

AIZOME

Sustainability Report 2023





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Introduction

From seed to sheet, we make it our mission to create products that are good for our customers, our employees, and the planet we all share.

In truth, when this all started, we'd set out to make the best sheets for humans suffering from skin conditions. By accident, it seems we ended up making some of the best sheets for the environment, too.

But of course, right? Because our health and the health of the planet are inseparable. Humans used to know this; it's only in our modern, high-paced, efficiency-driven world that we've forgotten. Aizome is a centuries-old Japanese craft used to infuse the clothing of Samurai warriors with indigo's medicinal properties – anti-inflammatory, antibacterial properties that could offer protection to wounded skin. With aizome, we are working to make bedding that benefits our health as we sleep.

Why are so many products created for people with sensitive skin made with harmful, toxic synthetics, if plant-dye is such a good option?

The answer was a chorus of:

- Plant colors cannot make all color ranges that chemical colors can
- Consumers are not educated enough, and
- Plant-dyes cannot reach full color fastness.

We accepted the challenge.

1. We believe that consumers are underestimated (and intentionally misled) and that many are hungry for knowledge, change, and consumption with integrity
2. We refuse to accept that we can build AI and fly to the moon, but NOT find a way to improve colorfastness of plant dye without synthetic chemicals
3. We don't really love neon, anyway.

Together with a team of scientists, engineers,



Misa and Michel, the founders of AIZOME

and dermatologists, we developed an innovative sonar-wave method to unlock the benefits of plant-based dyeing for home textiles without compromising in vibrancy, color fastness, or durability.

Inspired by ancient Japanese craftsmanship and holistic wisdom, our cutting-edge process infuses soft, organic cotton with the pigment and properties of medicinal plants, creating fabric that soothes irritated skin, in harmony with nature: no pesticides, no synthetics, no petrochemicals. Our dyeing process requires significantly less water than most synthetically-dyed textiles, and our 'waste-water' is so pure that it has been used as organic fertilizer, and even skin care! (yeah, we did that). In 2018, AIZOME successfully launched our first bedding collection – to much acclaim from the likes of Forbes, Fast Company, and The Independent – and our crowdfunding quickly became one of the most successful campaigns from Japan in 2018.

This report is to acknowledge our second goal: omoiyari. Omoi (思い) means thought. Yari is derived from yaru (やる), which means give or send. So, literally, omoiyari means to give your thoughts to others. It is sometimes translated as the art of consideration. Practicing omoiyari anchors our decision-making in deep relational care and accountability. This has grown our understanding of impact and transformed our expectations of business along the way. To us, omoiyari is what inspires true sustainability, rooted in respect and celebration.



About Us

At AIZOME, we craft hypoallergenic, all-natural fabrics that soothe sensitive skin. Inspired by ancient Japanese craftsmanship and holistic wisdom, our products are dyed exclusively with plant-based ingredients; no synthetic chemicals, no synthetic finishing agents, no toxic waste. Using state-of-the-art technology, we create soft, high-quality fabric that is good for you, our employees, and the planet we all share.

Let's go!



Why this Matters

There are thousands of chemicals used in the manufacturing and dyeing of textiles. Many of these chemicals are allowed without a full understanding of the impact they have – immediate or long-term. Others persist even though they are known carcinogens. Many of these chemicals make fabrics softer, wrinkle-free, flame retardant, or stain resistant, or they allow higher color uptake. These are qualities that consumers have been told indicate quality.

There is a long history of commonly-used and lauded chemicals turning out to be toxic. Consider DDT, Sheele's Green, Asbestos, Azo dyes, and now, PFAS, which are estimated to pollute not only global drinking water and food supplies, but also 98% of Americans' blood.

Numerous studies have shown that the trade-off for these soft, vibrant, wrinkle-free, water-resistant products is severe. PFAS, Azo dyes, flame retardants, formaldehyde, dioxins, biocides and heavy metals in textile are granted intimate access to our skin and, through industrial wastewater and household laundry, our water supplies. These chemicals are linked to documented health and environmental concerns, including:

- [Exposure to carcinogenic compounds](#)
- [Disruption of human DNA](#)
- [Negative impact to reproductive health](#)
- [Neurological damage](#)
- [Skin rashes and irritation](#)

This has been known for a long time. A 1978 study by Blum et al, demonstrated the rapidity and longevity of dermal absorption of chemicals in textile. In this study, pajamas containing a flame retardant were worn by children during sleep (8 hour exposure period). The following morning researchers observed a fifty-fold increase in the metabolite 2, 3-dibromopropanol, detected in the childrens' urine. "After changing to a pajama free of the substance, the urine concentration of the metabolite slowly decreased, but, after five

days, it was still twenty times higher compared to the initial concentration." ¹

Alarmingly, flame retardant bedding and sleepwear is still often marketed as beneficial. Azo dyes still pollute our waters. Even "organic textiles" may contain hidden synthetics, whether in the form of "low-impact dyes" or finishing agents.

Conversely, AIZOME sheets contain zero synthetic ingredients or chemicals, and are

the only bed sheets to be recognized by the National Eczema Association (NEA) as a product that provides benefits for people with eczema and sensitive skin.

By refusing synthetics in textile and dye, we not only take a stand to protect both human health and the environment, we take a stand, shoulder to shoulder with our peers and you, to demand transformation of the entire industry.



¹ Luongo, Giovanna. "Chemicals in textiles: A potential source for human exposure and environmental pollution", Stock-

holm Uni., 2015

Top 6 Dangerous Chemicals Used in The Textile Dyeing Process

Stop.

Right now, in this exact moment, your body is most likely in direct contact with one or more of the following chemicals.

