

**TONELLO.**  
SUSTAINABLE TECHNOLOGIES  
FOR GARMENT TREATMENT.

IN FASHION. FOR 30 YEARS.



Since 1981 we've been contributing to the success that made in Italy has enjoyed all over the world.



# SIDING WITH THE ENVIRONMENT. ALWAYS.



- Less water consumption;
- Less emissions and waste;
- Energy savings.





## Sustainable technologies for garment treatment:

### **Denim treatment**

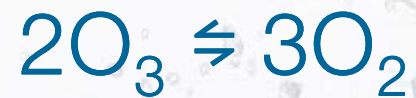
- ECOfree: new Ozone washing system;
- Laser Blaze K2;
- KIT BATIK.

### **Dyeing**

- Jet Dyeing System;
- G1 N2 Nitrogen Dyeing Machine;
- KIT BATIK.



- Ozone is one of the strongest oxidizing agents in nature;



- It acts on the molecule of indigo breaking it in two products: isatina (typically yellow) and anthranilic acid. The result is a discoloration effect (bleaching).



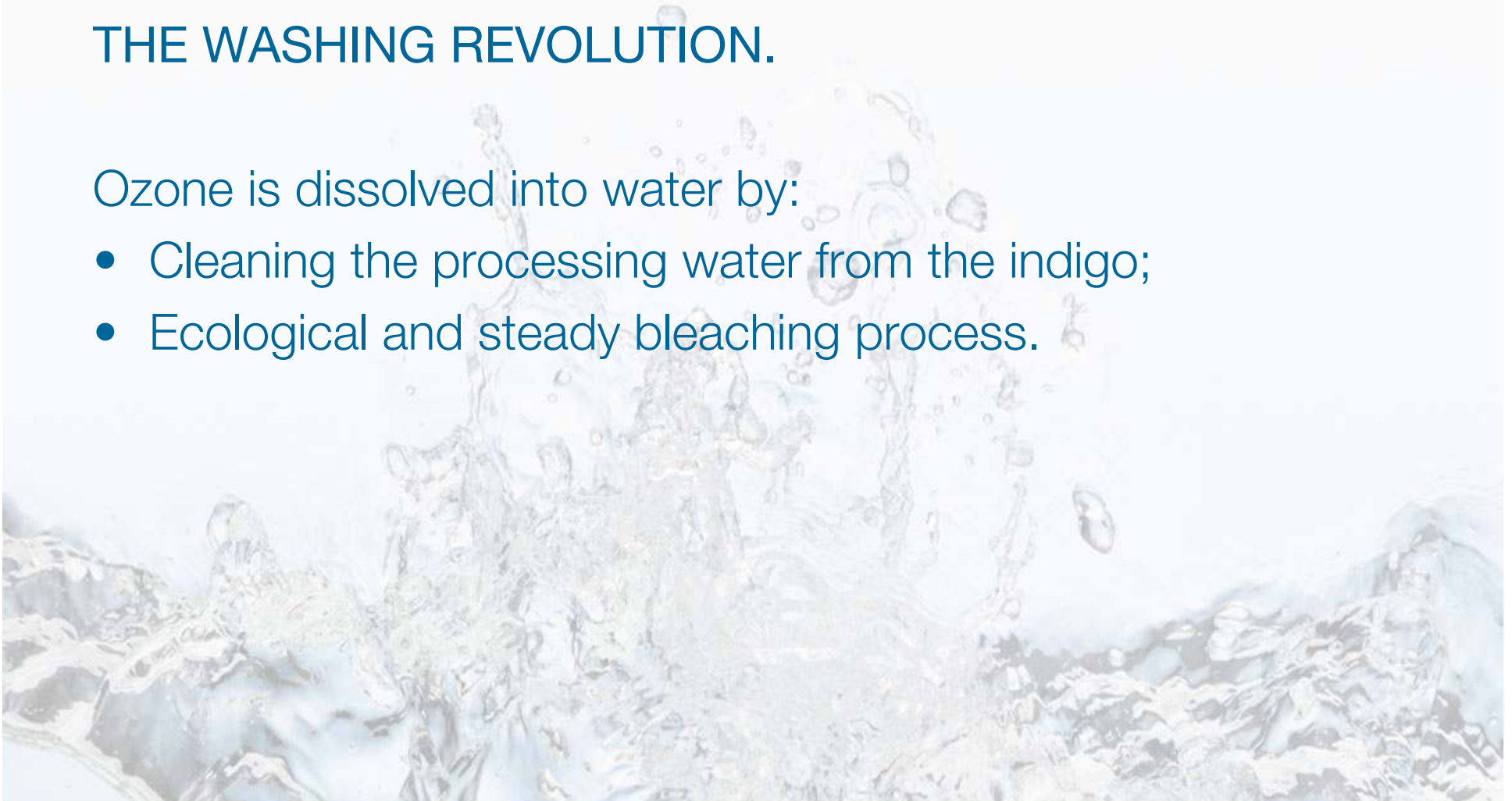
## WHY APPLY OZONE ON GARMENTS?

