

2021  
SUSTAINABILITY  
REPORT



# Table of Contents

- Letter from the CEO ..... 3**
- Company Profile ..... 5**
  - Organizational Structure ..... 6
  - Products and Services ..... 7
  - Industries Served ..... 8
- Our 2021 Wins ..... 9**
- Our Values ..... 10**
- The Piana Promise ..... 11**
  - Product. People. Planet. .... 12
  - Our Seven Commitments ..... 13
- Lead with Change ..... 14**
  - Powered by Piana Smart™ ..... 15
  - Piana circular economy ..... 16
  - Steam molding ..... 17
  - Digital printing ..... 17
  - Diagnostic sensing ..... 18
- Work with the Best ..... 19**
  - Environmental Management System (EMS) ..... 19
  - Water Consumption and Waste Generation ..... 19
  - Our 2021 Baseline ..... 20
  - Water Consumption ..... 20
  - Sustainability Snapshot ..... 21
- Be Carbon Neutral ..... 22**
  - Energy Use ..... 22
  - Waste ..... 24
  - Sustainability Snapshot ..... 24
  - Climate Consciousness ..... 25
- Build a Culture of Safety ..... 26**
  - Sustainability Snapshot ..... 26
- Cultivate Talent ..... 27**
  - Team Building ..... 28
  - Safety Training ..... 28
- Sustainable Chemistry ..... 29**
  - Sustainability Snapshot ..... 29
- Traceability & Transparency ..... 30**
  - Our progress to date ..... 31
- Living for tomorrow ..... 32**

## Letter from the CEO

U N C O M M O N  
S O L U T I O N S  
T O C O M M O N  
P R O B L E M S

**M**y family has been in the textile business since 1582. The principle of legacy is very meaningful in our culture and our traditions — it's something I carry with me at Piana Technology into the sustainability work that is our purpose. Over the course of centuries, innovation and passion have been our inspiration — rejecting mediocrity, growing each day, embracing adversity with a spirit of entrepreneurship, creating planet-focused solutions. That is our soul, this is the Piana Promise. Our vision is to innovate toward a sustainable and magical future. It is my honor, privilege and responsibility to be part of an unstoppable and committed team at Piana Technology.

2021 was a monumentally productive year for our organization in our mission to create sustainable textile technologies to solve common problems. In 2021 we invented something entirely new — an infinitely adaptable material to meet the demands of the 21st century. The personalized, upgradable, circular economy-driven future awaits, powered by Piana Technology.



Unveiling Piana Smart™ is just the beginning. We envision a fully circular economy where sustainable, renewable textile technologies can replace wasteful single-use materials. Reducing greenhouse gas emissions, creating 100% recoverable products, and eliminating PU foam from our planet is not just a goal, it's why we exist.

Necessity and responsible values drives innovation, and I believe that addressing our climate emergency cannot be ignored. Our culture of innovation starts with this

understanding and a vision to innovate nearly any everyday textile material in our lives. Fundamentally, everything we do is based on the principle of designing new, smarter technology based on our sustainability pillars and principles.

There is a sense of mandatory urgency in our work, everyday. We focus on our ability to introduce new technologies into consumer products. We understand the importance of creating strategic business partnerships to accelerate the implementation of technologies that can make an enormous beneficial impact on the planet.

We live once hence, we can make it memorable. I am personally exhilarated by the potential we have to innovate in every area of our lives. I invite you to learn more about Piana Technology and our commitment to build a more sustainable future for products and services that touch our everyday lives.

A handwritten signature in black ink that reads "Andrea Piana".

Andrea Piana, CEO

# COMPANY PROFILE



## **Piana Technology is a family-owned textile company known for innovations within the fiber and nonwovens textiles markets.**

The company has a centuries-long legacy dating back to 1582, when the Piana family first opened their business in Biella, Italy. In 1950 the family business evolved to dyeing fiber for the traditional textile business and in 1995 they opened their first US dye house in Cartersville, Georgia. Since then, the Piana family has expanded into three major areas: nonwovens, fiber treatment, and digital printing. Today, Piana Technology is a multinational company tackling common problems with uncommon solutions. Piana makes the hidden technology behind many everyday consumer products—from automotive to home furnishings—replacing conventional materials with socially and environmentally responsible technologies.

# ORGANIZATIONAL STRUCTURE



Under the Piana Technology name are three core businesses:

/ **Tintoria Piana** offers eco-conscious wet processing and fiber treatment, including dyeing, bleaching, and cationic cotton pre-treatment.

/ **Piana Nonwovens** provides novel, nonwoven products for myriad applications.

/ **Piana ECO Planet** treats recycled fibers with their formaldehyde-free fire retardant chemistry.

## PRODUCTS AND SERVICES

All of our products, from treated fibers to nonwoven textiles, are highly customizable. We offer an array of options to suit customer specifications, whether it be for aesthetic or performance reasons.

### Vertically Lapped (VLAP) Nonwovens

We produce a vertically lapped nonwoven foam substitute that incorporates one or several fiber types with varying recycled content. It is currently available in many lightweight bedding products such as mattresses and mattress toppers.

### Specialty chemical fiber treatment

**Flame retardant (FR) treatment:** We treat millions of pounds of fiber every year with our verified formaldehyde-free fire retardant chemistry. Our FR-treated fibers can be incorporated into nonwoven fabrics where fire retardancy is needed, such as with automotive and bedding applications.

**Cationic cotton:** We perform cotton pre-treatment that dramatically increases dye absorption in cotton while producing clear backwaters, using our cationic process SaveDrop Technology™. SaveDrop™-treated cotton products can be used in textiles such as denim, T-shirts, and towels.

**Antimicrobial treatment:** We offer antimicrobial treatment to natural and synthetic fibers for specific applications, including bedding products.

### Wet processing

**Dyeing:** We provide dyed fiber in all color ranges for natural and synthetic fibers.

**Bleaching:** We bleach cotton for medical, hygiene, and homecraft applications as well as scour natural and synthetic fibers to prepare them for further processing.

## INDUSTRIES SERVED

We proudly serve multiple national household brands and tier-one automotive suppliers. As our technologies continue evolving, Piana Technology is currently developing its cutting-edge products into the furniture, bedding, healthcare, transportation, and filtration industries.

Piana Technology’s Piana Sleep™ mattress toppers are part of the growing Piana circular economy ecosystem. They are made from vertically lapped, thermobonded nonwoven fibers that outperform traditional mattress topper materials in all categories: non-toxic, odor free, and superior compressional and thermal resistance at a reduced weight. At the end of life, these toppers can be 100% reclaimed and reintroduced into the market.

In July 2022, [Piana Technology partnered with Covenant House](#) Georgia and donated Piana Sleep™ mattress toppers to refresh the sleeping quarters for their youth who are experiencing homelessness and escaping trafficking. Piana Sleep™ mattress toppers will be available to purchase in 2022.