'Experts' disagree what constitutes a 'safe' level of exposure. But when that argument is made tangible by the very clothing you are currently wearing, the idea of making textile without synthetics and chemicals just...makes...sense. Doesn't it?

And that's not even considering the damage these chemicals wreck upon the environment and factory workers.



FLAME RETARDANTS

Flame retardants have been linked to a range of health risks, including cancer, reproductive and developmental problems, and neurological effects. Some flame retardants are also known to accumulate in the body over time, which means that even small exposures can lead to health problems over time.

FORMALDEHYDE

Formaldehyde is a colorless, pungent gas that is used as a disinfectant, preservative, and fabric finish. It can cause respiratory problems, skin irritation, and is classified as a carcinogen by the International Agency for Research on Cancer.

AZO DYES

These dyes contain a nitrogen-based compound that can break down into cancer-causing agents, such as aromatic amines, when they come into contact with water or other chemicals. Aromatic amines can be absorbed through the skin or inhaled, and they have been linked to bladder cancer and other health problems. Azo dyes have been banned in numerous countries.

HEAVY METALS

Textile dyeing processes often involve the use of heavy metals such as mercury, lead, and cadmium. These chemicals can have negative effects on human health and the environment. For example, mercury can damage the nervous system, and lead can cause developmental delays in children.

CHLORINE BLEACH

Chlorine bleach is used to whiten fabrics and remove stains, but it can release harmful by-products into the environment and can irritate the skin and respiratory system.

PERFLUORINATED COMPOUNDS (PFCs)

PFCs are used to make fabrics water- and stain-resistant, but they can persist in the environment and have been linked to cancer and other health problems, leading to numerous bills worldwide demanding PFAs be banned.



Impact Summary

AIZOME textiles contain zero synthetic ingredients. Period.

Simplicity can be radical. Our sheets are made from organic cotton, water, and medicinal herbs. Of these ingredients, all are good for your skin and are completely biodegradable. While chemical dyes are widely recognized to cause devastating effects on the environment and factory workers, our dyes produce zero toxic waste. In fact, our wastewater is so pure, it has been used as fertilizer, and even skin care. Still, our products are made from finite resources, consuming both arable land and water. This is how we currently take care to use these resources with respect and intention:

CHEMICAL FOOTPRINT

The only additives to our dye are in the form of completely natural ingredients: citric acid, mineral alum, and quicklime. The citric acid used in the dyeing process is food grade and the alum used is mineral alum (not synthetic). Quicklime is used in the dye extraction process.

Post-treatment desizing uses biological enzymes. AIZOME dyes are crafted from herbs used in traditional herbal medicines, which allow no pesticides or fertilizers.

WATER FOOTPRINT

Cotton – the best material for individuals suffering from sensitive skin or eczema – is a plant that requires a lot of water to grow. This is why we only buy from cotton-growers who are independently certified by Global Organic Textile Standards (GOTS), to ensure that measures are taken to lessen any negative impact. We also practice a ‘continuous dyeing’ process, in which our water is reused many times before finally being filtered and released into the environment. It is estimated our dyeing process requires 75% less water than conventional synthetic dyeing. It should also be noted that many synthetic dyes, in their pure form, are nerve toxins, and wastewater requires extensive, energy-intensive cleaning before the water can be considered non-toxic; our wastewater can be used as fertilizer.

CARBON FOOTPRINT

We are monitoring our carbon footprint to be able to better quantify precise impacts, but the following is what we understand to be true: In addition to a decreased carbon footprint from the use of GOTS certified organic cotton (estimated by OEKO-Tex to create 50% fewer carbon emissions than conventional cotton), our dyeing process is less carbon intensive than conventional or synthetic dyeing, as it requires lower temperatures, less energy, and less water. Additionally, we refuse next-day shipping and pack our products in recycled boxes, entirely free from plastic.

END OF LIFE

The average European throws away 11kg of textiles every year. The average American, closer to 40kg. Around the world, a truckload of textiles is landfilled or incinerated every single second. According to a recent report from the European Commission, global textile production almost doubled between 2000 and 2015, and the consumption of clothing and footwear is expected to increase by 63% by 2030². Roughly 85% of all textiles end up in landfills, but this is partly because the majority of textiles cannot safely be recycled as they are the product of complex synthetic blends or dyes³. While multiple companies are ac-

tively pursuing a means to recycle synthetic and blended textiles, even when this is accomplished, the amount of chemicals that will be required – and then discarded – is alarming.

Because AIZOME products are entirely natural, they can not only be recycled, they can be disposed of straight into the compost. But their durability and colorfastness means this will not even be a consideration for many years. In fact, internal studies indicate that even in hotel usage, which requires frequent, aggressive washing, our sheets outperform the leading competitors on both accounts.

SOCIAL RESPONSIBILITY

Our company is guided by intentionality and responsibility, and we work to ensure a positive impact through both relationship-building and, where transparency is less possible, third-party audits to ensure healthy environments free from chemicals (GOTS for our cotton, OEKO-Tex for our weaving, finishing, tailoring, and packaging, and waste water testing according to ZDHC standards). But our primary mode of ensuring social responsibility is through the cultivation of ongoing communication with factory management, and in-person visits of our factories.

² https://ec.europa.eu/commission/presscorner/detail/en/QANDA_22_2015

³ <https://www.bbc.com/future/article/20200710-why-clothes-are-so-hard-to-recycle>



Strategy

At AIZOME, we no longer strive to be ‘sustainable’. Why? Because we view sustainability as the effect, the outermost expression of an innermost conviction, not the cause. Instead, our vision to create healthy, all natural textiles arises as an undiluted expression of that innermost foundation: omoiyari – the Japanese concept of honoring one’s relationship to all things.

Omoiyari 思いやり consideration, compassion; to anticipate the needs of others with empathy and thoughtful awareness.

