

smart

INDIGO

ELECTRICITY INSTEAD OF CHEMICALS THE MOST SUSTAINABLE WAY TO DYE DENIM



SMART-INDIGO™

MAKES THE DIFFERENCE

bluesign®

SYSTEM
PARTNER

ELECTRICITY INSTEAD OF CHEMICALS

➤ Smart-Indigo™

Smart-Indigo™ makes a difference in the denim world by using electricity instead of chemicals. This highly sustainable way to dye denim offers a liquid-indigo production where the only waste product is oxygen! The use of electricity instead of chemicals results in a process free of hazardous chemicals and emitting 90% less CO₂, consuming 70% less energy and 30% less water at different stages. This is a revolutionary technology that protects the environment, creates safer and healthier workplaces and offers economical production.

➤ Who we are

Sedo Engineering SA. was founded in 2014 with the purpose of inventing sustainable technologies for the denim industry. The business is managed by and based on people with more than 40 years' experience in the textile dyeing and finishing industry. With its roots in Switzerland and as a part of VANDEWIELE, Sedo Engineering SA offers Swiss quality standards and top reliability. Through its worldwide network of experienced partners based in the world's most important textile regions, Smart-Indigo not only offers a ground-breaking technology, but also an established and successful supply chain.

➤ Makes more from less

This revolutionary liquid-indigo process opens up a whole new range of opportunities:

- Electricity instead of chemicals
- High sustainability
- More ecological and economical
- Reduced health hazards
- Better colour consistency and performance
- Savings in wastewater treatment and energy
- Easy to handle and more efficient





PLANET PEOPLE PROFIT

➤ Planet – massively reduced pollution

- 0% hazardous chemicals
- 90% less CO2 emission*
- 70% energy savings*
- 30% water savings*
- Massively reduced and cleaner wastewater load*
- Okm haul route, as indigo production on-site

➤ People – healthier work places & fashion

- No health risks - free of hazardous chemicals
- No fire hazards
- No toxic residues on denim garments

➤ Profit – economical production

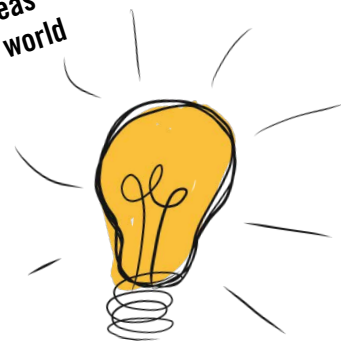
- Zero costs for chemicals or pre-reduced liquid-indigo
- Lower costs for water, energy & wastewater treatment*
- Higher reproducibility through better color consistency*
- Fresh indigo on demand

➤ No limits – for Smart-Indigo dyeing

Smart-Indigo is applicable wherever indigo dyeing is in use:

- Classic cotton yarns and any blend of it
- Recycled yarns
- Tencel
- Viscose
- Modal
- Wool
- Silk

smart ideas
move the world



*Measured under real production conditions by several denim producers

INNOVATION STEERS THE FUTURE

➤ Smart-liquid-indigo production on-site

“Smart-liquid-Indigo” is produced by an electrochemical process consuming considerably fewer resources than existing methods. It uses only indigo pigment, caustic soda, water and electricity. In a fully automated process, the clean liquid-Indigo is produced, metered and fed directly into the dye bath. The Smart-Indigo™ solution is the most sustainable and independent way to dye denim.

Without

- Hazardous chemicals
- Environmental burdens
- Health hazards
- Long transportation ways