**AGRICULTURAL**



**APPAREL**



**AUTOMOTIVE**



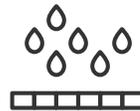
**BABY PRODUCTS**



**BEDDING**



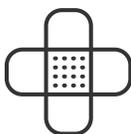
**CONDITIONING**



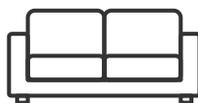
**FILTRATION**



**SEATING**



**MEDICAL**



**FURNITURE**



**TEXTILES**



**HOSPITALITY**

# OUR 2021 WINS



**GREENGUARD GOLD CERTIFIED FOR OUR PIANA SLEEP™ TOPPER AND FR-TREATED FIBERS.**



**RECYCLED CLAIM STANDARD CERTIFIED AT OUR PIANA NONWOVENS FACILITIES IN GEORGIA AND ARIZONA.**



**ZERO DISCHARGE VERIFIED FOR OUR CLOSED-LOOP WET TREATMENT PROCESS.**



**OUR FR-TREATED FIBERS ARE UL FORMALDEHYDE FREE VALIDATED.**



**2022 CES AWARD HONOREE FOR THE SUSTAINABLE QUALITIES OF THE HIGH-PERFORMANCE NONWOVEN TECHNOLOGY: PIANA SMART™.**



**HONORABLE MENTION AT FAST COMPANY'S 2022 WORLD CHANGING IDEAS**

# OUR VALUES

WE WORK TIRELESSLY TO DESIGN FOAM-ALTERNATIVE PRODUCTS THAT ELEVATE USER EXPERIENCES IN DIFFERENT ENVIRONMENTS. AT HEART, WE EMBODY THREE CORE MOTIVATIONS:



INNOVATION



SERVICE TO MANKIND



SUSTAINABILITY

**/Engineer innovative, multi-faceted products that meet and exceed performance qualities of conventional materials while operating with integrity.**

**/Uplift our team, cater to our partners, offer exceptional customer service, and protect the health of our communities.**

**/Operate within safe environmental parameters so that we may reduce our negative impacts and regenerate positivity for the planet.**

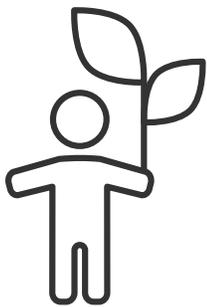
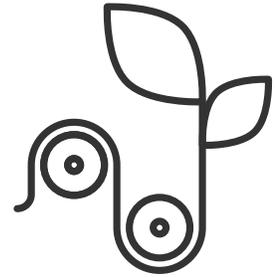
# THE PIANA PROMISE

**The Piana Promise defines how Piana Technology integrates social responsibility and environmental stewardship into our ethos. Our promise is not only to hold ourselves accountable to our stakeholders—our customers, employees, and the communities we engage—but to also guide us and act as our North Star as we grow as a business.**

**OUR PROMISE SETS FORTH THE FOUNDATION OF HOW SUSTAINABILITY IS INTEGRATED ACROSS ALL ASPECTS OF HOW WE OPERATE, STRUCTURED INTO THREE SPECIFIC PILLARS: PRODUCT, PEOPLE, AND PLANET.**

## PRODUCT.

To continuously offer transformational innovative technologies that create new standards for sustainability and performance. To unleash the most transformational and innovative products possible on the world, we apply the lens of stewardship, innovation, and integrity to all research and development.

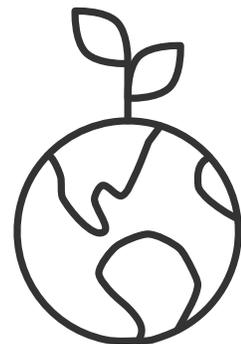


## PEOPLE.

To always prioritize our social responsibility, ensuring healthy and integrated growth of our stakeholders. At the heart of our organization are the people that make the Piana family. These stakeholders are our teams, partners, and communities that we interact with daily, that keep us committed to our promise.

## PLANET.

To forever be a servant leader in environmental stewardship and to eliminate negative impacts while regenerating positivity. We believe that how we interact with the Planet ultimately comes down to an R.O.I.: the Responsibilities of our Outputs start with our Inputs.



# OUR **7** COMMITMENTS

Our sustainability mission is centered around seven commitments that embody the ethos of the Piana Promise. We are dedicated to leading change through example, to transform ourselves into a business for good, and to work with those that share the Piana vision. We empower our team to perform at peak and hold ourselves accountable to our environmental responsibilities.



# LEAD THE CHANGE

**Sustainability goes beyond our facilities. We are dedicated to spreading positive influence in our communities through healthy business practices, contributions, and partnerships. We will transform our company culture and drive advancements in sustainability projects at home and around the world to be the difference.**

**RIGHT NOW, CONVENTIONAL MATERIALS IN THE EVERYDAY PRODUCTS WE USE SHARE A COMMON PROBLEM: LIMITED RECYCLABILITY FROM A DESIGNING AND SYSTEMIC ANGLE.**

**AT PIANA TECHNOLOGY, WE OFFER TECHNOLOGIES THAT ARE ENGINEERED FOR FUTURE UPCYCLING AND WILL MOVE THROUGH OUR DEVELOPING CIRCULARITY PROGRAM, PROVIDING A REGENERATIVE SOLUTION AGAINST MATERIAL WASTE.**

**Powered by Piana Smart™.**

**OUR GOAL IS TO MAKE FOAM OBSOLETE.  
PIANA SMART™ IS THE SOLUTION.**



**Piana Smart™** is our growing collection of technologies that elevate our textiles to be the superior replacement to polyurethane foam, starting with VLAP. Our nonwoven foam substitute is engineered through a unique process in which eco-friendly fibers are vertically lapped into a thermobonded nonwoven design. It is crafted using certified non-toxic and recyclable material, allowing for easy integration into the circular economy.

- / Up to 50% reduced material use and weight compared to PU foam.
- / Up to 10x more air permeable than PU foam.
- / Up to 2x more efficient at thermal dissipation than PU foam.

Piana Smart™ features an innovative ecosystem powered by a unique engineering and manufacturing process that integrates circular design with high quality materials.