- Clean and eco-friendly process;
- Improves quality, avoiding backstaining on denim garments;
- Reduction in chemical use. For some finishes, the use of anti-backstaining products can be avoided;
- Some steps may be avoided or reduced (e.g. rinses, pp spray, etc.).

## THE WASHING REVOLUTION.

Ozone is dissolved into water by:

- Cleaning the processing water from the indigo;
- Ecological and steady bleaching process.





## ADVANTAGES OF **ECOfree**:

- Extreme reduction in water consumption from 50% to 75%;
- Lower water treatment costs;
- Shorter processing time;
- **Pure indigo look;**
- Lower energy consumption;
- Ecological bleach in cold water with process control and reproducibility.

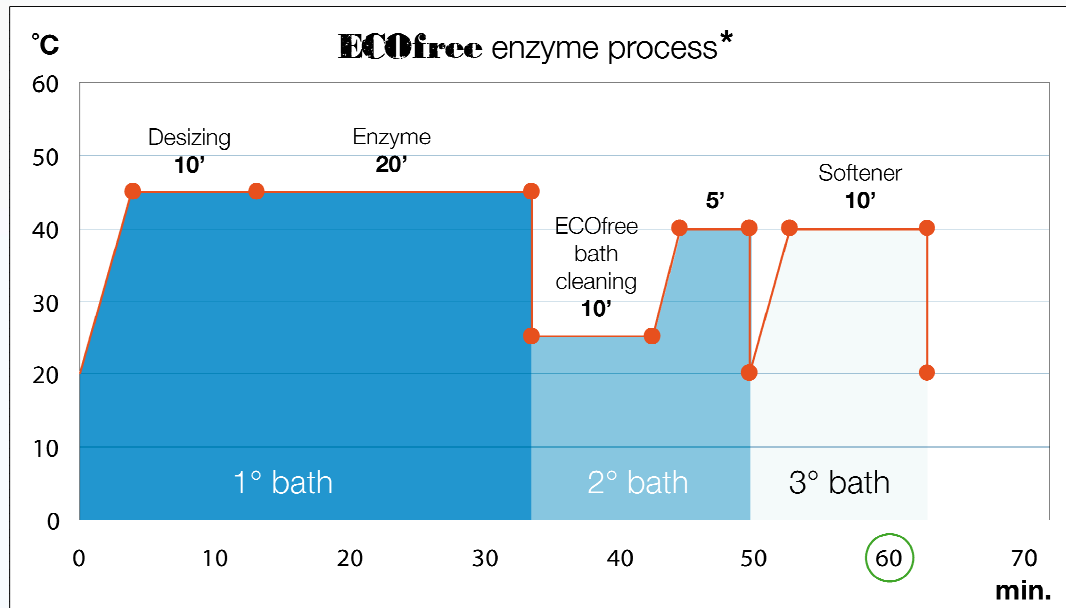
# ECOfree. OZONE IN WATER.

Bath **before**  
application  
of the ozone.



