Sustainable textile finishing using ozone and nanobubble technologies
The Air from the atmosphere is introduced into the G2 generator.

This air is converted into Ozone gas that is moved inside the tumbler.

The O3 fade the garment breaking the anchor of the fiber dyeing.

The O3 is transformed back to air and released into the atmosphere.
JEANOLOGIA TECHNOLOGY: OZONE ON FABRIC

Dynamic G2 springs from the knowledge acquired over the years in technology G2.

The Dynamic G2 is designed to treat all types of fabrics, from heavier to lighter, with any structure and widths up to 1.80m.

It provides with an entire color range of TIME PASSED BY effect form the same base fabric. The aged appearance finishes obtained with the Dynamic G2, are not reproducible by applying chemical and conventional systems.

Like other Jeanologia products, DYNAMIC G2 is tightly linked to EFFICIENCY & ECOLOGY.

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JEANOLOGIA TECHNOLOGY: OZONE ON FABRIC

Benefits
- Improve Crocking
- No Back stain
- Less Shades
- Darker cast blue

Dry Processes
- Avoid Potassium
- Permanganate
- Laser:
  - Better contrast
  - Less Intensity
  - Faster

Garment Finishing
- Improve the EIM score

Wet Processes
- Reduce up 60% washing time
- Reduce up 60% water consumption
- Ozone:
  - Improve desize steps
  - Shorter process
  - Better contrast
  - More consistency

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Average consumption per jean

**CONVENTIONAL FINISHING**

- 70 l (7 toilet flushes)
- 2.5 Kwh (10 h TV)
- 150 gr

**INTRODUCING TECHNOLOGIES LIKE LASER & G2**

- 20 l (2 toilet flushes)
- 1.5 Kwh (6 h TV)
- 50 gr
And… what about garments???

Traditional finishing processes for garments are based on exhaustion methods, dip-coating, direct impregnation, etc. These processes are water-intensive systems producing high quantities of waste-water, and high consumption of chemicals is also produced.
A breakthrough technology: nanobubbles and ‘eFlow’

Chemical products for finishing (softeners, easy care/wrinkle free resins, resins for 3D effects, liquid repellents, antimicrobials, dyes, etc.) get in contact with the garments with a minimal amount of water, being transported to the fibres through micro-nano bubbles by means of a flow of wet air.

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Implementation on a finishing textile company. Benefits
eFlow technology was developed (2013-2015) thanks to MNB-ECOFINISHING
CIP-Ecoinnovation EU project driven by JEANOLOGIA S.L., and being supported by:
• PIZARRO S.A. (PT).
• AITEX (ES).

Different finishing processes can be done:
• Softening / conditioning.
• Functionalization.
• Dyeing.
Implementation on a finishing textile company. Benefits

Softening process:

- Garments like T-shirts, shirts, sweatshirts and sweaters.
- Composition: 100% cotton; synthetic blends, polyester.
- **Optimal Liquor ratio:** light fabrics 1:0,3; Heavier clothing 1:0,5.
- Treatment time (50 Kg of charge): < 25min.

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Implementation on a finishing textile company. Benefits

Functionalization:

• Application of fluorocarbon (C6). Durable Water Repellent finish - DWR.
• Garments to be treated: workwear (jeans and sweatshirts)
• Composition (recommended): cotton and cotton/polyester mixtures.
• Optimal Liquor ratio 1:0,8.
• Treatment time (50 Kg of charge): < 40 min.
• C6 savings: 20%.
Implementation on a finishing textile company. Benefits

Dyeing:

Some interesting fashion effects on garments.

- Overdye (reactive/unitary).
- Tie dye (reactive/unitary): non-homogeneous dye that produces irregular effects (commonly known as the Italian expression: maltinto).
- Dye (reactive/unitary). **NO salt added. Ultra low liquor ratio.**
Nanobubble technology as a good practice for EU textile finishing industry

- Reduction of 86% of water consumption.
- Reduction of 44% of energy consumption.
- Elimination of 97% of wastewater.
- No need for wastewater treatment.
- Savings up to 50% of chemical products.
- Technology/results proven not only at R&D stage but also at industrial level.
- Restrictive legislation not applicable for the nanobubble technology.
- Easy-to-learn and to-operate technology.
- Possibilities to launch R&D and cooperation projects at national/EU level.
- Eco-creativity, creative industries and design/fashion also focused on the technology.
Closing remarks about ozone and nanobubble finishing technologies as a GP for the EU textile industry:

G2 Dynamic and e-Flow technology are certified as ecological by AITEX

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Closing remarks about ozone and nanobubble finishing technologies as a GP for the EU textile industry:

CREATIVITY, SUSTAINABILITY, INNOVATION AND TECHNOLOGY
Are the KEY to the New Industrial Era

EXCELENCE

DYNAMIC + LASER + OZONE + H₂ Zero + e-Flow

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THANK YOU FOR YOUR ATTENTION!!!

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