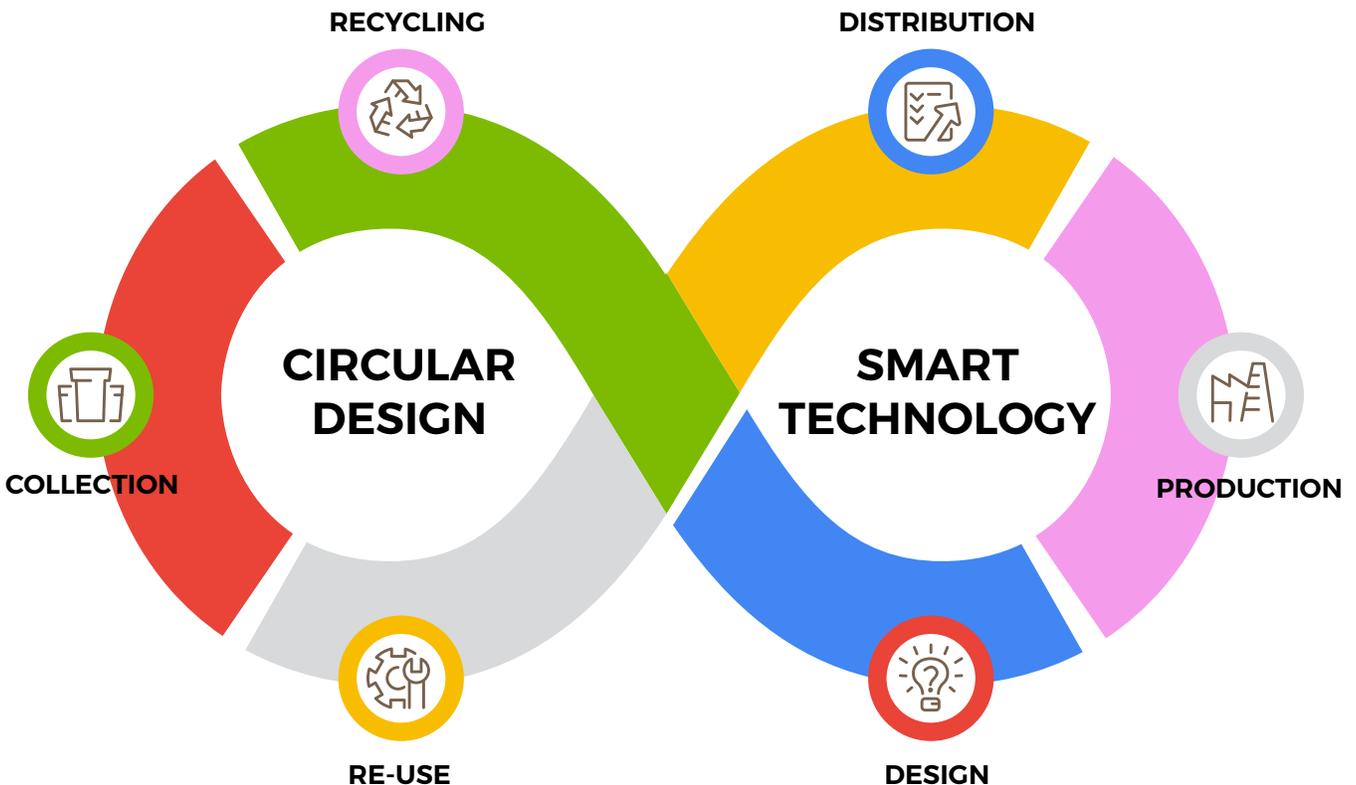
/ From conception to end-of-life recovery, fibers are selected based on performance, material content, and recyclability to deliver a zero-waste product to consumers.

/ At the end of a product’s consumption stage, 100% of VLAP can be reclaimed, recycled, sanitized, and reshaped into endless possibilities.

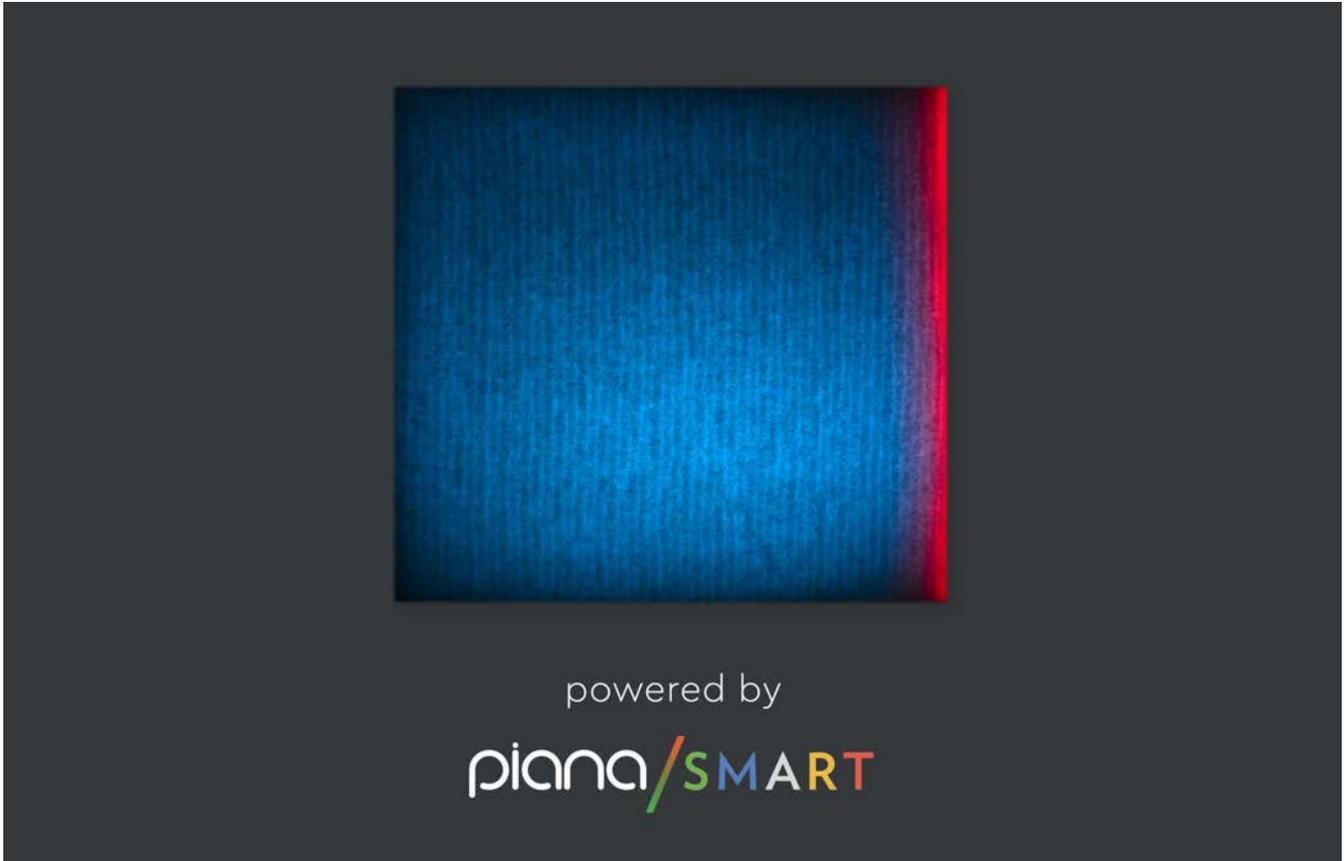
**Together**, these technologies allow our VLAP to reduce greenhouse gas emissions by up to 70% compared to conventionally used PU foam[1].

**SEVERAL MORE TECHNOLOGIES TO PROPEL OUR VISION OF A ZERO-WASTE WORLD ARE CURRENTLY IN DEVELOPMENT.**

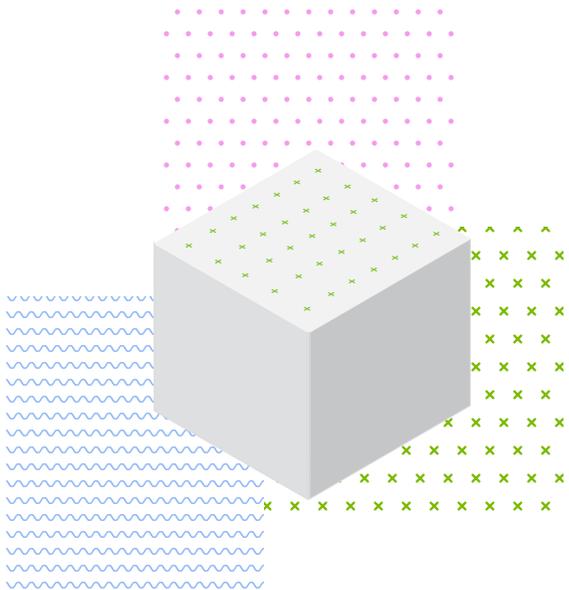
## Piana Circular Economy



[1] Per 2021 Higg Material Sustainability Index data comparing PET fibers to PU foam.