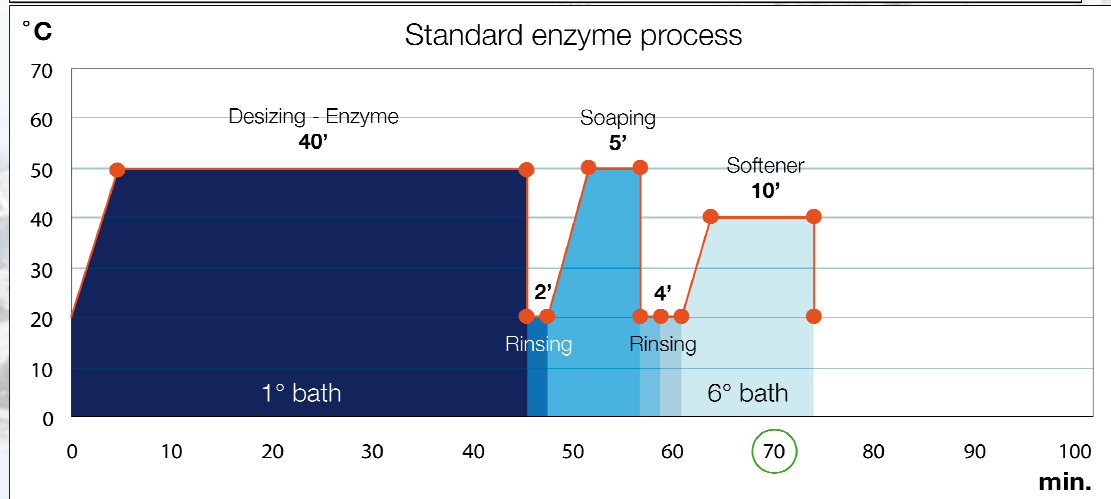
Bath **after**  
application  
of the ozone.

# ECOfree and standard process. Comparison.



## ECOfree process

- 50% less water\*;
- Higher quality\*;
- Less process time\*.