Omoiyari anchors our decision-making in deep relational care and accountability, and in the possibility of a way forward. Omoiyari has grown our understanding of impact, transforming our expectations of business along the way. At AIZOME, we nurture a radical belief in possibility – rooted in respect and celebration.

Interconnectedness already exists, we humans need simply to remember how to perceive it.

As our dear teacher and artistic advisor, Cozo Cazama says:

“To master the art of aizome, one is required to observe and learn from nature, and also to respect nature’s ways. In our age where everything is changing fast, I think it is important to be reminded that we humans are part of the natural world. Feeling the identity of being a part of the natural world, this is what aizome is to me.”



United Nations' Sustainable Development Goals

The United Nations' sustainable development goals (SDGs) sound urgent calls for action that serve as lodestars for our work. Of the 17 SDGs, AIZOME has committed to incorporating the following five as part of our ethos and business strategy:



GOOD HEALTH AND WELLBEING (SDG 3)

Tens of millions of people suffer from eczema, with an alarming number of cases leading to diagnosed depression, severe isolation, and even suicide. In creating textile that soothes irritated skin, we aim to help in the treatment of dermal distress and disease, and to support mental health and well-being. It is irrefutable that the toxins we encounter – in our textiles and our environment – contribute to the rampant spread of disease and poor health in humans and nature alike.

CLEAN WATER AND SANITATION (SDG 6)

Clean water and access to sanitation are fundamental to the nurturance of life. Our operations are committed to adding zero synthetic ingredients to the water used from seed to sheet, so that the water that leaves our facilities is as clean or cleaner than when it entered, allowing it to be used for other important purposes.

DECENT WORK AND ECONOMIC GROWTH (SDG 8)

Decent work and economic growth means ensuring that those who contribute to the creation of our textiles – whether in agriculture or in the factory – are free from the harm of any synthetic chemicals. It also means working with partners who ensure the safety and wellbeing of their employees, fair wages, employment benefits, equality, and respect.

INDUSTRY INNOVATION AND INFRASTRUCTURE (SDG 9)

SDG 9 aims to improve industries to make them sustainable, with increased resource-use efficiency and greater adoption of clean and environmentally sound technologies. At AIZOME, our synthesis of ancient wisdom and cutting-edge technology allow us to create products from nature in a way that creates no harm.

RESPONSIBLE PRODUCTION AND CONSUMPTION (SDG 12)

The textile industry is one of the most polluting industries in the world. Which means there are also extraordinary opportunities for impact. Through personal relationships, in-person visits, and third party audits, we work to ensure that AIZOME products are produced responsibly, from seed to sheet. And in proving the efficacy and vibrancy of our production techniques, our aim is to inspire greater change, industry-wide.

Sustainable Materials

We have proven that simple ingredients can create beautiful, high-quality textiles that are not only good for the earth but also good for the people who wear them. By limiting our materials to synthetic-free ingredients, we are able to ensure that every step of our process is as sustainable as possible, from the field to the final product. We are proud to be able to offer our customers textiles that are not only good for their health, but for the environment as well, while also operating from the understanding that ideal production is an ever-evolving target, with a constant eye toward improvements in technology, and in our own process.



We set out to make the healthiest sheets possible for individuals suffering from sensitive skin. Additionally, we are dedicated to using eco-friendly and socially responsible materials in our products. That's why we have chosen to craft our textiles with 100% GOTS certified organic cotton, medicinal plants, and water. While we can more transparently oversee the dyeing, tailoring, and packing parts of production, because cotton is sourced from multiple farmers, we rely on GOTS. Further, our 100% GOTS certified organic cotton is unbleached.

Because our organic cotton is grown without the use of synthetic pesticides or fertilizers, its cultivation is better aligned with the health of farmers and the environment. By using dyes derived entirely from plants, we avoid the harmful chemicals often found in synthetic dyes. And, by reusing our water for multiple dyeing processes – and refusing microplastics and synthetic materials that contaminate wastewater – we conserve precious resources and minimize our environmental impact.



Thoughts on Cotton

According to the Rodale Institute, “worldwide, [conventional] cotton covers 2.5% of the cultivated land and cotton growers use 16% of the world’s pesticides. Eight of the top 10 pesticides most commonly used on U.S. conventionally produced cotton were classified as moderately to highly hazardous by the World Health Organization.”

This is but one reason we insist upon using certified organic cotton. But even organic cotton has a significant water footprint, and the clearing of land for cotton production has resulted in social and environmental devastation around the world. While we are encouraged by increasing stringency in industry standards, such as GOTS and OEKO-Tex, we are also excited for any textile innovations that would allow for the use of plant fiber that is less water intensive than cotton and also processed without the use of synthetics and harmful chemicals - as bamboo and eucalyptus - which can be extremely irritating to inflamed skin – not to mention, polluting to the environment.

To date, cotton is still the number one choice of organizations like the National Eczema Society for sensitive skin. This is because “cotton is soft, cool, great at absorbing sweat, easily washable and allows the skin to ‘breathe’.” So in choosing to use organic cotton, we take care to ensure the longevity of the product, respecting the materials we use and the resources required.

Making the Invisible, Visible

Our promise to our consumers and employees is simplicity, transparency, and quality they can trust: no hidden ingredients, no greenwashing. Only high quality, healthy bedding enriched by the wisdom of nature – and nothing else. At AIZOME, our policy is zero synthetics, because even an ‘organic’ label can sometimes be misleading.