## Steam Molding



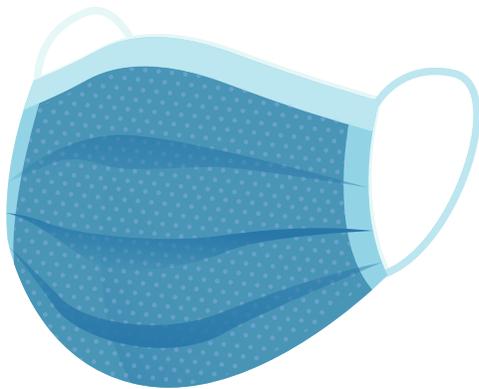
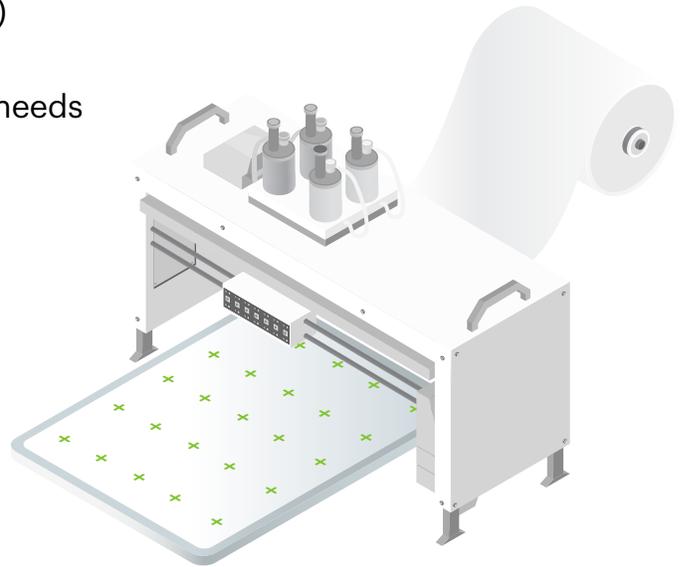
Piana Technology’s emerging molding technology is a patented fiber-based molding process using steam.

Articles planned for application include transportation seating (e.g., automotive, airplane, maritime, etc.), furniture, bedding, and other articles with nonuniform geometry and with resiliency, comfort, and support requirements.

## Digital printing

Piana's emerging digital printing technology enhances articles with integrated molecules, chemistry, or sensors. The chemical and molecular technology affords functionality unlike other digital printing processes. Examples of Piana's digital printing technologies include:

- / Cooling: Phase Changing Materials (PCM)
- / Customizable aromatherapy for specific needs
- / Antiviral/antimicrobial properties
- / Odor control



## Diagnostic sensing

Piana's emerging diagnostic sensing technology will be applied to articles enabling predictive sensing capabilities with the ability to identify pathogens, biomarkers, and receptors.

# WORK WITH THE BEST

**Exceptional is our new standard. To excel, we look inward to take advantage of the opportunities for operational efficiency, executive performance, and fruitful business relationships. Our focus is to set industry expectations and work with partners who share the Piana vision.**

## **ENVIRONMENTAL MANAGEMENT SYSTEM (EMS)**

It's important to us to establish strong sustainability standards that are cemented into the company's management system. For that reason, we are currently developing our own environmental management system (EMS) to help us identify, monitor, and improve our impacts year after year.

## **WATER CONSUMPTION AND WASTE GENERATION**

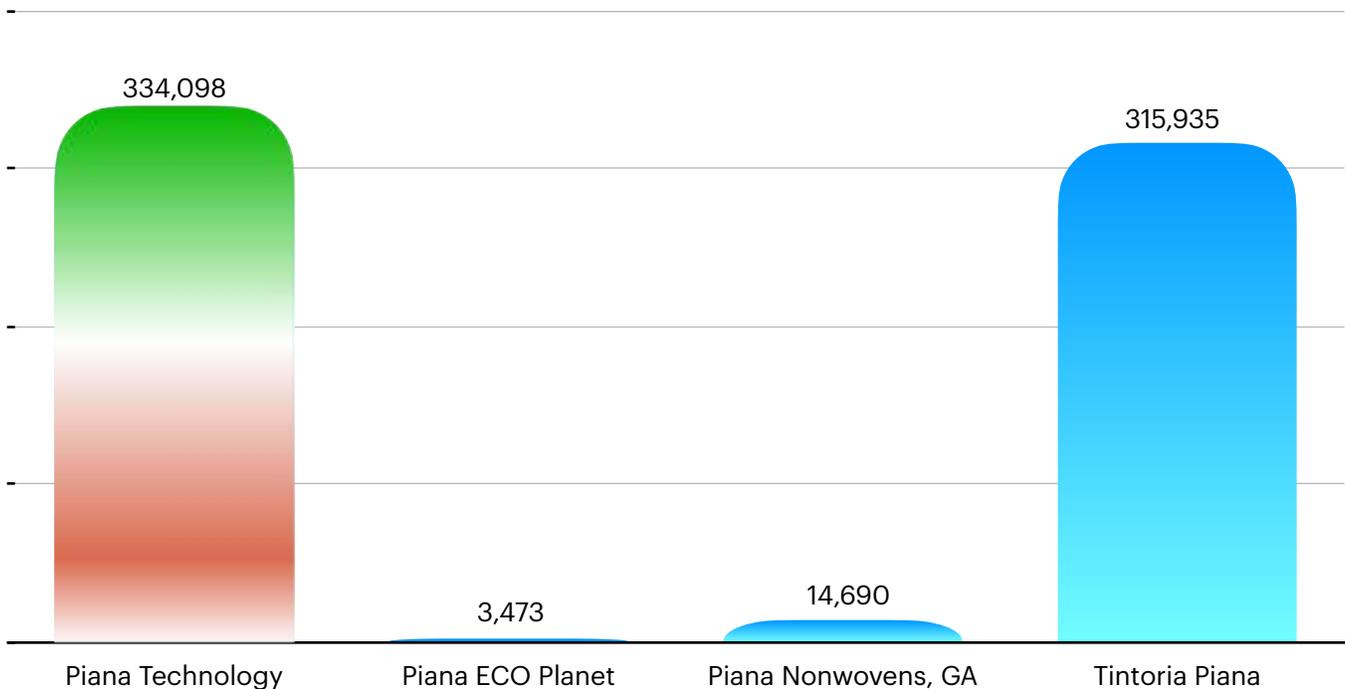
We aim to reduce water consumption at our Tintoria Piana facility by installing a water recovery system. We are also monitoring our waste generation and disposal patterns with the goal of becoming zero waste—diverting at least 90% of our waste stream away from landfills and incinerators—across the board by 2025.