## Standard enzyme process (6 baths)

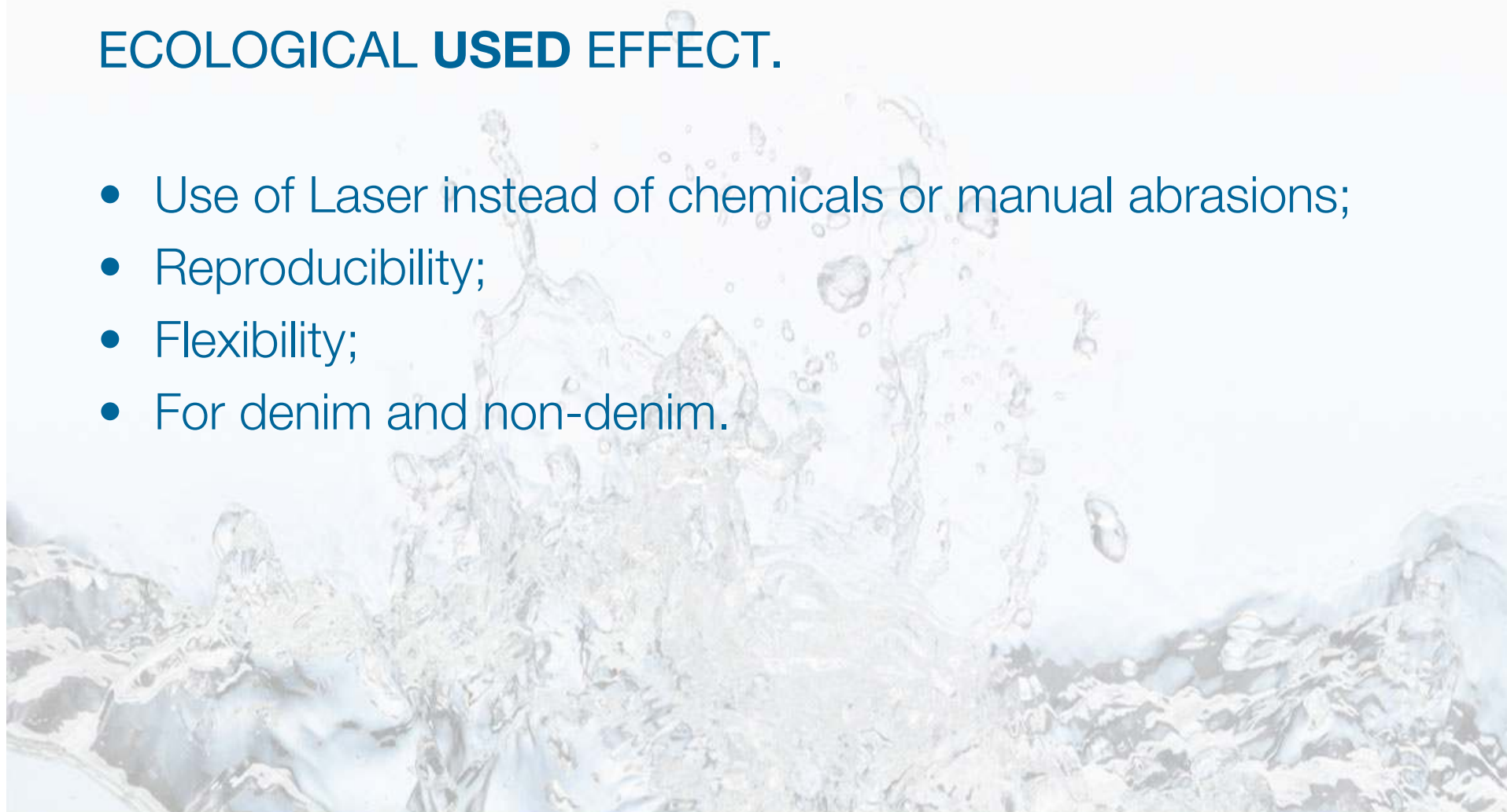


# LASER BLAZE K2. NATURAL ABRASIONS.



## ECOLOGICAL **USED** EFFECT.

- Use of Laser instead of chemicals or manual abrasions;
- Reproducibility;
- Flexibility;
- For denim and non-denim.



# JET DYEING SYSTEM. ECO-DYEING.



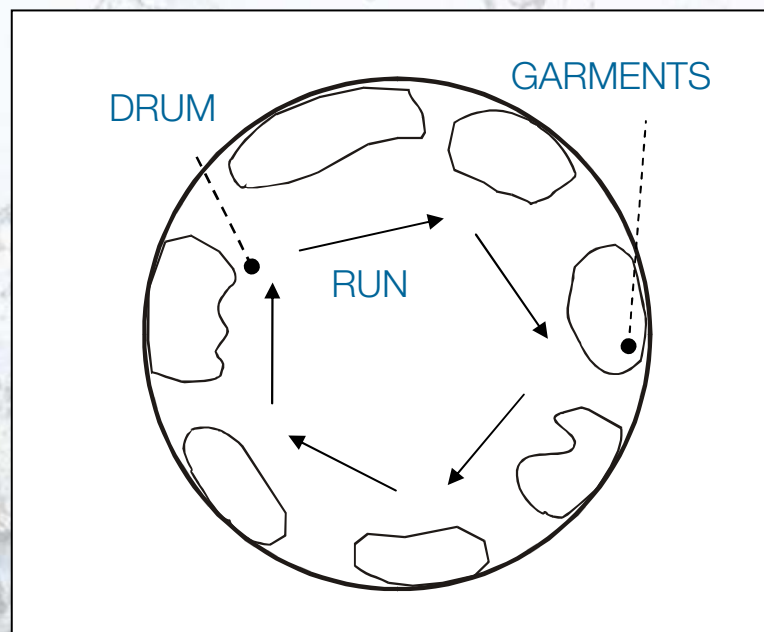
## Features:

- Open pocket dyeing;
- High speed;
- JET SYSTEM dyeing.



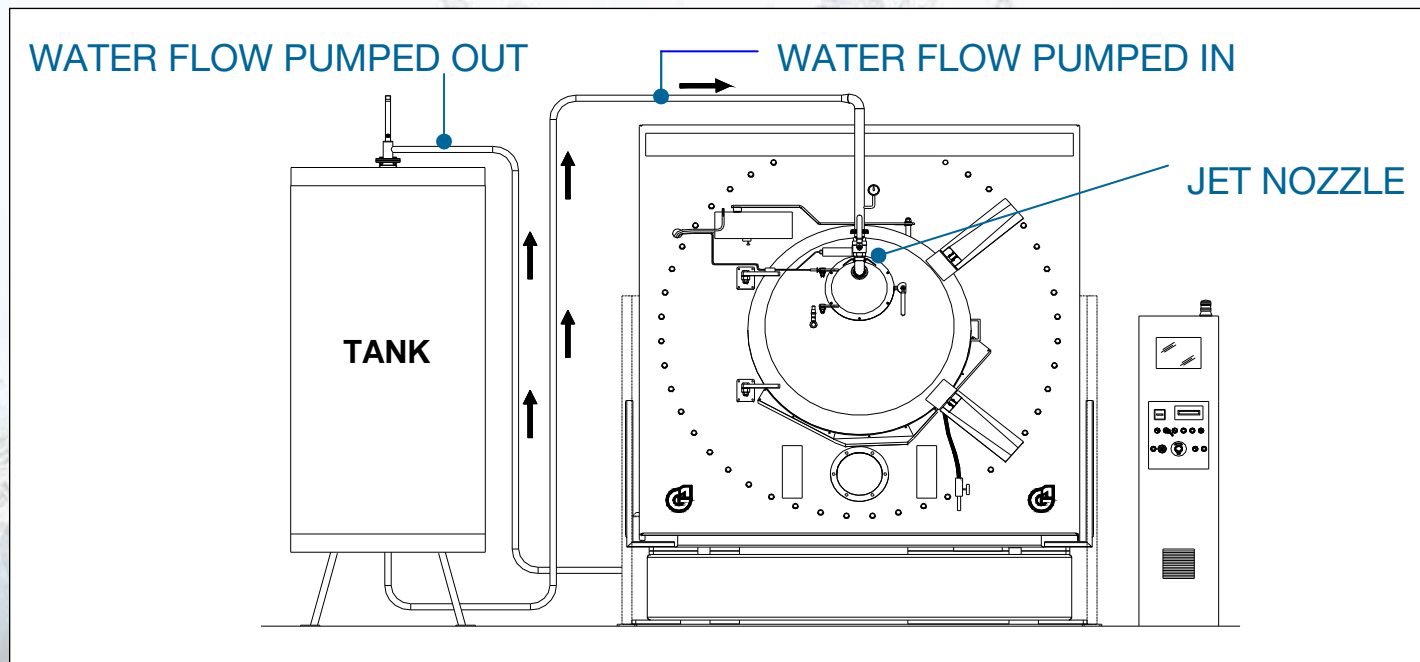
## JET DYEING SYSTEM BASICS:

