Water Consumption & Energy Saving

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The Development of Functional Treatments for Textile Applications utilising MLSE Synthesis Technology
MLSE Overview

- Technology invented and developed by MTIX Ltd
- A culmination of 25 years of MLSE collaborative innovation between USA and UK to decrease the carbon footprint of processing technologies
- Automotive, Medical, Aerospace, Defence and consumer markets
- Patent protected
- 2012: industrial-scale prototype system
- 2016: production systems
MLSE Technology

Multiple energy sources brought together in the presence of environmental gases and precursors to effect structural and chemical change in the surface of the substrate
Fundamental Principles
Prototype System

Based at Textile Centre of Excellence, Huddersfield
Production System
MLSE – The Process
Achievable Characteristics

- Water proofing
- Stain resistance
- Wrinkle resistance
- Wear resistance
- Thermal resistance
- Breathable fabrics
- Enhanced adhesion
- Enhanced printability
- Improved colour fastness
- Wash cycle durability
- Texture & feel
- Impact dissemination
- Fibre strength
- Dielectric properties
- Anti-bacterial
- Surface topography management
- Opportunities for combination treatments
From Wet to Dry processing

MLSE Technology
Hydrophobicity
Hydrophilicity / Hydrophobicity / Oleophobicity – Wool

- Low water dyeing
- Low temperature dyeing
- Breathable membranes
- Waterproofing
- Oil resistance
Scouring

BEFORE

AFTER
Dyeing Enhancement

Cycle Time reduced from 120 minutes to 55 minutes

- Energy cost reduction
- Dye chemical reduction
- Reduced dye cycle time
- Dry scouring
The Environmental Impact of MLSE Technology

March 2015

- Energy consumption reduced by 99.6%
- Greenhouse gas reduction over baseline of 90.9%
- Resource (chemical) use reduced by 94.8%
- Water consumption reduced by >75.5%
- Use of Hazardous resource (irritant/corrosive & bio-accumulative) eliminated completely
Economics

- Cost effective
- Environmentally friendly
- Repeatable
- Stable process
- Consistent treatments
- Wide process window
- Operator friendly
- Industrially robust
MLSE Markets

- Biomedical
  - Clotting / Linen
  - Sutures / Bandages
  - Wound Management
- Defence
  - Biomed Applications
  - Personal Armour
- Consumer & Smart Textiles
- Aerospace
  - Carbon Fibre CRFC
- Industrial
  - Filtration Systems
- Advanced Textiles
  - Fabrics
  - Fabrics

MLSE Production System
Thank you!

Questions welcome