## OUR 2021 BASELINE

2021 Baseline Resource Consumption Across Piana Technology					
	Piana Technology	Tintoria Piana	Piana Nonwovens, GA	Piana ECO Planet	Piana Nonwovens, AZ
Electricity (kWh)	10.071.062	4.167.664	3.362.689	1.154.601	1.386.108
Natural Gas (therms)	1.123.079	801.272	127.887	132.693	61.227
Propane (gallons)	13.931	7.717	6.168	N/A	46
Water (m3)	334.098	315.935	14.690	3.473	N/A
Waste (metric tons)	855	164	225	273	193

## WATER CONSUMPTION

2021 Water Use (m3)



# Sustainability Snapshot

## QUALITY MANAGEMENT COMPANY-WIDE

We continuously commit ourselves to operating under a quality management system. We are ISO9001:2015 certified, demonstrating that we meet customer needs in regards to our products and services.

## FACILITY ENVIRONMENTAL MODULE (FEM)

We are using one of the Higg Index tools, Facility Environmental Module (FEM), to benchmark our environmental progress at all of our locations.

## SAVEDROP TECHNOLOGY™

SaveDrop Technology™ is our cotton pre-treatment technology that makes the dyeing process both efficient and environmentally friendly. Available on an industrial scale, it reduces energy use by up to 75%, water consumption by 90%, and eliminates chemical usage altogether, all while offering vibrant colors and clear backwaters.



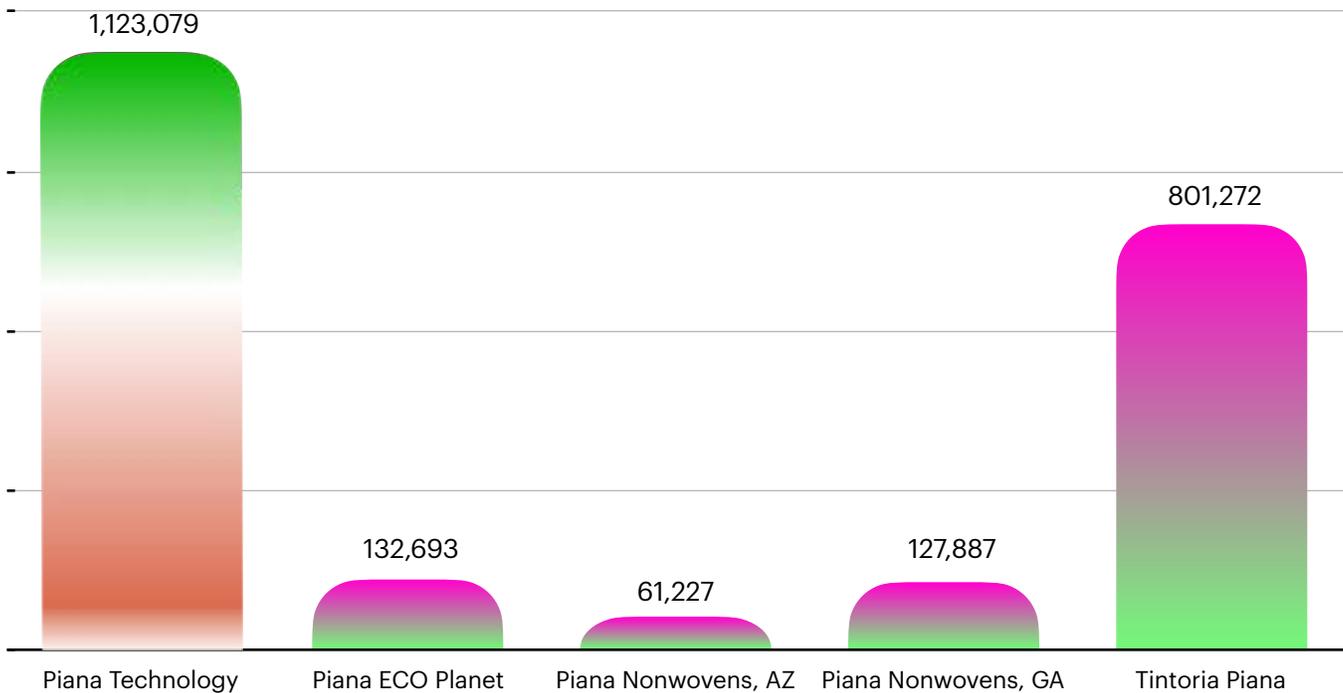
# BE CARBON NEUTRAL

## It is in our power to challenge the global threat of climate change.

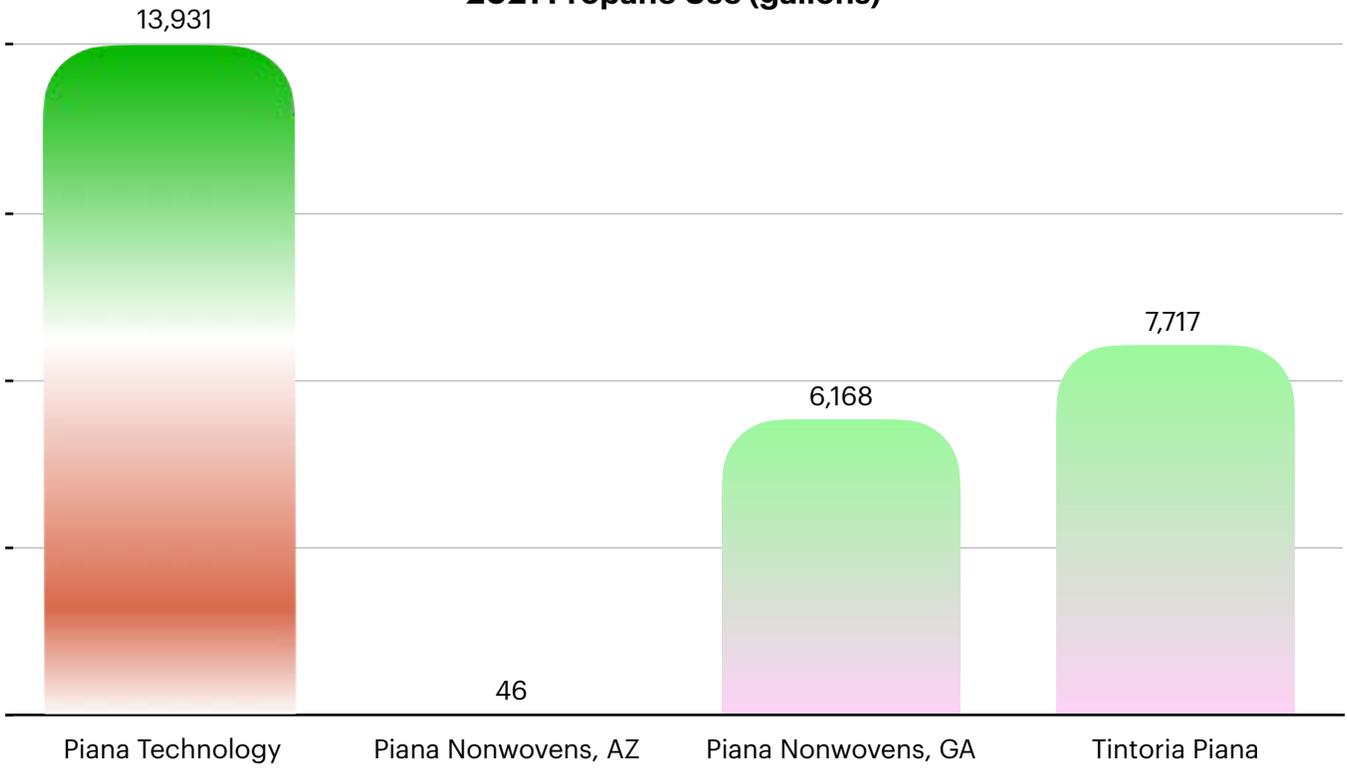
We are committed to attacking our emissions by taking comprehensive inventory of the company’s climate impact, implementing clear and measurable action plans, and making improvements wherever possible. We commit to cutting our Scope 1 and 2 emissions by 50% against the 2021 baseline by 2024. As we implement strategies to lower our emissions, we will continually measure its effectiveness against this baseline.