- Garments run close to the drum;



# JET DYEING SYSTEM. ECO-DYEING.

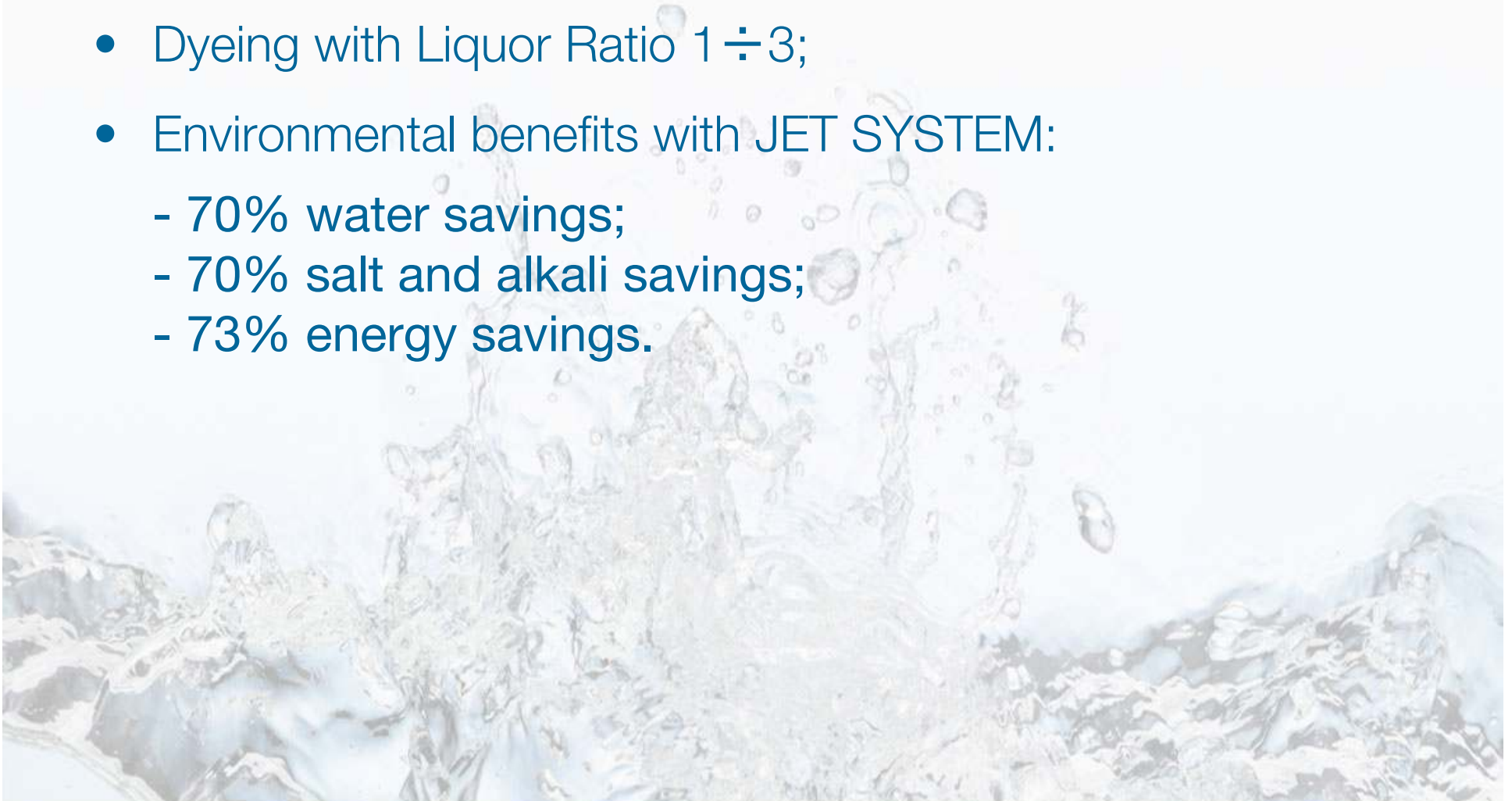
- Dyeing bath injected through a nozzle (JET SYSTEM);
- JET SYSTEM continuously wets garments with a certain pressure, favoring the penetration of dyestuffs.



