SUCCEED IN THEIR ROLES, AND WE STRIVE TO CULTIVATE A CULTURE OF BELONGING AND EMPOWERMENT WHERE EVERYONE CAN GROW AND MAKE A UNIQUE IMPACT ON OUR COMPANY AND ITS SUCCESS.”

Beth Radtke, Chief Human Resources Officer

Employee Engagement

AT KETJEN, WE UNDERSTAND THE IMPORTANCE OF HAVING A HIGHLY ENGAGED WORKFORCE THAT IS MOTIVATED TO CONTRIBUTE TO OUR ORGANIZATIONAL SUCCESS.

We believe that an effective employee engagement program can create a strong work culture that reinforces our core values, contributes to the retention of talent, and increases productivity. We engage with our workforce on a regular basis through various channels, including town halls, leadership roundtables, and quarterly talent reviews. In 2023, we introduced KetNet, Ketjen's employee intranet, with the aim of enhancing communications within our organization. Employees can access Company news, event information, Objectives and Key Results (OKRs), business scorecards, and much more.

Also in 2023, as part of our approach to employee engagement, we hosted a number of events across our Company to acknowledge and celebrate observances such as Black History Month, International Women's Day, and Pride Month. We also

engaged with our employees by fostering awareness of, and knowledge about, health-related issues such as depression, cancer, and heart health through virtual and in-person talks.

Measuring Employee Engagement

In 2023, we launched our first Ketjen Employee Empowerment Survey. Compared to the Albemarle 2022 Employee Empowerment Survey results for Ketjen, our overall survey scores remained consistent in a year of significant change. Our employee inclusion score was 83%, above the manufacturing industry average of 80%. Two key opportunities identified included improving communication and fostering growth and development. In response to survey results, we established action plans incorporated into our goals for 2024.

Building our Talent Pipeline

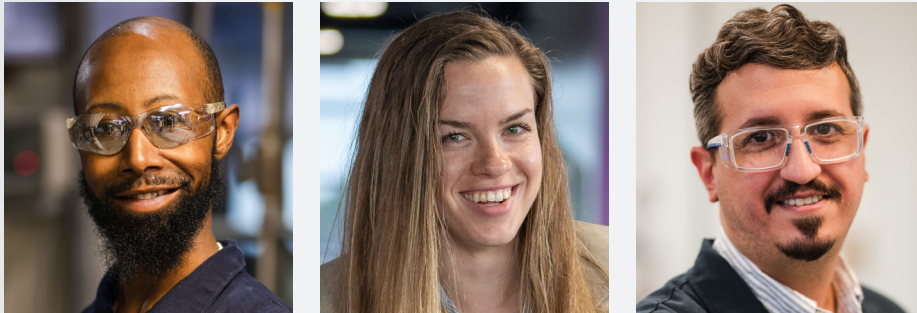
At Ketjen, we believe that it's important to support the next generation of talent through mentoring and internship opportunities. In the Netherlands, we partner with Nova College's MyTec program, which trains students in the field of mechanical engineering. In 2023, we hosted four interns from the program who worked side-by-side with Ketjen engineering specialists. In addition, our Amsterdam site hosted a group of software engineering and business IT and management students from the Amsterdam University of Applied Sciences and Windesheim University of Applied Sciences. During their internship, they developed web applications that helped make some of our processes more efficient. In the United States, we formed partnerships with local universities and technical schools to aid in creating a future talent pipeline and building a Ketjen-specific internship program.



