

the **origin** of our natural colors



eyand.[®]
Ecologic yarn and natural dye

Main Sources

At **TIS Group** we are committed to offering a true sustainable production process in an environmentally responsible manner. We comply with the most rigorous safety and environmental preservation regulations and are continually seeking to optimize our operations.

In this context, it is important to point out what the main sources of the dyes are.

Mineral Origin

Our **Eyand® Earth** Color Card contains the colors made with dyes of mineral origin on organic cotton.

Natural Iron Oxide

Pigments obtained from mines located in Zaragoza, Spain.

The extraction of minerals is carried out using purely mechanical techniques, thus greatly reducing the environmental impact. There is also no visual impact since the exploitation is performed through underground mining (chambers and pillars), leaving the mountain intact.

The extraction company has the certificate that guarantees that 100% of its electrical energy comes from renewable origin. It also has the ISO 14001 certificate, which guarantees that the environmental aspects that concern us most such as waste management, atmospheric emissions or recycling are met.

For the **Earth colour tones**, minerals such as magnetite, hematite or limonite are used, which were formed millions of years ago inside the planet due to the different movements suffered by the Earth. These minerals are trapped between several layers of stone. Depending on the temperature and pressure the minerals acquired different shades, which vary from yellowish to black or red.

The **blue color tones** are formed through natural minerals (Glauberite, silica, Kaolinite and Bauxite), extracted, grounded and subjected to a temperature process until different tones are achieved, depending on the temperature reached.

Recycled Iron Oxide

The pigments are manufactured under DIN ISO 9001 standards (referring to product quality) and ISO 14001 (endorsing good practices on environmental impact).

The vast majority of the material that is recycled comes from production waste from different industries, such as old machinery, iron scraps, etc.

In terms of color, the recycled materials surpass their natural counterparts due to their greater purity and the morphology of their particles, although chemically they are identical.

In the pigment production process, water is reused in several stages before being sent to a special wastewater treatment unit.

The process used in the production of the pigments has an excellent carbon

footprint, as hardly any energy is needed during the synthesis. In fact, it generates energy in the form of heat, which is used for the hot water necessary for the dissolution or washing of the pigments.

In the production process of iron oxide, pigments of more than 95% of its raw material are recycled, which categorizes them in the so-called Green Building through important certifications like the LEED certification (which measures, among other things, the efficient use of energy, water, the correct use of materials, waste management in construction and the quality of the indoor environment in living spaces).

***Iron** is a mineral necessary for the growth and development of the human body. The body uses iron to make hemoglobin, a protein in red blood cells that carries oxygen from the lungs to different parts of the body, as well as myoglobin, a protein that supplies oxygen to the muscles.*



Color categories

Eyand® is a process that continuously evolves. Today, the number of colors has increased to more than 100 shades in the **Eyand® Earth** range, combining natural and recycled colors, and more than 40 colors in the **Eyand® Green** range, combining colors of vegetable and food origin.

Eyand® Earth range are separated into the following categories:



Colors coming from the earth, obtained by extracting and grinding mineral.



Colors with the same composition as the Earth ones, but obtained from recycled waste. With this range we get more vibrant colors as they are free of impurities from the earth itself.



Colors with lilac, blue and green tones obtained from minerals that have been put under certain pressure and temperature, thereby achieving a diversified range of colors.



Dark and saturated colors obtained from 80% natural origin dyes and 20% conventional dyes, all GOTS certified.



Minerals used in black pigment

Magnetite

Iron mineral made up of ferrous-diferic oxide that owes its name to the Greek city of Magnesia. It is found in a massive granular form or loose grains. Also in the form of octahedral crystals.

Minerals used in red pigment

Hematite

Mineral composed of ferric oxide and which constitutes an important iron ore since in its pure state it contains 65% of this metal.



Minerals used in yellow pigment

Limonite

Mixture of class IV minerals (oxides), according to the Strunz classification. Currently the term is used to designate unidentified massive iron oxides and hydroxides that lack visible crystals and have a yellowish-brown streak.



Minerals used in blue/pink pigment



Glauberite

Mineral from the sulfate group. It was described as a new mineral species in 1808 by Brongniart, based on the study of specimens that he had received from Spain, coming from Villarrubia de Santiago.



Silica

Silicon oxide, silicon dioxide or silicic anhydride is a compound of silicon and oxygen, commonly called silica. This compound arranged in a three-dimensional network forms quartz and all its varieties.



Bauxite

Sedimentary rock. Its main value is that it is where the greatest amount of aluminum is extracted. To do this, you must first obtain the bauxite, then crush it and purify it.



Kaolinite

Clay mineral that is part of the group of industrial minerals. It is a stratified silicate-type mineral, with a sheet of tetrahedra linked through oxygen atoms to a sheet of alumina octahedra.

Vegetable Origin

Eyand® Green offers pigment colors of plant origin which we mainly use to dye garments made from wool, cashmere and silk. All of these fibers achieve excellent fastness results with vegetable dyes.

As the name suggests, plant-based colors come from nature itself. Leaves, roots, tree bark, berries and nuts are good sources of natural dyes. Natural dyes are extracted from natural resources and the entire extraction

process is carried out with water and is a 100% environmentally friendly practice. Even the remaining residues from the extraction are used as biofuel or fertilizer.



Vaccinium Myrtillus

Commonly called wild blueberry or bilberry, *Vaccinium myrtillus* is a plant from the Ericaceae family that comes from crops with low fertilization, not genetically modified and without pesticides. Thanks to natural air drying, it achieves very low CO2 emissions.