# JET DYEING SYSTEM. ECO-DYEING.

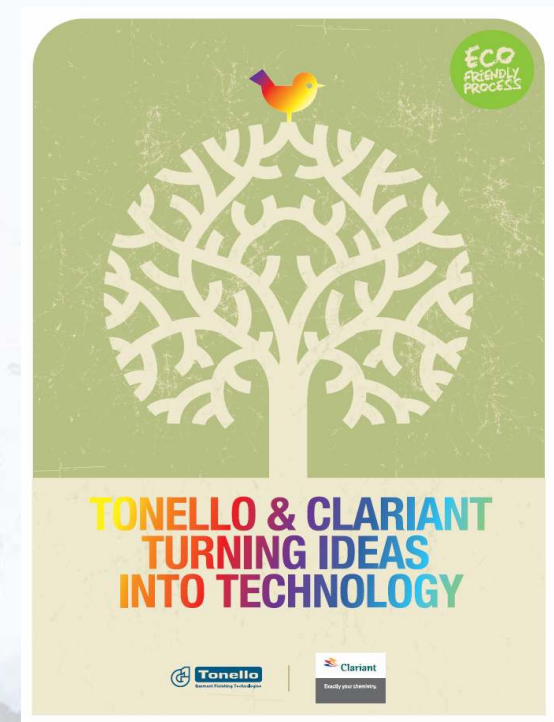


- Dyeing with Liquor Ratio  $1 \div 3$ ;
- Environmental benefits with JET SYSTEM:
  - 70% water savings;
  - 70% salt and alkali savings;
  - 73% energy savings.



## TURNING IDEAS INTO TECHNOLOGY.

- Innovative dyeing system uses ecological sulphur dyes under nitrogen atmosphere;
- To optimize water, energy and chemical consumption and reduce processing residues to a minimum;
- The entire process is eco-friendly;
- Used look.