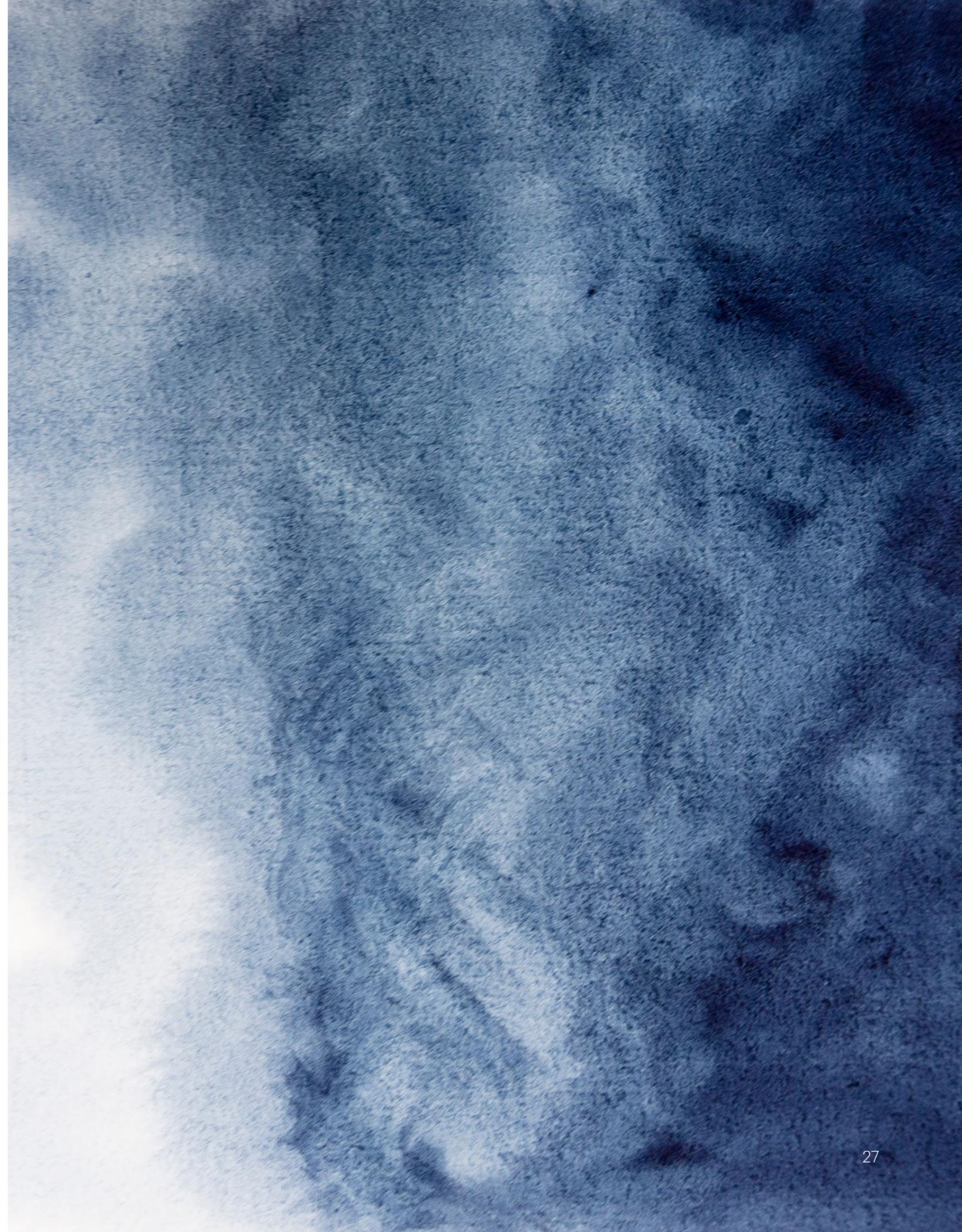
‘Organic’ textiles are made from materials that are grown without the use of synthetic pesticides and fertilizers. However, it is still possible for chemical residues to be present on the final product as some certifying bodies may allow the use of chemicals during the production or dyeing processes that are considered safe. In short, just because something is “made from organic cotton” or even certified GOTS Organic doesn’t mean that cotton wasn’t then treated or dyed with chemicals.

GOTS, which is an international standard for textiles made from organic fibers, allows the use of certain synthetic dyestuffs and auxiliaries, but they must not contain any banned amine, heavy metal or other harmful chemicals, and the use of them should be minimized as much as possible. It also requires that

any synthetic dyes used must be certified as free from harmful heavy metals and other toxic substances. OEKO-Tex, which certifies non-hazardous end-products and all of their components to be free of harmful levels of toxic substances, still allowed a very small amount of PFAS in its certified products until January 2023.

The emergence of these certificates is an essential step toward the transformation of industry standards. But at AIZOME, we do not wish to rely upon a certification alone, and rather chose to demand additional standards of ourselves, by engaging in the following:

- HRIPT test.
- ZDHC wastewater test.
- A study on the efficacy of indigo with Cambridge University.
- Independent batch testing.
- Kaken antibacterial test.
- Tryptanthrin test.



“LOW IMPACT”

Many ‘organic’ or ‘all-natural’ bedding companies promote products that use ‘low-impact’ dye. There is currently no legally recognized definition of a low impact dyeing process, but in the context of textiles, “low-impact” dyeing refers to methods that have a reduced environmental impact compared to conventional methods. The term is used to describe dyes and dyeing methods that are less toxic, more energy efficient, and less harmful to the environment. Low-impact dyes can be either natural or synthetic.

Low-impact synthetic dyes have a reduced environmental impact compared to traditional synthetic dyes, meaning that they emit fewer pollutants, use less water, or require less energy to produce. Additionally, in the production and disposal, these types of dyes can show less harmful effects to the environment.

But at AIZOME, we ask, why opt for reduced harm when the harm is not necessary in the first place?

FINISHING AGENTS

In the finishing stages of textile production, a variety of chemicals may be used to ensure that the dyes used on the fabric are fixed in place and do not wash out or fade over time. The specific chemicals used can vary depending on the type of dye and the desired finish of the fabric.