### ENERGY USE

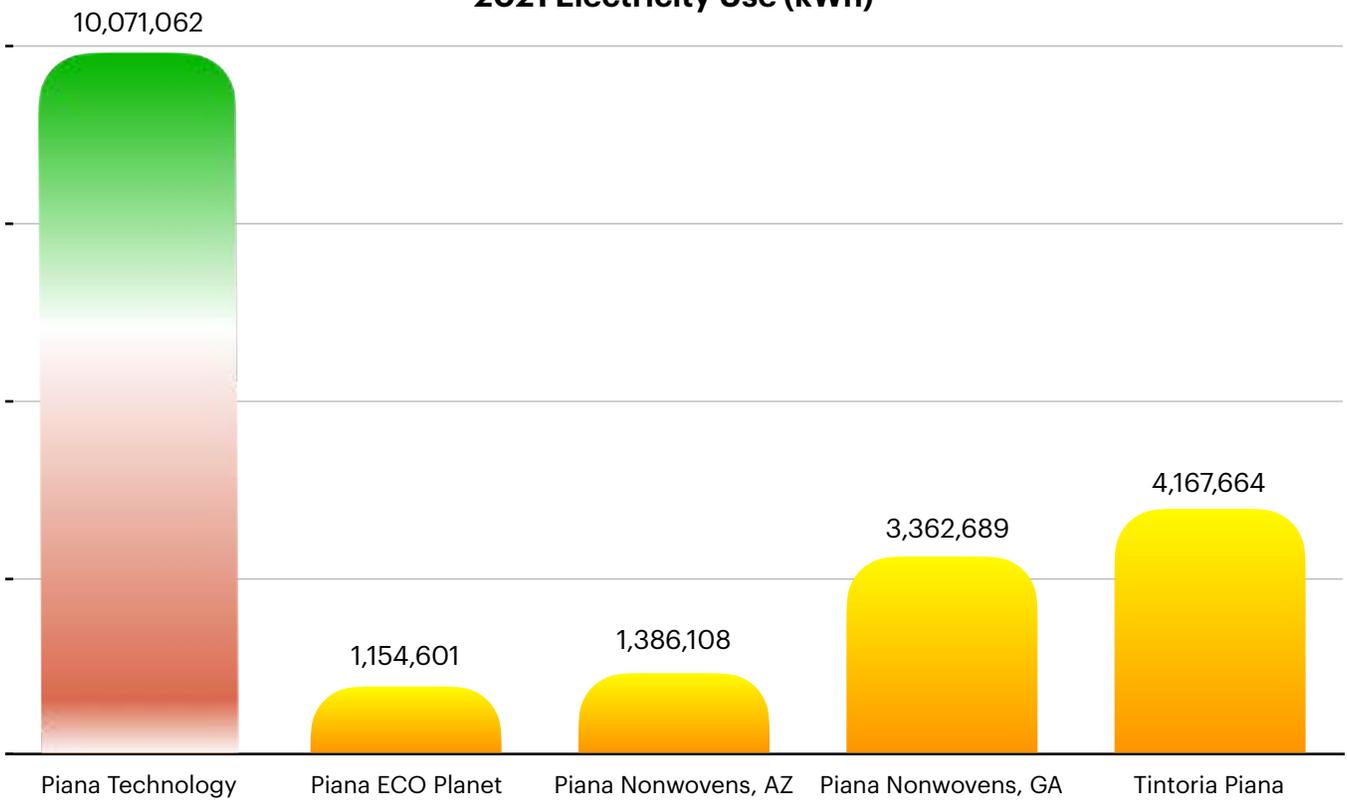
2021 Natural Gas Use (therms)