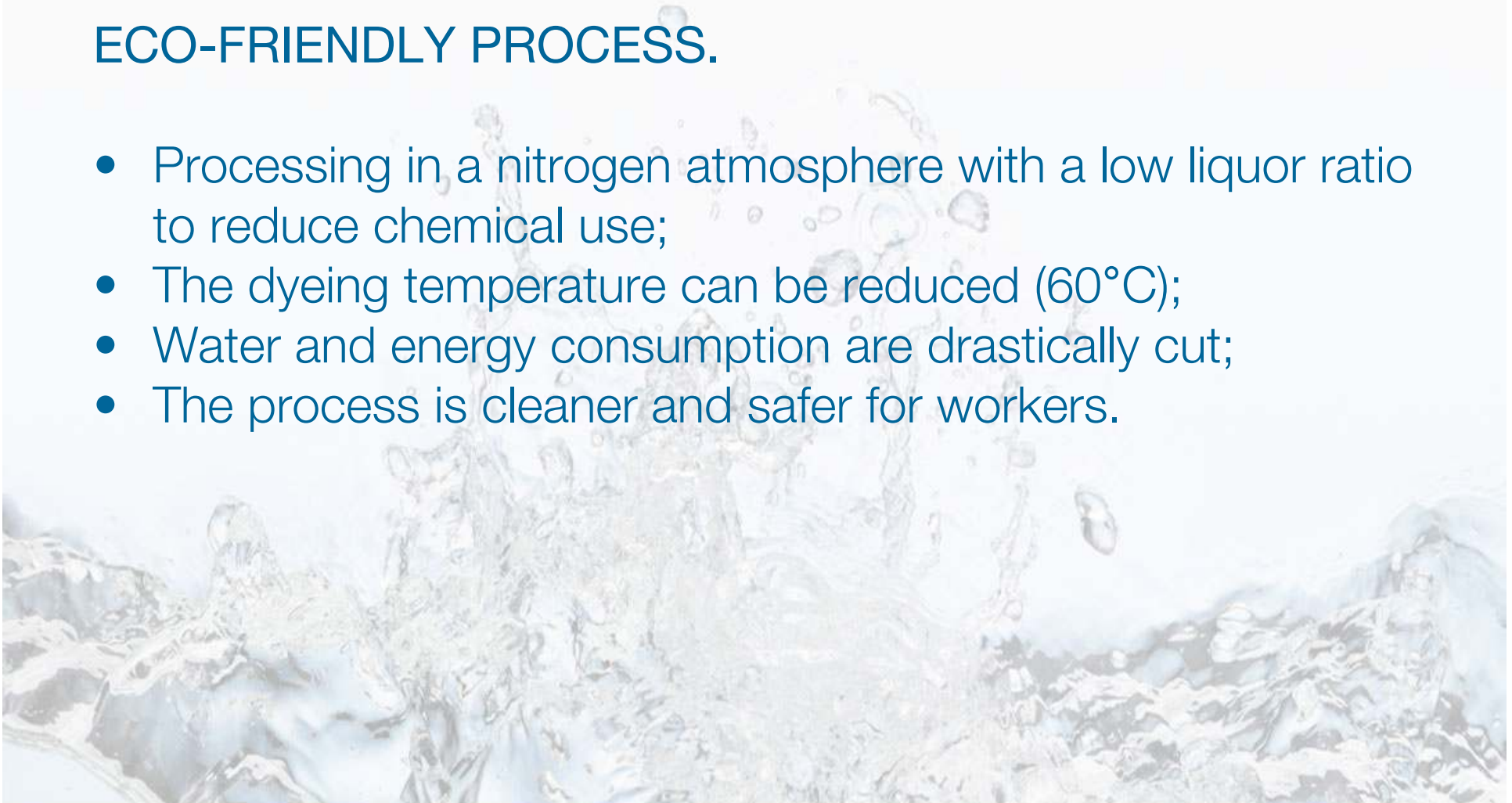


## Garment dyeing with sulphur dyes using **Tonello G1 N2 Nitrogen**:

- Sulphide-free reducing system;
- Eco-friendly oxidation, peroxide-based;
- Greater dyeing stability, producing more even results that are easier to reproduce;
- Dyeing is superficial, giving a worn look without damaging the fibre;
- Striking effects and contrasts can be produced by using only enzymatic treatment after dyeing.

## ECO-FRIENDLY PROCESS.

- Processing in a nitrogen atmosphere with a low liquor ratio to reduce chemical use;
- The dyeing temperature can be reduced (60°C);
- Water and energy consumption are drastically cut;
- The process is cleaner and safer for workers.