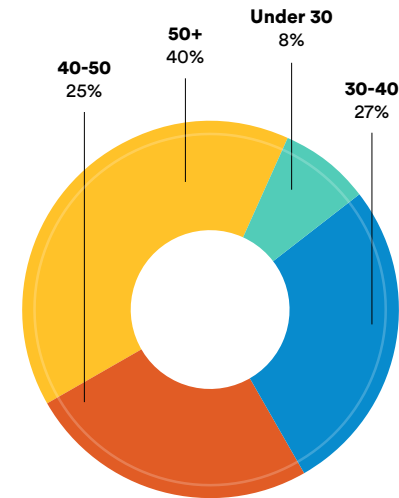
Diversity, Equity and Inclusion

AT KETJEN, WE AIM TO INTEGRATE DEI INTO ALL OUR BUSINESS PRACTICES AND PROCESSES AND CONTINUOUSLY STRIVE TO CREATE OPPORTUNITIES TO CELEBRATE, UNDERSTAND, AND INCORPORATE THE DIVERSE BACKGROUNDS, CULTURES, EXPERIENCES, IDEAS, AND TALENTS OF OUR WORKFORCE.

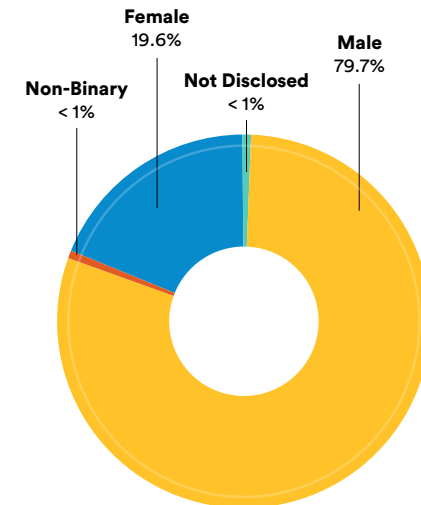
Fostering an equitable workplace means that we aim to ensure equal pay for equal work. In 2023, we reviewed our global pay equity practices to identify and resolve any potential gaps in compensation for women and members of visible minorities.



GLOBAL WORKFORCE BY AGE



GLOBAL WORKFORCE BY GENDER

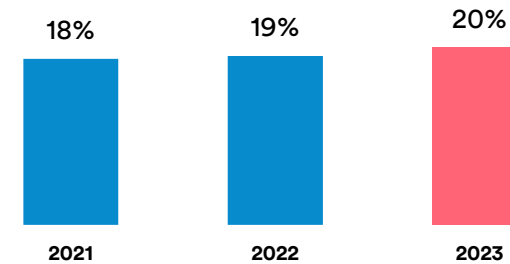




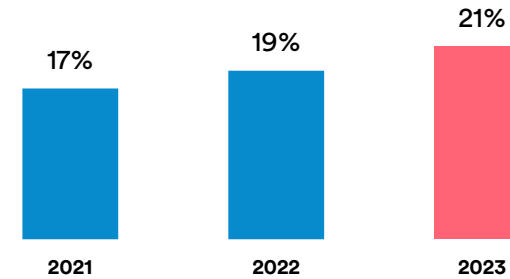
CONNECT

Feeling connected, seen, and supported are important parts of our DEI initiatives. In 2023, Ketjen employees participated in Albemarle's employee resource Connect groups which help drive DEI initiatives throughout our Company. These employee-led, executive-sponsored, and Company-funded groups help raise awareness on issues of importance to our employees through learning events, mentoring, and networking opportunities. Ketjen employees have set up their own local chapters including Women Connect in Amsterdam, as well as Black Employees Connect, Women Connect, and LatinX Connect in Houston. Employees also participated in Albemarle groups such as Pride Connect, ABLE (Abilities Beyond Limits & Expectations) Connect, Asian & Middle Eastern Connect, and AWiM (Albemarle Women in Manufacturing) Connect.