For most plant-based dyes, mordants are often used in the dyeing process. Mordants are substances that are added to the dye bath to help the dye adhere to the fibers. Commonly used mordants include metal salts like alum, iron, and chrome. GOTS allows the use of some finishing agents, including mordants, after-treatment chemicals, and other inputs in the production of organic textiles, but only if they meet certain criteria such as being essential and not commercially available in an organic form.

At AIZOME, the only additives to our dye are in the form of completely natural ingredients: citric acid, mineral alum, and quicklime. The citric acid used in the dyeing process is food grade and the alum used is mineral alum (not synthetic). Quicklime is used in the dye extraction process. Post-treatment desizing uses biological enzyme.



PER- AND POLYFLUOROALKYL SUBSTANCES (PFAS)

One group of finishing agents notorious for causing harm are PFAS. PFAS are synthetic chemicals often used to impart water and stain resistance to textiles, as well as to make them more durable and long-lasting. But PFAS have been linked to a number of health and environmental concerns including cancer, immune system suppression, thyroid disease, and developmental problems in fetuses and infants.

PFAS are also known to accumulate in the body over time, which means that even small exposures can add up and lead to health problems over time. For textile workers in particular, who may experience unmitigated exposure to PFAs, this is alarming. PFAS are also highly persistent in the environment, which means they do not break down easily and can accumulate in soil, water, and wildlife. This can lead to widespread contamination and can harm ecosystems.

In response to these concerns, some countries and organizations have taken steps to restrict the use of PFAS in textiles and other products. For example, the European Union has restricted the use of many types of PFAS in consumer products, and several U.S. states have also taken action to limit the use of these chemicals. Even so, it was not until January of 2023 that Oeko-Tex Standard 100 explicitly banned PFAS in its certified textiles.



Synthetic Chemicals

SYNTHETIC DYES

Synthetic dyes are dyes that are made from synthetic chemicals and are not derived from natural materials. Known as polymers, these synthetic chemicals are derived from petrochemicals (i.e. oil) and are often combined with mercury, lead, chromium, copper, sodium chloride, toluene, or benzene. They are commonly used in the textile industry to dye a wide range of fabrics. Some synthetic dyes contain chemicals that are known to be carcinogenic. These chemicals may be used as intermediates in the production of the dye, or they may be present in trace amounts as impurities. Examples of carcinogenic and/or neurotoxic chemicals that have been found in some synthetic dyes include:

- Benzidine: This chemical has been classified as a known human carcinogen by the International Agency for Research on Cancer (IARC). It has been used as a starting material in the production of some azo dyes, which are a type of synthetic dye.
- 4-Aminobiphenyl: This chemical has been classified as a probable human carcinogen by the IARC. It has been used as a starting material in the production of some azo dyes.
- 2-Naphthylamine: This chemical has been classified as a known human carcinogen by the IARC. It has been used as a starting material in the production of some azo dyes.
- 4-Nitrophenol: This chemical has been classified as a possible human carcinogen by the IARC. It has been used as a starting material in the production of some azo dyes.
- Phthalates: Phthalates are a group of chemicals that are commonly used in synthetic dyes to improve their flexibility and durability. Some phthalates have been found to disrupt hormone function and interfere with reproductive development in animals and humans.
- Bisphenol A (BPA): BPA is a chemical that is used in the production of some synthetic dyes. Exposure to BPA has been linked to reproductive problems, including reduced sperm count and motility, in animal studies.
- Aniline (Synthetic Indigo): According to the CDC: "Aniline can be toxic if ingested, inhaled, or by skin contact. Aniline damages hemoglobin, a protein that normally transports oxygen in the blood. The damaged hemoglobin can not carry oxygen. Aniline is a chemical responsible for the production of synthetic indigo dye.

While indigo in its pure form is a herbal medicine, anilin in its pure form is a deadly neurotoxin.

WHY THEY PERSIST

While many countries have banned or restricted the use of certain chemicals in synthetic dyes, these chemicals may still be present in some textiles due to a variety of reasons:

- Lack of enforcement: Even if a chemical is banned or restricted, it may still be used by some manufacturers who are not following regulations or are operating in countries with less enforcement.
- Use of imported materials: Some textiles may be manufactured in countries where certain chemicals are not regulated or are allowed at higher levels. These textiles may then be imported into other countries and sold to consumers.
- Lack of transparency: It can be difficult for consumers to know which chemicals are used in the textiles they purchase, as manufacturers are not always required to disclose this information. Even if a chemical is banned or restricted in one country, it may still be used in another without the consumer's knowledge.
- Persistence in the environment: Some chemicals, such as heavy metals and PFAS, can persist in the environment for a long time and may contaminate soil, water, and air. As a result, even if a chemical is no longer used in manufacturing, it may still be present in the environment and can find its way into textiles through various means.

So how can a consumer – or a brand, for that matter – know for sure that their textile is free from all harmful synthetics?

The short answer is, they can't. But if none are allowed to begin with, third-party testing is done on the wastewater, and random batch-testing is performed to ensure the integrity of the products, then there is at least a good chance.

This is what AIZOME does.