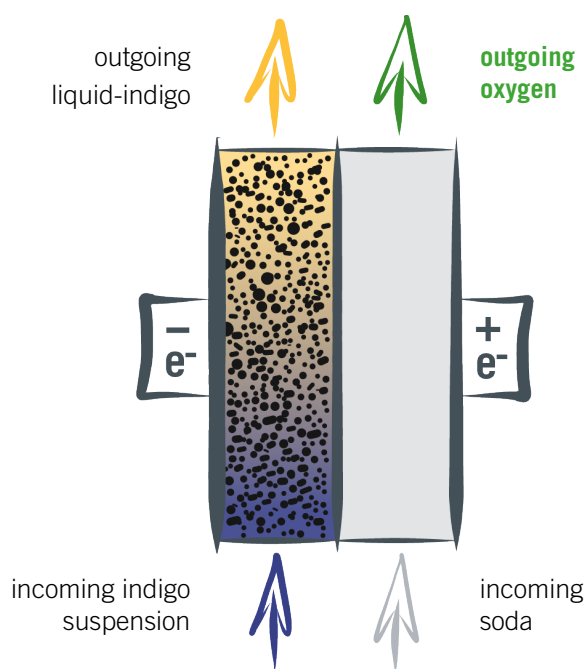
Using

- Indigo pigment
- Water
- Caustic soda
- Electricity

Discharging only

- **Oxygen**

➤ 3-dimensional carbon electrode technology

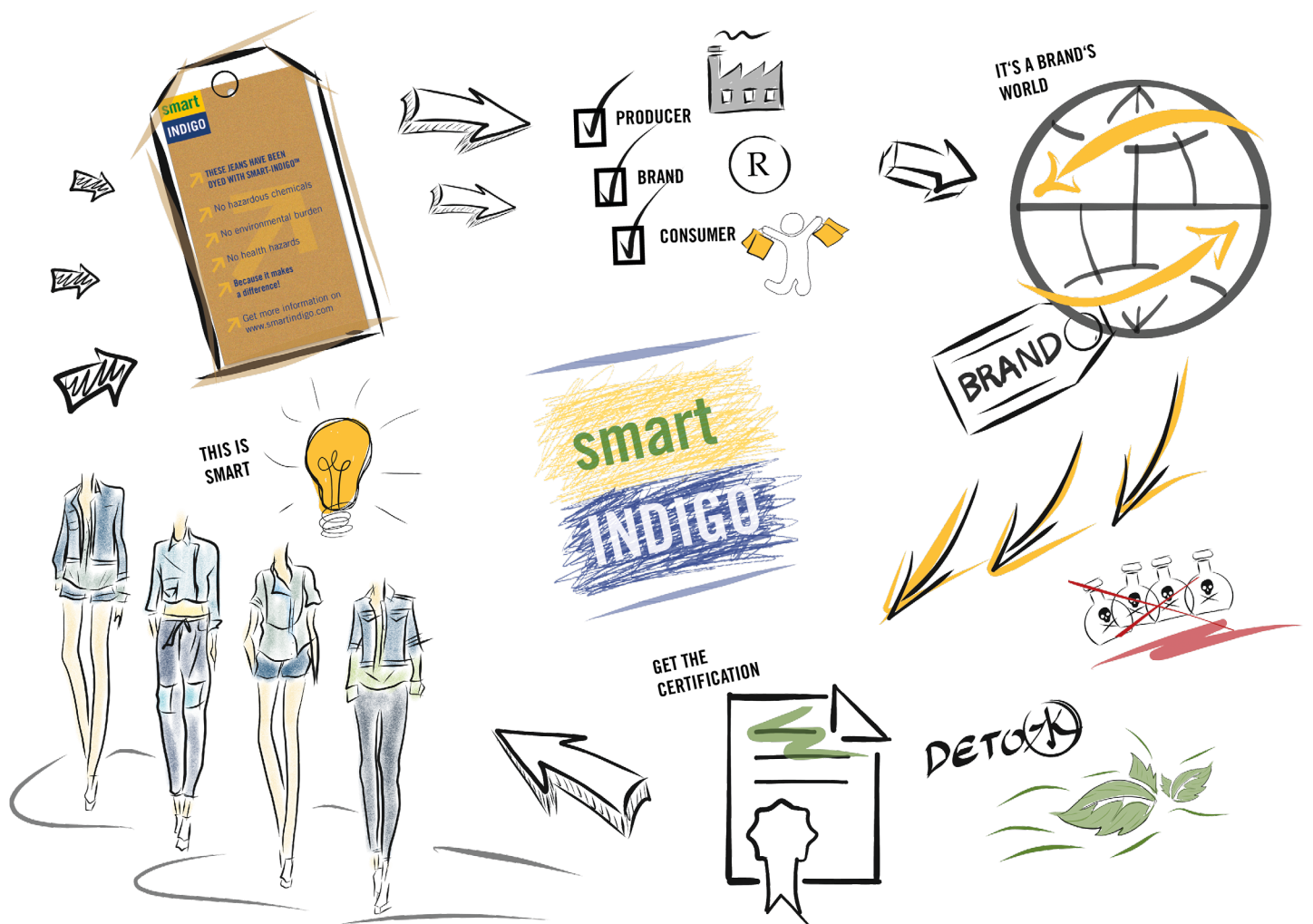


Visit our website to see our various certifications and learn even more about our benefits, facts and figures.





➤ Vision of future denim world



Sustainability, Reliability and Transparency.



MAKES THE DIFFERENCE

PIONEERS ALL AROUND THE WORLD

➤ PureDenim Srl, Italy

Planet – What effect does changing to Smart-Indigo dyeing make on the planet?

Gigi: Our planet is experiencing a very tough period due to global warming caused by very high CO2 emissions and we committed to do our part in reducing them drastically. With Smart-Indigo technology, we achieved an overall reduction of 90% in CO2 emissions. This consisted of reductions within the denim manufacturing process and 3-4 times less need for transportation of indigo by train or by trucks that generate high CO2 impact emissions as well. Another important aspect is zero hydro consumption during the production of the dyeing bath - we have been able to reduce and reuse our water up to 3 times.

People – What difference does working with the Smart-Indigo process make for your employees?

Gigi: There has been a dramatic and positive impact for our workers. First of all, the Smart-Indigo system doesn't need any hazardous chemicals, which reduces volatile air contamination and so the quality of the air inside the whole factory. Furthermore, the fully automated process saves us a lot of time.

And what changes for the denim lovers, brands and consumers?

Gigi: Brands, especially in the last 5 years, are approaching a more sustainable philosophy of trying to differentiate

the products by creating an historical value through the production chain - Smart-Indigo is the perfect example of how it could be created.

People – how do you profit from the smart-liquid-indigo method?

Gigi: If it were possible to go back 10 years and adopt this technology, I would definitely do it immediately! The profit comes from different sources - chemicals, water, energy and management – this is easier than ever before and I strongly believe there is still some undiscovered potential.

Why – what motivates you to change and to make a difference?