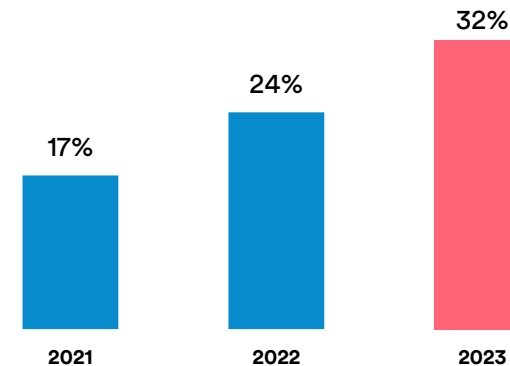
Global Gender Diversity



Global Gender Diversity Director Level and Above



US Racial Diversity Director Level and Above



We believe in supporting and empowering women in the manufacturing sector. Through Ketjen's Women Connect group we provide leadership development and mentorship opportunities for women in manufacturing.

In 2023, we held our Women Connect Houston kick-off event at Ketjen's Bayport, Texas, plant with a panel discussion featuring Ketjen's Chief Operating Officer, Vice President of Business Transformation, and Vice President of Performance Catalyst and Curative Solutions, who shared their advice on overcoming challenges in the workplace and how to achieve a balance between career and family.

We also hosted a group of women from Women in Manufacturing (WiM) for a tour of our facilities. WiM is a national and global trade association dedicated to providing support for women who have chosen a career in the manufacturing industry. Our guests gained unique insights into Ketjen's manufacturing processes, witnessed our technology at work, and interacted with our team members.





Through the Black Employees Connect group at Houston, in honor of Martin Luther King Jr. Day in January, Ketjen and Albemarle members and their families volunteered at the Houston Food Bank helping pack 585 boxes of nonperishables to be distributed to the community.



In addition, members of the group attended the National Society of Black Engineers (NSBE) Houston Scholarship Gala, an annual event in June that serves as a platform for acknowledging and honoring the outstanding achievements of students pursuing careers in science, technology, engineering, and mathematics (STEM). At the event, two \$2,500 scholarships were awarded in Ketjen's name to two students majoring in Computer Science and Industrial Engineering.



Stakeholder Engagement

Stakeholder engagement is fundamental to how we conduct business. We pride ourselves on fostering long-term relationships with our stakeholders and the communities in which we operate.

Customers

At Ketjen, we keep our customers and their needs at the core of our mission and business purpose, and are committed to developing the right products, technologies, and insights to help them maximize their assets and achieve short- and long-term success. We pride ourselves on collaborating with our customers and partners to provide catalyst solutions that help them maximize their profits, achieve their sustainability goals, and enable their energy transition journey. Thanks to our strong customer relationships, Ketjen's highly experienced team of scientists are fully integrated with our customers' teams to help them select the optimal catalyst and optimize the co-processing process to meet their individual needs. Additionally, we support our customers in achieving their sustainability goals by helping them meet standards to make International Sustainability and Carbon Certification (ISCC) certified products.

THROUGH THE KETJEN CATALYST ACADEMY, WE OFFER OUR CLIENTS WORKSHOPS AND COURSES CONDUCTED BY SUBJECT MATTER EXPERTS FROM OUR TECHNICAL SPECIALISTS' TEAM ON A WIDE RANGE OF TOPICS, INCLUDING HYDROPROCESSING AND FCC BASICS, UNIT OPERATIONS, RENEWABLES PROCESSING, AND SUSTAINABILITY.

VOICE OF THE CUSTOMER

In 2023, we rolled out our first Voice of the Customer survey to provide us with insights into our customer relationships and to help us better understand our customers' needs. The survey results revealed that our customers view Ketjen as a trusted partner and value the long-term relationships and partnerships they have with us. We learned that our customers appreciate the technical expertise of our teams and the quality and performance of Ketjen catalysts to help drive value and return on investment.

In 2023, Petro Rabigh, a Saudi Arabia-based refining and petrochemical company, awarded Ketjen with a Certificate of Appreciation for our performance and helping to meet their urgent material requirements. This honor is a testament to Ketjen's focus and commitment to our customers.