Plants that Create AIZOME

For reference, to dye one square meter of AIZOME textile requires:

- Indigo 13g/m
- Madder 38g/m
- Nutgalls 99g/m

INDIGO

Indigo has been used for centuries to color fabrics, and it has a long history as a precious commodity. The ancient Egyptians and Mesopotamians used indigo to dye cloth as early as 4000 BCE, and it was also used by ancient cultures in China, India, Japan, and Central and South America. Indigo is a natural dye that is extracted from a variety of plants, including the *Isatis indigotica* plant, or Chinese Woad. *Isatis indigotica* has a long history of use in traditional medicine (known as Ban Lan Gen in TCM) and has been used to treat a variety of ailments. Some noted dermatological medicinal benefits may include:

- Anti-inflammatory: *Isatis indigotica* has anti-inflammatory properties, which can help reduce inflammation and redness associated with skin conditions such as eczema, psoriasis, and acne.
- Antimicrobial: *Isatis indigotica* has antimicrobial properties, which can help kill bacteria and other microorganisms that can cause skin infections.
- Wound healing: *Isatis indigotica* has been found to have wound-healing properties, which can help speed up the healing process for cuts, abrasions, and other skin injuries.
- Moisturizing: *Isatis indigotica* contains compounds that can help moisturize and soothe dry and irritated skin.
- Antioxidant: *Isatis indigotica* contains compounds that have antioxidant properties, which can help protect skin cells from damage caused by free radicals.
- Anti-itch: *Isatis indigotica* has been found to have anti-itch properties, which can help relieve itching and discomfort associated with skin conditions such as eczema and psoriasis.



菘蓝

Isatis Indigotica

M.E.C'87

MADDER

The roots of the madder plant (*Rubia tinctorum*) contain a number of active compounds, including alkaloids, flavonoids, and tannins, which have been found to have medicinal properties. Some noted medicinal properties of madder may include:

- Anti-inflammatory: Madder contains compounds that have anti-inflammatory properties. This makes it useful for reducing redness, swelling, and irritation associated with skin conditions such as eczema, psoriasis, and dermatitis.
- Antimicrobial: Madder has been found to have antimicrobial properties. This means it can help fight against bacteria, viruses, and fungi that can cause skin infections.
- Antioxidant: Madder contains compounds that have antioxidant properties. This means it can help protect the skin from damage caused by free radicals, which can contribute to premature aging and skin damage.
- Wound healing: Madder has been found to have wound-healing properties. This makes it useful for treating cuts, abrasions, and other skin injuries.
- UV protection: Madder has been found to have UV protection properties. This makes it useful for protecting the skin from sun damage and reducing the risk of skin cancer.





NUTGALLS

Nutgalls, also known as oak galls, are hard, round growths that form on the branches and leaves of oak trees. They are caused by the infestation of a small wasp, which lays its eggs inside the oak tree. The tree responds to the infestation by producing a hard, protective layer around the eggs, which eventually develops into a nutgall. Some noted dermatological medicinal benefits may include:

- **Astringent:** Nutgalls have astringent properties, which means they can help tighten and tone the skin. This makes them useful for treating oily skin, acne, and other conditions that involve excess oil production.
- **Anti-inflammatory:** Nutgalls have anti-inflammatory properties, which can help reduce redness, swelling, and irritation associated with skin conditions such as eczema, psoriasis, and dermatitis.
- **Antimicrobial:** Nutgalls have been found to have antimicrobial properties. This means they can help fight against bacteria, viruses, and fungi that can cause skin infections.
- **Wound healing:** Nutgalls have been found to have wound-healing properties. This makes them useful for treating cuts, abrasions, and other skin injuries.
- **Anti-itch:** Nutgalls have been used traditionally to relieve itching associated with skin conditions such as eczema and psoriasis.

ORGANIC COTTON

Organic cotton is grown without the use of synthetic pesticides and fertilizers. AIZOME products use only unbleached organic cotton. Some noted dermatological medicinal benefits of organic, unbleached cotton may include:

- Hypoallergenic: Organic cotton is hypoallergenic, which means it's less likely to cause allergic reactions or irritate sensitive skin. This makes it a good choice for people with eczema, psoriasis, and other skin conditions.
- Breathable: Organic cotton is breathable, which means it allows air to circulate around the skin. This can help reduce the risk of developing skin infections and other skin problems.
- Moisture-wicking: Organic cotton has moisture-wicking properties, which means it can absorb moisture and keep the skin dry. This makes it useful for treating conditions such as athlete's foot and other fungal infections.
- Soft and comfortable: Organic cotton is soft and comfortable to wear, which can help prevent skin irritation and chafing.



棉花

Gossypium barbadense

ME.C'87

Footprint

WATER FOOTPRINT

According to estimates, the textile and clothing industry consumed 79 billion cubic meters of water worldwide in 2015. By 2030, consumption is expected to increase by 50%¹. That statistic is especially harrowing considering the UN estimates nearly two thirds of the world's population already experiences water scarcity at least one month throughout the year.

Worse yet, a significantly high percentage of the water used by the textile industry is used in the dyeing and finishing processes – almost without exception requiring the use of chemicals, and resulting in the leaching of microplastics, PFAS and the like into local water supplies. The World Bank estimates that a full 17-20% of global water pollution comes from textile dyeing treatments alone.

It has been predicted that with environmental change, dwindling access to fresh water may lead to armed conflict between countries. And in the meantime, poisoned waterways are leading to disease, mutation, and death.

At AIZOME we believe that we have a responsibility to move away from water intensive and water polluting industries. As we have named, however, the main ingredient in our products, cotton, is a particularly water-intensive crop. It's estimated that it can take around 2,700 liters of water to produce a single T-shirt. Because we cannot in this moment divest from the use of cotton – due to its unique ability to support skin healing – we take care to make sure the water used in our production is free from synthetic ingredients, from start to finish.

¹ Global Fashion Agenda & The Boston Consulting Group, Pulse of the Fashion Industry, 2017



CARBON FOOTPRINT

The production of textiles is heavily reliant on fossil fuels, both directly and indirectly. Fossil fuels are used to power the machinery used in textile production, and they are also used to create the synthetic fibers that are commonly used in textiles.