Punica Granatum

Natural coloring extracted from the peel of the *Punica granatum* fruit. It gives a yellow, khaki and gray color depending on the mordant used.



Acacia Catechu

Natural dye extracted from the heart wood of *Acacia catechu*. It gives a brown color and textiles dyed with *Acacia catechu* have antimicrobial, astringent and antibacterial properties.

Rubia Cordifolia

It is a natural dye extracted from the roots and rhizomes of *Rubia cordifolia*. It gives red, pink and orange color. It has antimicrobial, astringent and antibacterial properties.



Kerria Lancea

It is a natural dye extracted from the rods of *Kerria Lancea*. It gives a red and violet color. The fabrics have antimicrobial properties, which is an additional feature of this dye.



Terminalia Chebula

Natural dye extracted from the fruit of *Terminalia Chebula*. Provides a yellow, khaki and gray color. Fabrics dyed with Kareel® have antimicrobial, astringent and antibacterial properties.

Quercus Infectoria

Natural dye that is extracted from the *Quercus infectoria* nut. It gives an ivory, light yellow, gray color. The process of collecting gall nuts generates a large amount of employment.



Tegetas Erecta

Natural dye extracted from the combination of *Tegetas Erceta*, *Butea Monosperma* and *Mallotus*. Provides a bright yellow color. The process involves a large number of labor that collects the raw materials, which provides employment opportunities.

Dyeing Process

At **Eyand®** we aim to offer a process that is as sustainable as possible, without compromising the demanding quality standards of the market. To do this, we have standardized our process as follows:

Fabric preparation

In preparing the cotton prior to natural dyeing, our process only uses 50% of the water compared to conventional dyeing. Also we are able to recycle a large portion of the water used.

Dyeing

In the **Eyand®** dying process there is also a reduction in water consumption of up to 70%. We only need 2 baths for the dyeing process: one for dyeing and a second one for washing. Conventional dyeing processes use up to 5 baths for washing specially for dark colors.

Also, we apply our **Eyand®** mordant, of natural origin, avoiding the use of

various chemical dyeing auxiliaries, such as anti-precipitants, equalizers, humectants, salts and buffers, among others.

Finishing

To finish the garments we use a bio-polishing with organic molecules not genetically modified, leaving the fabric smooth and clean and we use softeners with natural fats, from aloe vera to cocoa, mango or shea.

All products used in the **Eyand®** process are of natural origin and GOTS certified, offering a credible guarantee to the consumer.



Eyand® Print

At Eyand® we also offer the possibility of printing with our natural colors, **Earth** and **Green**, positional or allover prints, guaranteeing the same color fastness as in the dyeing process.



Preparation of the fabric

As in the dyeing process, here we also treat the cotton prior to printing. In this process we recycle 50% of the water used.

The Dye House

TIS Portugal, also known as NATCLO (Natural Clothing), is located in Vizela, in the north of Portugal. Our dye house complies with the most sustainable and environmental standards.

Our dye house produces its own electrical energy, thanks to the installation of more than 300 solar panels on its roof.

It also has a system to collect rainwater which is used in the dying process. To minimize water consumption, 50% of the water used during the washing process is reused. This is done via a multi-tank storage system.

To minimize CO2 emissions, the factory has a heat recovery system, which helps us to reduce the energy required during the process by 15%.

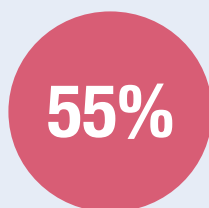
Given our firm commitment to the environment, all our suppliers are located just a few kilometers from the factory, avoiding long transportation times and, therefore, reducing CO2 emissions.

The wastewater generated, although free of harmful chemicals, is treated by an external company, which ensures that 100% of the waste water in our facilities is used to generate energy.

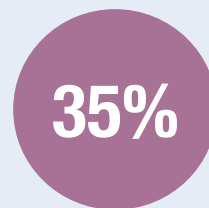
Comparing to the conventional dyeing process



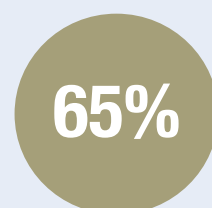
less baths



reduction in water consumption



recycled & rainwater used



remaining water for hydropower



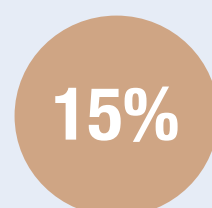
solar panels



solar energy



hydro & wind energy








savings in the consumption of natural gas

Certifications

For the **TIS Group**, sustainable development means a commitment to the environment and a responsible use of energy resources. For this reason, we have external global controlling organizations that certify the veracity and traceability of all our processes.

We are proud to say that all our **dyes** are certified GOTS, demonstrating our commitment to sustainability and quality in our manufacturing processes.
In addition, our **fabrics** and **garments** have the following certifications:

GOTS	<i>Global Organic Textile Standard</i>		CU1121300GOTS Natclo Lda.
OCS	<i>Organic Content Standard</i>		CU1121300MUL Natclo Lda.
RCS	<i>Recycled Claim Standard</i>		
GRS	<i>Global Recycled Standard</i>		
OEKO-TEX	<i>OEKO-TEX® Standard 100</i>		2022OK0041 Natclo Lda.

<https://www.grouptis.com/certificates/>

Also our factory in Portugal (NatClo Lda) has been certified to the program **Green Electricity from EDP Comercial**, guaranteeing that electrical energy is produced from 100% renewable sources. With this, the company reduces its ecological footprint and contributes to building a better, cleaner and more sustainable future.



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