Regulators

Ketjen's product stewardship team is responsible for managing the health, safety, and environmental aspects of our raw materials across our value chain to enable business growth, maximize value, mitigate risks, and ensure we are compliant with regulations where applicable. The team stays up to date on the evolving regional, national, and global regulatory landscape and industry standards by monitoring and applying relevant regulations such as the Registration, Evaluation, Authorisation and Restriction of Chemicals (REACH). The team is also responsible for the development of documentation to ensure appropriate hazard communication. They facilitate data availability for annual reporting activities, and, together with the regulatory team, respond to customer regulatory questionnaires.

Industry Partners and Associations

Forging collaborative partnerships within our industry and participating in industry forums is key to our business success and reflects one of our core values. Through these partnerships, we access new markets and advance sustainability. We work with industry partners who enable us to combine our deep expertise in chemistry and catalysts with the required know-how and ability to build and operate new and improved processes. We engage with and participate in several international industry associations and consortia to stay abreast of regulatory developments and increase our presence and visibility in energy transition activities.



Jenny Hebert moderated the Women in Industry luncheon at the annual AFPM meeting.

JENNY HEBERT

Vice President of Business Transformation and chair of the Women in Industry Committee at the American Fuel and Petrochemical Manufacturers (AFPM) Association



Community Engagement in Amsterdam

As a good corporate citizen, we continue to engage in open dialogue with the growing community of Amsterdam around our production facility, including the municipality of Amsterdam and local residents of the Hamerkwartier, to ensure a balance of interests between housing development, entrepreneurship, and safety. For more information, please refer to our [website](#).

Community Engagement

Ketjen employees are committed to living their “Care” core value through philanthropic and community engagement initiatives. In 2023, the Bayport/Clearlake Albemarle Foundation donated over \$395,000 and the Pasadena Albemarle Foundation donated over \$148,000 to organizations within the local community.

- We donated over \$11,000 to Jackson Intermediate School, nearly \$8,000 to Bo's Place, a non-profit, free-of-charge bereavement center, and \$7,000 to Sarah's House emergency shelter.
- We provided over \$5,000 in funding to Armand Bayou Nature Center, one of the largest urban wilderness preserves in the U.S. with 2,500 acres of natural wetlands forest, prairie, and marsh habitats that provide flood mitigation and water purification and is home to over 370 species of birds, mammals, reptiles, and amphibians.
- Ketjen team members from Clear Lake, Bayport, and Pasadena joined Houston-area volunteers to participate in the annual CYCLE bike build program. CYCLE, which stands for Changing Young Children's Lives Through Education, is a children's charity that rewards students with new bicycles for improving their academic performance. To date, more than 175,000 bicycles have been awarded through CYCLE.
- Ketjen continued to support Jackson Intermediate School in Pasadena, Texas, through our student mentorship program and held our 6th annual Holiday Gift Drive, generating 215 gifts and a \$320 cash donation, as well as clothing and toiletries donations to Jackson Intermediate School families in need.
- We donated €7,500 to the 'Bernoulli Goes Abroad' foundation in the Netherlands to help provide additional educational opportunities for students in the chemical engineering field.
- Ketjen employees at Louvain-la-Neuve, Belgium, contributed €6,500 to the sponsorship of a retired colleague who walked to Santiago de Compostella to raise funds for Pinocchio ASBL, a non-profit organization that supports child burn victims and their families.
- We purchased 100 trees for planting in the Netherlands and in Africa through Trees for All as part of a Women Connect event in Amsterdam and contributed to the planting of 150 trees in Africa through Gift a Tree, a social enterprise that plants trees on behalf of companies in lieu of promotional gifts for customers.

The Art of Upcycling

We supported Ocean Sole, a Kenya-based social enterprise with a mission to recycle ocean waste into inspiring art to promote marine conservation and create employment opportunities for local artisans. Ketjen purchases colorful figurines from Ocean Sole for display at our tradeshow booths and as promotional items. Through our purchases in 2023 nearly 4,000 flip flops have been recycled, and more than 3,300 pounds of trash were removed from beaches.