The extraction and processing of fossil fuels can have a significant impact on the environment and the communities living near extraction sites. Oil extraction can cause deforestation, habitat loss, and soil erosion, while coal mining can lead to the displacement of communities, pollution of air and water, and damage to human health.

The use of synthetic fibers, such as polyester and nylon, in textile production also has a significant carbon impact. The production of these fibers is energy-intensive, and it generates a significant amount of greenhouse gas emissions. These fibers also do not biodegrade easily and can be harmful to the environment when they end up in landfills or oceans.

AIZOME WATER FOOTPRINT

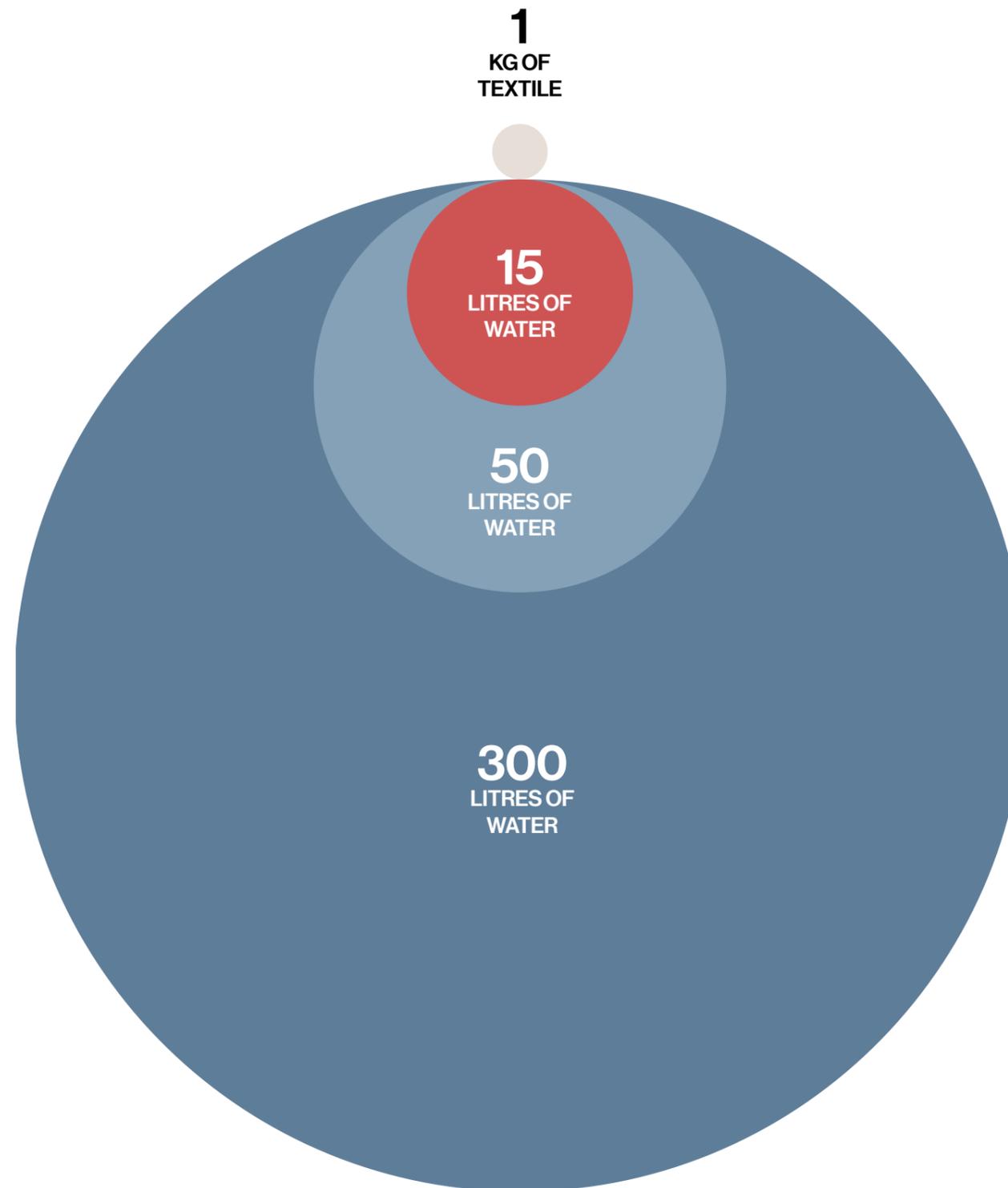
Our efforts to reduce the environmental impacts of AIZOME textile specific to our water footprint include:

- supporting the use of sustainable, chemical-free methods for growing organic cotton and dye ingredients
- refusing the usage of synthetic components in our textile and dye, which results in zero synthetics and microplastic leaching into wastewater.
- recycling and reusing water in the production process, and treating any wastewater.
- the enforcement of strict standards on waste water discharge.

All components of AIZOME bedding are fully biodegradable and free from synthetic materials. For the dyeing process, the water used is recycled and the dye is replenished in a process called "continuous dyeing". When wastewater is eventually produced, it is treated and filtered before it is discarded. Because our wastewater is free of synthetic ingredients – the plant dyes we use are extracted from plants, and only food-grade additives are used in the dyeing process – it can be used to irrigate farmland.

Our dyeing process uses 15 tons of water for one ton of fiber. In the case of madder, as an example, 1 ton of fiber can then spin 7.6 tons of yarn, and 7.6 tons of yarn can weave 16,400 meters of cloth, which means that to dye one meter of cloth with madder uses 0.91kg of water. Additionally, to clean and process raw cotton into textile of one sqm requires less than 6 kg/m.

In total, a single-sized flat AIZOME bedsheet (267 cm (L) x 175 (W)) amounts to 4.67 square meters of fabric and requires roughly 32.3 kg of water to process and dye. That's compared to scientific reports that for synthetic dyes, the dyeing process alone requires between 50-300 liters of water for 1 kg of fiber, or 50-300 tons of water for one ton of fibre.