Gigi: For more than 20 years, my personal and company philosophy is to be one of the pioneers of new technologies and not to be afraid of discovering the unknown. We are running an industry, that is approximately 130 years old, but still with traditional and conventional methods, today the world gives us tons of opportunities to become more conscious and act for the future. This is actually the main reason pushing me towards Greener technologies – together with a market need to differentiate the products, not just in terms of look, but by creating a pure and transparent 'denim lifecycle', reflecting the Detox commitment by Greenpeace, and, thanks to Smart-Indigo technology we are part-way there.

Mr. Gigi Caccia
Founder PureDenim





➤ House of Gold, USA

How difficult is it for a Denim Brand to change its mindset towards an ecological and sustainable soul?

Adriano: Today it is not that difficult as there is a general pressure in the market and consumers to go in this direction. Ultimately, it's the only way to go - the sole difference is, like for any innovation, that some brands are taking leading positions, while many others are just following the trend. Of course to really make it happen requires a lot of knowledge, dedication and investment.

How are Smart-Indigo products helping to make a difference in your Denim collections?

Adriano: The difference is not only in the eco-impact – although that is very important - but also because we like the final color better than the traditional one. For sure it is a win-win for us. We give our customers an eco-story, but also a jean that is nicer.

How difficult has it been, as the 'godfather of denim', to promote innovation through the full chain in the last 50 years – and also now, in the face of the current revolution?

Adriano: I have always been on the side of innovation and creativity. At the beginning, I found a lot of resistance in the industry. When I talked about sustainability, back at the beginning, I was like a voice in the desert - but more recently this has been changing very quickly. The denim world today realizes that by being progressive and innovating more sales and higher profits are generated.

While rolling out all your innovative visions and working through various studies, what has been the biggest lesson you have learned?