THE FUTURE OF CATALYSTS IS HERE

 **Ketjen**
MAXIMIZING EVERY DROP

Innovation

AT KETJEN, WE CREATE VALUE THROUGH PRODUCT AND PROCESS INNOVATION.

Our deep expertise and focus on product and process innovation are driving the solutions of the future. In alignment with our core value of curiosity, we continuously learn and take informed risks with the aim to innovate. Through Ketjen's engineering excellence and our R&D centers in Amsterdam and Houston, we empower our partners with the best solutions for some of the most complex challenges. By creating a close partnership with our customers, we strive to unleash the potential of advanced chemistry and spark success for many industries.

In 2023, as part of our product and process innovation strategy, we introduced "Project Simply Better" to improve our raw material utilization and logistics. The project focused on product portfolio rationalization and technology transfers that have allowed us to maximize plant utilization efficiency and produce closer to our customers.

In 2023, Fábrica Carioca de Catalisadores S.A., Ketjen's joint venture with Petrobras in Brazil, received the award for best catalyst supplier of the year during the Latin American Refining and Technology Conference.



ReNewFCC™

ReNewFCC™ is Ketjen's portfolio of dedicated catalysts and services designed to enable the processing of renewables and circular feeds. As new feedstocks such as oils obtained from waste and biomass streams are introduced, new challenges have appeared through the variable content of metals and higher oxygen content in these feedstocks. Successful processing requires catalyst technologies with high accessibility and metals resistance to help decrease GHG emissions via the production of renewable fuels and chemicals. In 2023, Petrobras successfully completed the first commercial trial of ReNewFCC™ with 100% renewable feedstock consisting of soybean oil. The ReNewFCC™ formulation was specifically designed to maximize the production of renewable fuels and chemical feedstocks from the FCC unit. A second test of biomass pyrolysis coprocessing also utilizing ReNewFCC™ catalyst is scheduled by Petrobras for later in 2024.

Spray Dryer Efficiency Improvements Through Process Innovation

The production of FCC catalyst is an energy intensive process. From the various energy consuming steps, the spray dryer, which is used to form the FCC particles from a slurry of mixed ingredients and water, is the largest consumer of energy. The evaporation of the water mainly determines the energy requirement. At both our Amsterdam and Bayport sites, we have worked on increasing the energy efficiency of these units through process improvements.

At our Amsterdam site, our two FCC spray dryers account for more than 40% of the total site natural gas consumption. Through collaborative efforts between operations and process improvement teams, product recipes have been adapted to decrease the percentage of water in the spray dryer feed, and process controls have been improved to maximize the operating window while safely operating within the design of the system. Through the use of our digital PI system, we have created a dashboard that monitors water consumption and reduction opportunities. This has resulted in a decrease in water consumption of up to 10% per ton of FCC catalyst, equivalent to an estimated 0.5% reduction in CO₂ emissions against our 2019 baseline.

At our Bayport site, the spray dryer auto-dilution implementation has improved the energy efficiency of our spray dryer by increasing the density of material feeding the unit by an average of 2.5%, leading to a reduction in natural gas use of 0.7%. This initiative was recognized by the American Chemistry Council with a Responsible Care® Award for Energy Efficiency.

QUASAR™ and PULSAR®

QUASAR™ is Ketjen's line of high-performance catalysts for distillate hydrotreating and pre-treating applications that provides effective solutions to help maximize our customers' asset utilization. PULSAR® is Ketjen's catalyst technology for middle distillates hydrotreating, which maximizes the intake of cracked feedstock and increases cycle length while preserving operating stability. In 2023, our Amsterdam R&D division initiated work on the next generation of QUASAR™ and PULSAR® platform nickel molybdenum (NiMo) catalysts, which are focused on improving efficiency for our customers.

In 2023, our joint venture, Nippon Ketjen, announced the commercial availability of its next generation KF 917 PULSAR® hydrotreating catalyst for heavy crude oils, which achieves high desulfurization performance and improved performance by employing advanced active site control technology that enhances dispersion of active metals and suppresses agglomeration.