AIZOME CARBON FOOTPRINT

We are still learning how to best quantify our carbon footprint. Plant dyeing is less energy consuming, in part because it does not require as high of temperatures as synthetic dyeing. To reduce our impact, AIZOME insists upon:

- Natural ingredients, free from fertilizer or pesticides
- Synthetic-free fibers that do not require heavy chemical processing (organic cotton)
- Efficient use of energy and water
- Synthetic-free production process
- Closed-loop systems
- Recycled packaging
- No next-day shipping

- AIZOME Dyeing
- Synthetic Dyeing

Product Design

PACKAGING MATERIALS

In 2020, AIZOME switched to 100% recycled cardboard packaging materials and stickers, and biodegradable transparent tapes. We do not pack products in individual plastic bags, which is the general custom in the textile industry.

RECYCLING OUR PRODUCTS

Recycling textile is notoriously difficult. According to a recent study in Europe by Mckinsey, less than 1 percent of textile waste is fiber-to-fiber recycled. This is in part because most textiles cannot safely be recycled, as they are the product of complex synthetic blends. Many companies are actively pursuing the means to recycle synthetic and blended textiles, but even when this is accomplished, the amount of chemicals that will be involved in the process is alarming.

AIZOME products are entirely natural, meaning they can not only be recycled, they can go straight into the compost. But their durability and colorfastness means this will not even be a consideration for many years.





Product Care

AIZOME products are machine-washable. Because they contain zero synthetic materials, there is no concern with synthetic chemicals or micro plastics leaching into the wash water. Ideally, to maintain the most soft, vibrant bed sheets and clothing, we recommend:

- Do not bleach
- Lay flat to dry if possible
- Wash at up to 140°F / 60°C

GUARANTEE

The average human throws away their own body weight in fabrics every two years. We manufacture with pride in workmanship and perfection and make products to last a life-time. We're so confident in our quality, AIZOME offers a 12 month sleep trial, which is amongst the longest trial periods in the bedding industry.

Responsible Production

The health and wellbeing of our employees is important to us, as is the impact our production has in local communities. Prior to COVID, we visited our production facilities four times in the span of three years, and we continue to maintain frequent contact with the factory manager. In her words: "Our company is human-oriented. We implement humanized management, attach importance to human nature, human value, status and role, treat employees sincerely, and the leaders will help them if they have any difficulties." (我们公司尊崇以人为本, 实行人性化管理, 重视人性、人的价值、地位和作用, 真诚对待员工, 员工有什么困难疾苦, 领导都会及时予以帮助)

SALARIES AND BENEFITS

AIZOME production in China works with factories that employ 30 workers in dyeing and 100 workers in tailoring. At these factories, each employee receives a reasonable living salary that exceeds the minimum wage. All employees receive an employment contract, are on the payroll, and are paid monthly. The factory pays old-age insurance, unemployment insurance, employment injury insurance, basic medical insurance and maternity insurance. Employees generally work 9 hours a day, including breaks amounting to 1 hour, and receive compensation for overtime work, which

is always voluntary. The factory complies with the Labor Law of the People's Republic of China, Production Safety Law of the People's Republic of China, Regulations on Enterprise Minimum Wage, Law of the People's Republic of China on the Protection of Rights and Interests of Women. To ensure the safety of the employees, the factory conducts safety production training for employees and the safety administrator conducts regular equipment safety inspections. The factory is heated in the winter months, cooled by AC in the summer months, and properly ventilated. Drinking water and food are available onsite. Throughout COVID, the factory was disinfected daily. If an employee is diagnosed with COVID, they are granted paid sick leave.

Additionally, the factory provides employees gifts for important holidays, such as March 8, Mid-Autumn Festival, and Chinese New Year. 30 workers have been with the factory for 3 years or longer. The tailoring factory maintains a Oeko-Tex Standard 100 Certification. Any off-cut fabric is recycled. The factory invites various tests and audits on a recurring basis from the Chinese tax and fire departments. Wastewater testing is done by the environmental protection administration every week.





Future Goals

TRANSPARENCY

Our management is committed to transparency in our textile production, and as we grow, we aim to cultivate personal relationships with suppliers and share them openly with our audience. Long, hidden supply chains enable exploitative practices; we are determined to do the opposite through the creation of visibility and transparency.

ADDITIONAL MATERIALS

We're excited to explore the many potential materials that can make textiles healthier! We're always on the lookout for new materials that will create even more health-conscious choices for our customers, while also offering skin-healing benefits for anyone with sensitive skin.

EDUCATIONAL CONTENT

A deep understanding and appreciation of textiles, dye, and impact is paramount, and we at AIZOME are passionate about creating unbiased educational content the impact of textiles and dye on both health and the environment.

NEW TECHNOLOGIES

We are eager to explore the exciting, cutting-edge technologies being developed to make textiles production healthier

around the world. It is our mission to be part of the change in our industry.

GROWTH

Our aim is to provide eco-friendly and sustainable alternatives to traditional synthetic dyes that are harmful to the environment and human health. By developing plant-based dyes that are free from chemicals and toxins, along with a unique sonar dyeing process (patent-pending), we hope to contribute to the growing demand for sustainable fashion and textiles. Our focus on B2B will allow us to target larger textile manufacturers and help them adopt sustainable practices, ultimately making a significant positive impact on the industry's environmental footprint. We are committed to advancing our research and development to achieve this goal and are excited to be part of the movement towards a more sustainable future.

DIRECT ACTION

In 2020 we cleaned 15,000 lbs of plastic pollution from the ocean. As we grow, we want to do more to engage with impactful things that keep our world healthy, reversing some of the harm done.



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