### 2021 Propane Use (gallons)

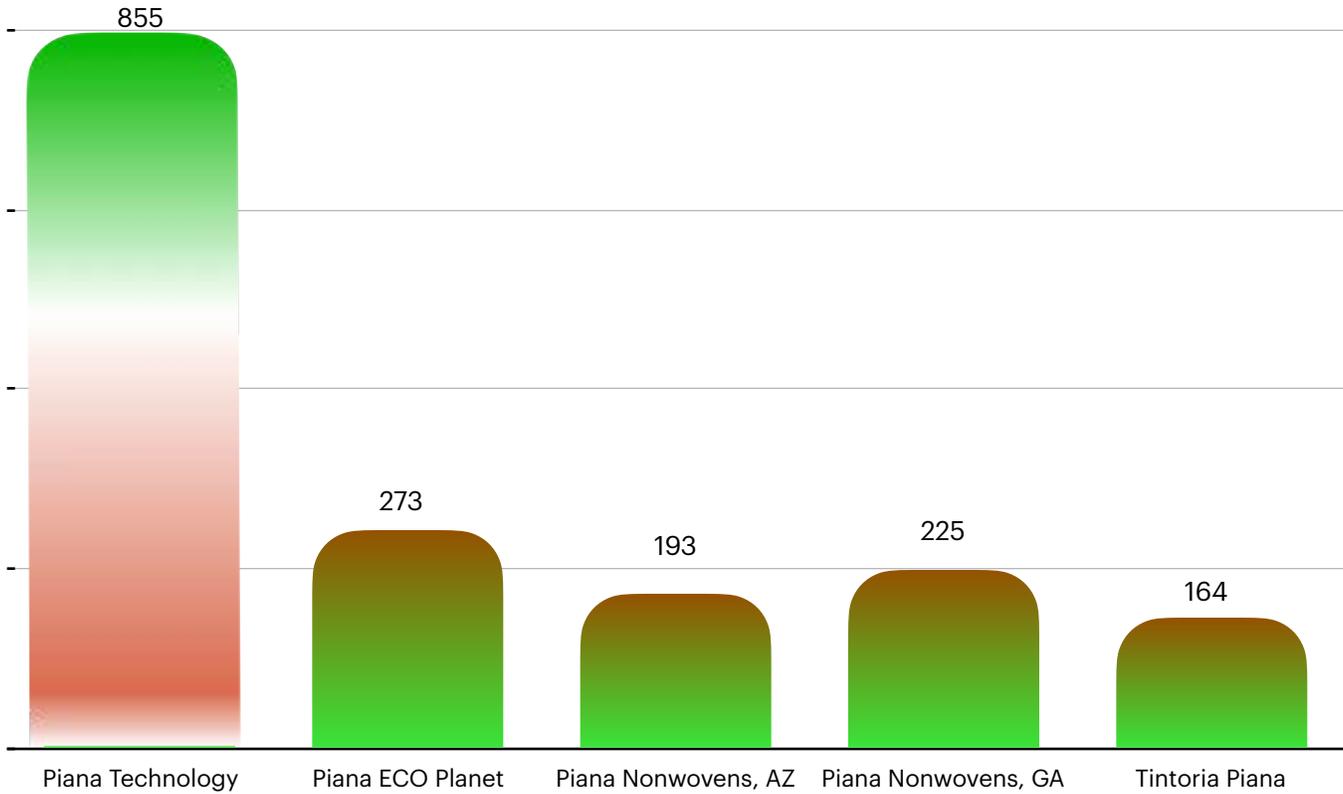


### 2021 Electricity Use (kWh)



# WASTE

### 2021 Waste Generated (metric tons)



## Sustainability Snapshot

In 2022, we started using renewable energy by installing a solar panel system to meet up to 30% of our energy needs at our Piana Nonwovens facility in Georgia. It will provide over 620,000 kWh a year, saving an annual 460 tons of CO<sub>2</sub>.



# BUILD A CULTURE OF SAFETY

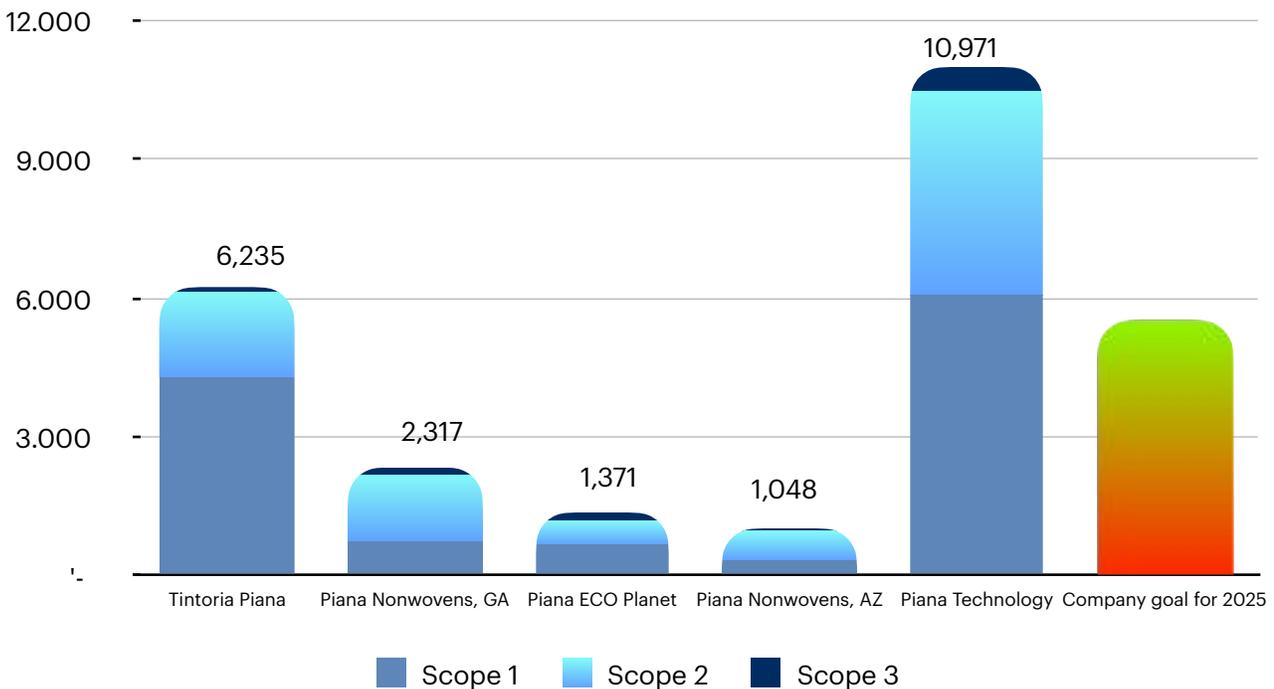
## CLIMATE CONSCIOUSNESS

Piana Technology emitted 10,971 metric tons of greenhouse gas emissions in 2021. We will cut this number in half by 2024 by improving energy efficiency and using renewable energy where possible.

**2021 GHG Emissions (metric tons of CO2e)**

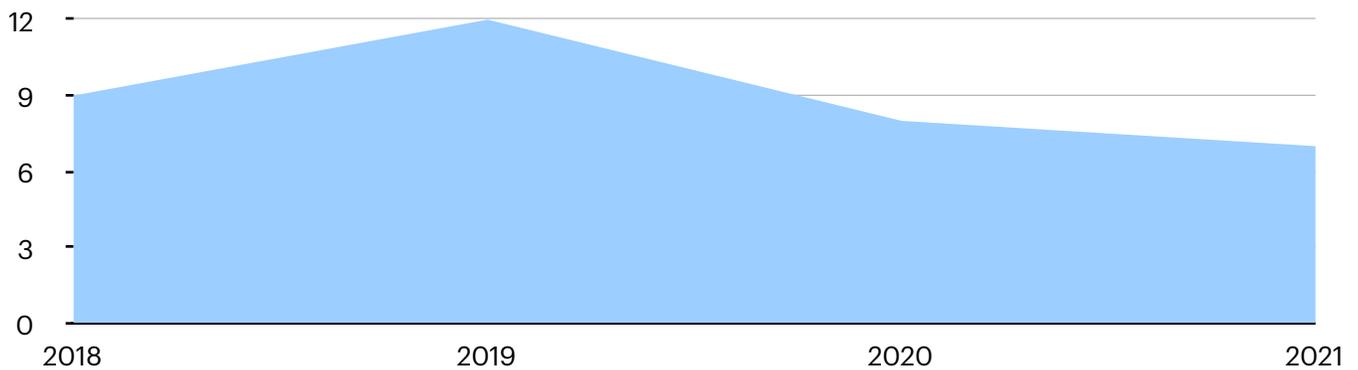
	Scope 1	Scope 2	Scope 3	Total
<b>Tintoria Piana</b>	4.300	1.841	94	6.235
<b>Piana Nonwovens, GA</b>	720	1.468	129	2.317
<b>Piana ECO Planet</b>	705	510	156	1.371
<b>Piana Nonwovens, AZ</b>	325	612	111	1.048
<b>Piana Technology</b>	6.050	4.431	490	10.971
<b>Company goal</b>				<b>5.486</b>

**2021 GHG Emissions (metric tons CO2e)**



Compromise cannot exist when it comes to safety. It is our responsibility to address all safety concerns with organizational preparedness, awareness, and response. By relentlessly exercising safety norms into our root operations, we instill a culture of safety that secures the well-being of our teams. We work to adapt our system to nurture this culture of safety. As our business grows, so will our expansion of safety audits, regular safety training, and effective emergency preparedness and response programs.