Adriano: We are proud of the fact that our research and our vision is very influential and that, together with a group of innovators, we are showing that our industry can lead a big transformation - almost a revolution - starting from fibers, Indigo, dyeing, finishing and arriving at the point that of zero emissions in a short time. We're even more proud that we can make a better jean for less. A very important lesson is that if we like to get good results we need to work together in partnership with all the players, a good example is our collaboration with Smart-Indigo.

Did you realize that when a garment is made using Smart-Indigo, it would be more profitable for Brands?

Adriano: The production of a jean made in a fabric that is dyed with Smart-Indigo is very beneficial for the mill. There is a good control of costs, it washes down much better than traditional dye and the final garment looks better. All this of course generates better margins, but it also offers a marketing advantage at point-of-sale.

Mr. Adriano Goldschmied
Founder House of Gold



MAKES THE DIFFERENCE

BRAND PHILOSOPHY

➤ Smart buying – a new global mindset

- Consumers are critical, intelligent and know how to find information
- «Generation global» understands their power to make a difference
- Demand for organic and sustainable products is growing rapidly

➤ Smart brands – are tomorrow's winners

- **No greenwashing - REAL green dyeing**
- Built through the social appeal of real sustainability





HIGHLIGHTS

“
FashionForGood
partner since 2020
”

“
**China National Textile
and Apparel Council**
sets the Smart-Indigo
standard in Xingtai
”

“
10 Int. Denim Mills
have chosen to be part
of Smart Indigo
sustainable technology
”

“
Bluesign System
partner since 2020
Bluesign certified
product since 2022
ZDHC Level 3 approved
since 2022
”

“
KingPins Transformers
Smart-Indigo is part of
the Expert-Talk
”

“
Almost 500.000.000 m.
have been produced
using Smart Indigo
30% Liquid in 7 coun-
tries worldwide
”

“
Blue Diamond
moves with Smart-
Indigo into the Xingtai
Economic Development
Zone
”

“
House of Gold
puts Smart-Indigo on
their sustainable menu
for KingPins show
”

“
Int. Denim Brands
are choosing
Smart-Indigo dyed
fabrics
”