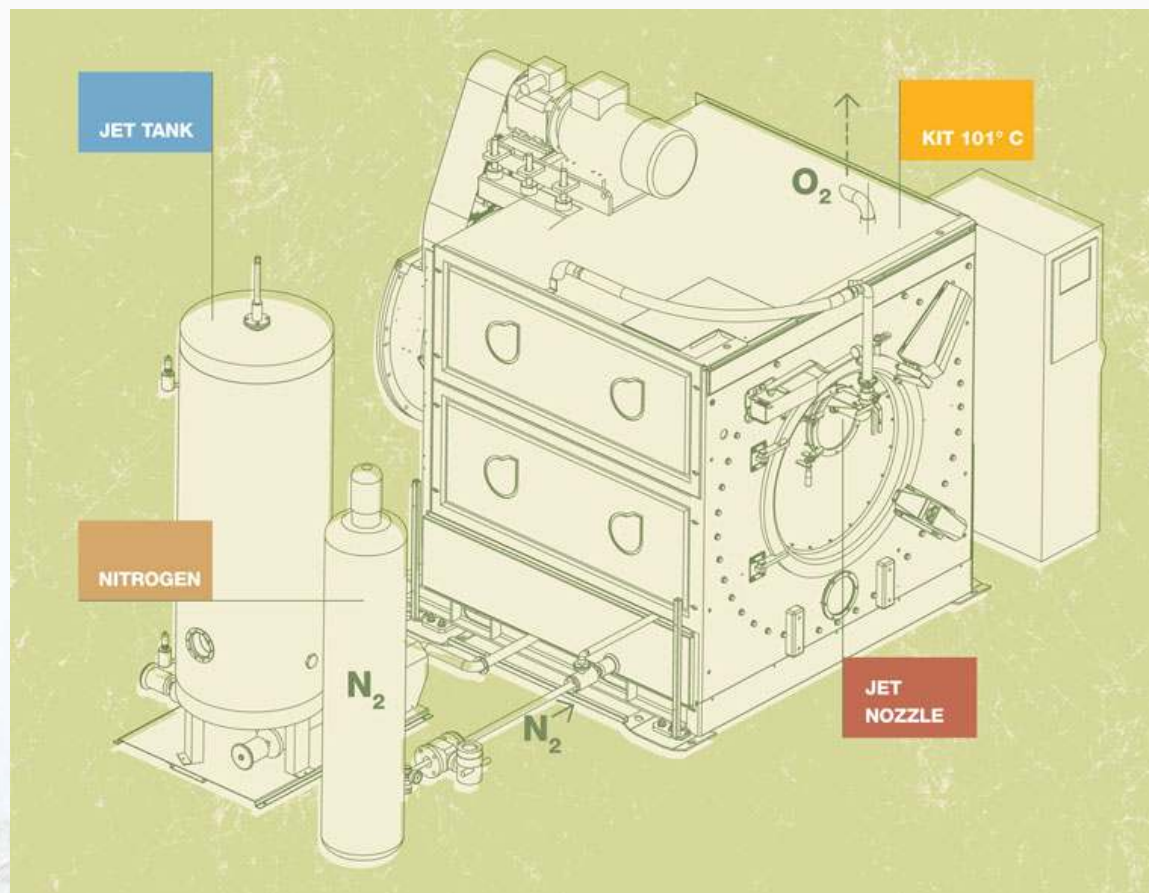


# NITROGEN DYEING SYSTEM. ECO-DYEING.



**Tonello**

Garment Finishing Technologies



## **G1 N2 Nitrogen Dyeing Machine.**

For dyeing processes under nitrogen atmosphere.



## Wash-down & effects on garments:

- Ecological sulphur dyeing  
+ Laser Blaze K2;
- Ecological sulphur dyeing  
+ 3D whiskers with Bohemia  
+ Antarctic Batik;
- Ecological sulphur dyeing  
+ Antarctic Batik;





# NITROGEN DYEING SYSTEM. ECO-DYEING.



- **Indigo Look.**  
*Blue Jeans Look* now possible in garment dyeing.



# KIT BATIK. LIVE AND LET DYE.



Special technology easy to install on all **Tonello** washing or dyeing machines, to apply high-performance products or creating special effects..



## KIT BATIK ADVANTAGES:

- Products savings;
- Water savings;
- Energy savings (cold process);
- All-in-one machine;
- Process control and reproducibility;
- Special effects.



## HIGH-PERFORMANCE PRODUCTS:

- Cationic and siliconic softeners;
- Antistatic/Hydrophilic softeners;
- Skin care (e.g. Aloe Vera, vitamin E);
- Easy care/Wrinkle-free;
- Water/Oil repellent;
- Antistaining;
- Anti-UV;
- Anti-Bacteria;
- Essences.





## PERFORMANCE PRODUCT SAVINGS: (e.g. Resins).

KIT BATIK*		TRADITIONAL SYSTEM	
PRODUCT 100 kg loading	4 % 4 Kg product	PRODUCT 100 kg loading	60 gr./Liter 30 kg. product
WATER 100 kg loading	20 % 20 Liters of water	WATER 100 kg loading	L:R 1:5 500 Liters of water

**\*SAVINGS: 87% PRODUCT; 96% WATER.**

KIT BATIK. LIVE AND LET DYE.

SPECIAL EFFECTS.



# CONTACTS.



THANK YOU FOR YOUR KIND ATTENTION.

For more information:

mail [m.tagliapietra@tonello.com](mailto:m.tagliapietra@tonello.com)  
[tonello@tonello.com](mailto:tonello@tonello.com)

web [tonello.com](http://tonello.com)

tel +39 0445 343200

fax +39 0445 380166