**Total Reported Injuries at Piana Technology**



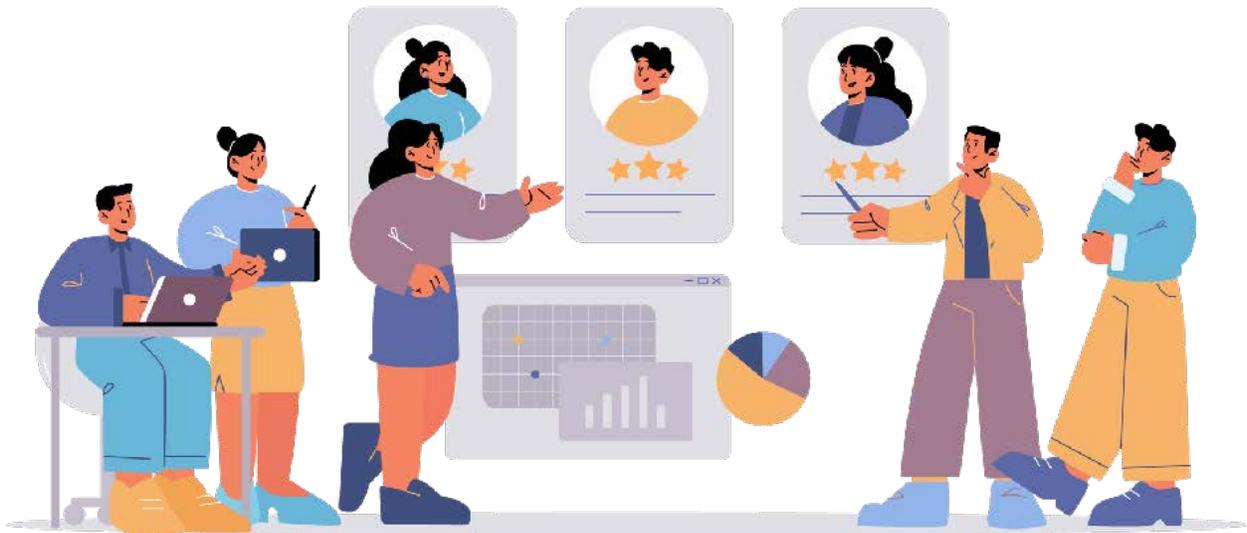
## Sustainability Snapshot

We conduct regular safety training sessions for all of our facility employees so that they can meet safety expectations. Sessions are held multiple times a year so that every person can contribute to a safe work environment.



# CULTIVATE TALENT

**Family is the heart of Piana Technology. We believe that our people are the backbone of our success.**



We strive to inspire each team member to perform at peak by supporting team development and exploring employee programs to boost morale, satisfaction, retention, and productivity. Caring for our team will cultivate the best talent as Piana Technology continues to grow. Today, more businesses are recognizing the importance of providing support to all employees. A satisfied workforce is more productive, more likely to stay at their company, and helps companies save money on reduced turnover while attracting other highly skilled people. A business culture centered on the wellbeing of employees is one built to last.

## TEAM BUILDING

Our management team meets every month to discuss company updates, goals, and progress. We mark our current standing against targets, taking the opportunity to decide on next steps and offer or ask for help. We keep our stakeholders in mind and develop solutions to best meet their needs.

In the coming years, we will be exploring and expanding employee programs that will nurture talent, enhance productivity, and boost satisfaction.

## SAFETY TRAINING

Our top management invests dozens of hours of training to equip employees with operational safety knowledge, communication and awareness, and emergency preparedness. We plan training sessions so that they are tailored to the environment of each facility and meet the needs of our employees, including areas such as:

- / Equipment handling procedures
- / Facility upkeep
- / Preventative maintenance
- / Medical assistance
- / Accident prevention



# SUSTAINABLE CHEMISTRY

The impacts of input chemistry are felt from cradle to grave. We will map, identify, and eliminate toxic and harmful chemicals from our operations, replacing them with safer alternatives that protect the health of our planet and people while meeting industry standards and expectations. Practicing responsible chemical management is key to making sustainable products that represent the Piana mission. We have made huge strides to make our wet processing operations among the most sustainable in the textiles industry. To continue this trend, we are setting our sights on installing a chemical management program at all of our facilities.

## Sustainability Snapshot



### ZERO DISCHARGE ENVIRONMENTAL CLAIM VALIDATION

The Zero Discharge verification validates the closed-loop system claim of our Flame Retardant (FR) processes, confirming that no chemistry or wastewater is released into the environment. Our patented closed-loop treatment process efficiently treats multiple fiber types while remaining conservative with our water use. This system, hosted at our Piana ECO Planet facility, has been verified as of December 2021.

### UL FORMALDEHYDE FREE VALIDATION

Developed by UL, the Formaldehyde Free verification validates the claim that a material or product does not contain formaldehyde or formaldehyde precursors. Fibers that have been treated with our FR chemistry underwent both raw material input auditing and chemical emissions testing, and we have been officially certified as of January 2022.

# TRACEABILITY & TRANSPARENCY

Honesty and openness are rare but critical elements to stakeholder trust. We will provide a meaningful level of transparency into the environmental and social impacts at all levels of our organizational activity, from daily operations to our community involvement. Doing so demonstrates the sincerity of our commitments and accountability for our actions. As part of our transparency campaign, we will continually release our progress status and metrics, even if we didn't meet our goals. No sustainability journey is linear, and it's important for us to reveal challenges transparently and respond with meaningful action.



## Our progress to date

### SAVEDROP TECHNOLOGY™ LIFECYCLE ASSESSMENT (LCA)

A life cycle assessment (LCA) is a comprehensive study of a product's environmental impacts throughout its lifecycle. We commissioned SCS Global Services to perform a cradle-to-gate LCA on our cationic cotton, allowing us a deep insight into where our SaveDrop Technology™ currently makes the most impact, and where we can potentially improve.

### PIANA VLAP LIFECYCLE ASSESSMENT (LCA)

We commissioned SCS Global Services to conduct a cradle-to-gate comparative LCA between our VLAP material and polyurethane foam to find differences in environmental impacts.

### RECYCLED CLAIM STANDARD CERTIFIED

The Recycled Claim Standard (RCS) is an international, voluntary standard that sets requirements for traceability of recycled inputs via a chain of custody. We have certified both of our Piana Nonwovens facilities in 2021 to this standard, meaning any of our products which bear the RCS logo have a guaranteed recycled content.



# LIVING FOR TOMORROW

**Sustainability is a journey. We are ready to push forward with our resolutions and expand on our every endeavor. Our centuries-old legacy is just a fraction of who we are; our existential goal is to bring positive changes through sustainable business practices and innovative technologies that positively impact our world. While we still have much room to grow, we will always nurture the creative, transformative, and bold character that defines Piana Technology. Even as we progress, our best is still ahead of us. We will always push the boundaries for what's possible for a sustainable, carbon neutral, and truly circular future.**