Meeting the Feedstock Challenges of the Future

Catalysts are essential in the chemical recycling of waste plastics. At Ketjen, we conduct active research into the chemical recycling of plastics via waste plastics oil hydroprocessing and catalytic upgrading and aromatization opportunities. We partner with technology developers and licensors to provide innovative, customized, and reliable catalyst solutions. Our innovations have the potential to dramatically reduce the impact of plastic waste on the environment.

Partnering for Innovation

Partnerships are of critical importance for the development of innovative products and sustainable technical value chains. Ketjen participates in a number of consortia with the aim of furthering the development and use of biofuels.

Examples of projects in which Ketjen participates include:

- **SUSTEPS** – focused on advancing the sustainable production of biofuels from microalgae
- **FUEL-UP** – aimed at transforming forest waste into advanced biofuels to enable the use of biogenic feedstocks in the aviation and marine transport sectors
- **CUWP** – a North American collaboration between industrial partners and academic institutes on chemical recycling of waste plastics

Digital Transformation

To accelerate our digital transformation, we established the Ketjen Data Intelligence team in 2023. The team's purpose is to develop and implement a long-term digital strategy leveraging Ketjen's current digital expertise, which exists across the Company, to create a focused, unified, and integrated approach to business intelligence, data analytics, and automation for data-driven workflows.

To help us better measure our environmental impact, and as part of our continuous improvement efforts, we are investing in digital tools that help us gather real time data on the performance, productivity, raw material consumption, and energy efficiency of our plants. In 2023, we leveraged a number of tools to update and adapt our manufacturing assets at our Pasadena site to enhance plant functionality, including the introduction of PI process software. We also initiated the replacement of our obsolete distributed control systems (DCS), which was completed in 2024. The DCS and PI upgrades are enhancing plant functionality and are laying the groundwork for future improvements to site operating systems and processes.

Corporate Governance

AT KETJEN, WE AIM TO CONDUCT OUR DAY-TO-DAY BUSINESS TRANSACTIONS WITH HONESTY, TRANSPARENCY, AND ACCOUNTABILITY.

Code of Conduct

As a wholly-owned subsidiary of Albemarle, we align with Albemarle's compliance program, including the [Code of Conduct](#) (Code), which shapes who we are and how we work with our customers and each other. It represents our values in action and defines how we lead, serve, and collaborate in our business interactions and with the communities in which we operate. All employees, officers, and directors of the Company are required to sign and adhere to the Code. It is intended to deter improper actions, encourage honest, ethical, and responsible conduct, promote compliance with applicable laws and regulations, and prompt internal reporting of violations.

In 2023, the Code was updated to incorporate sustainability-related amendments relating to human rights and responsible sourcing. An interactive version, or eCode, is accessible to all employees on their computers, tablets, and smartphones. Ketjen employees and stakeholders are encouraged to report any activity that may be in violation of the Code, without fear of retaliation. Employees have access to an anonymous helpline available 24 hours a day, seven days a week, in multiple languages. The helpline is operated by an independent third party in accordance with the laws of the countries where we do business.

Continuous Improvement

In 2023, Albemarle entered into a non-prosecution agreement with the U.S. Department of Justice (DOJ) and an administrative resolution with the U.S. Securities and Exchange Commission (SEC) to resolve a previously disclosed and self-reported investigation. The investigation was regarding actions prior to 2018 involving a limited group of former employees and third-party sales representatives in the refining solutions business, a part of the Ketjen business.

Albemarle's efforts to help resolve this matter have been substantial in scope, including self-reporting the misconduct and engaging in extensive remediation efforts that include enhancement of its anti-corruption policies and procedures and relevant disciplinary actions. We have also significantly reduced the number of third-party representatives with whom we engage, while providing enhanced due diligence, compliance training and monitoring to those with whom we work.





Ketjen

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