A SMART WORLD NEEDS NO HAZARDOUS CHEMICALS

smart

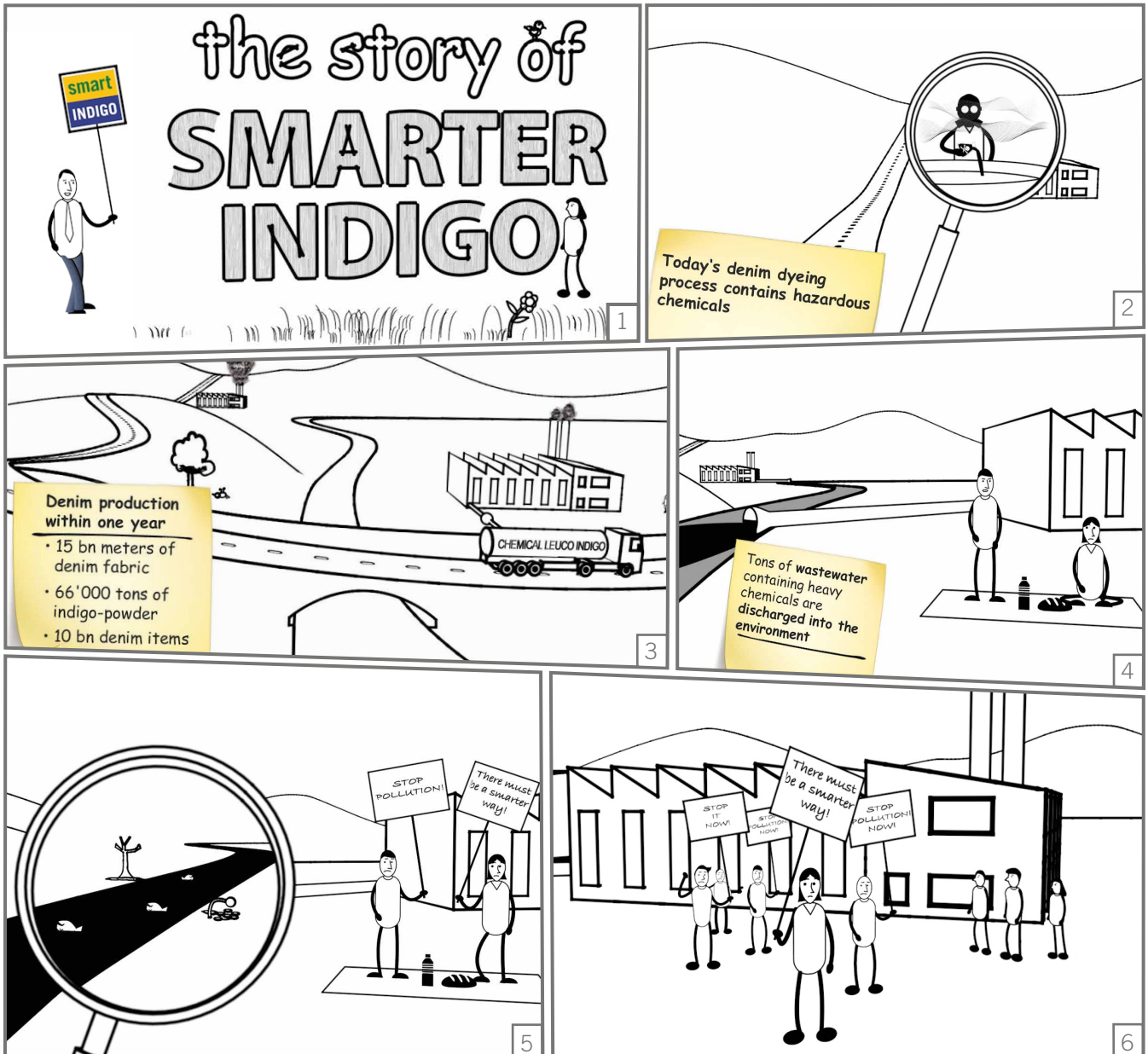
INDIGO

➤ THESE JEANS HAVE BEEN DYED WITH SMART-INDIGO™

- No hazardous chemicals
- No environmental burden
- No health hazards

➤ Because it makes a difference!

➤ Get more information on www.smartindigo.com





smart
INDIGO

- THESE JEANS HAVE BEEN DYED WITH SMART-INDIGO™
- No hazardous chemicals
- No environmental burden
- No health hazards
- Because it makes a difference!
- Get more information on www.smartindigo.com

Panel 7: A man in a suit says, "Yes there is!"

Panel 8: A man in a suit says, "Let's dye with Smart Indigo™". Protesters hold signs: "STOP IT NOW!", "STOP POLLUTION NOW!", "There must be a smarter way!", "STOP POLLUTION NOW!".

Panel 9: A man in a suit holds a "smart INDIGO" sign. Protesters hold signs: "STOP IT NOW!", "STOP POLLUTION NOW!", "There must be a smarter way!", "STOP POLLUTION NOW!".

Panel 10: A factory interior with a sign: "We are dyeing with SMART-INDIGO™".

Panel 11: A technical diagram of the dyeing process. Labels include: "Outgoing oxygen", "Outgoing Leuco-indigo", "Ingoing soda", "Ingoing indigo suspension", and a yellow box: "Smart-Indigo™ production Electricity instead of hazardous chemicals".

Panel 12: A landscape view of a factory by a river with a sign: "We are dyeing with SMART-INDIGO™".

Panel 13: A circular diagram with four "NO" signs in red boxes, each with a crossed-out icon: a globe, a factory, a person, and a chemical flask.

Bottom Right: The "smart INDIGO" logo.



CHANGE NEEDS CHARACTER ...WORK WITH US

Each of us has an environmental responsibility when purchasing items. Together we are the pioneers who will make our world a smarter place. A place where products are manufactured with respect for our planet and fashion that shows off your look and your character. Because YOU make the difference!

➤ Customers who already trust our sustainable technology



SEDO ENGINEERING SA
Rue du Village 7
CH-1908 Riddes VS
Switzerland
+41 27 306 80 80
info@smartindigo.com
www.smartindigo.com

