

Wellman International Ltd

Moving Towards the Circular Economy in Ireland

NESC Workshop

April 2017

Wellman International - Introduction



*A subsidiary of
Indorama Ventures,
Wellman
manufactures high
quality polyester
products from
recycled raw
materials*

Indorama Ventures – truly global partner

\$7.5B
Revenue

21
Countries

14K
People

65
Sites

250+
Patents



**Global Leader
#1 in 70% of
our business**

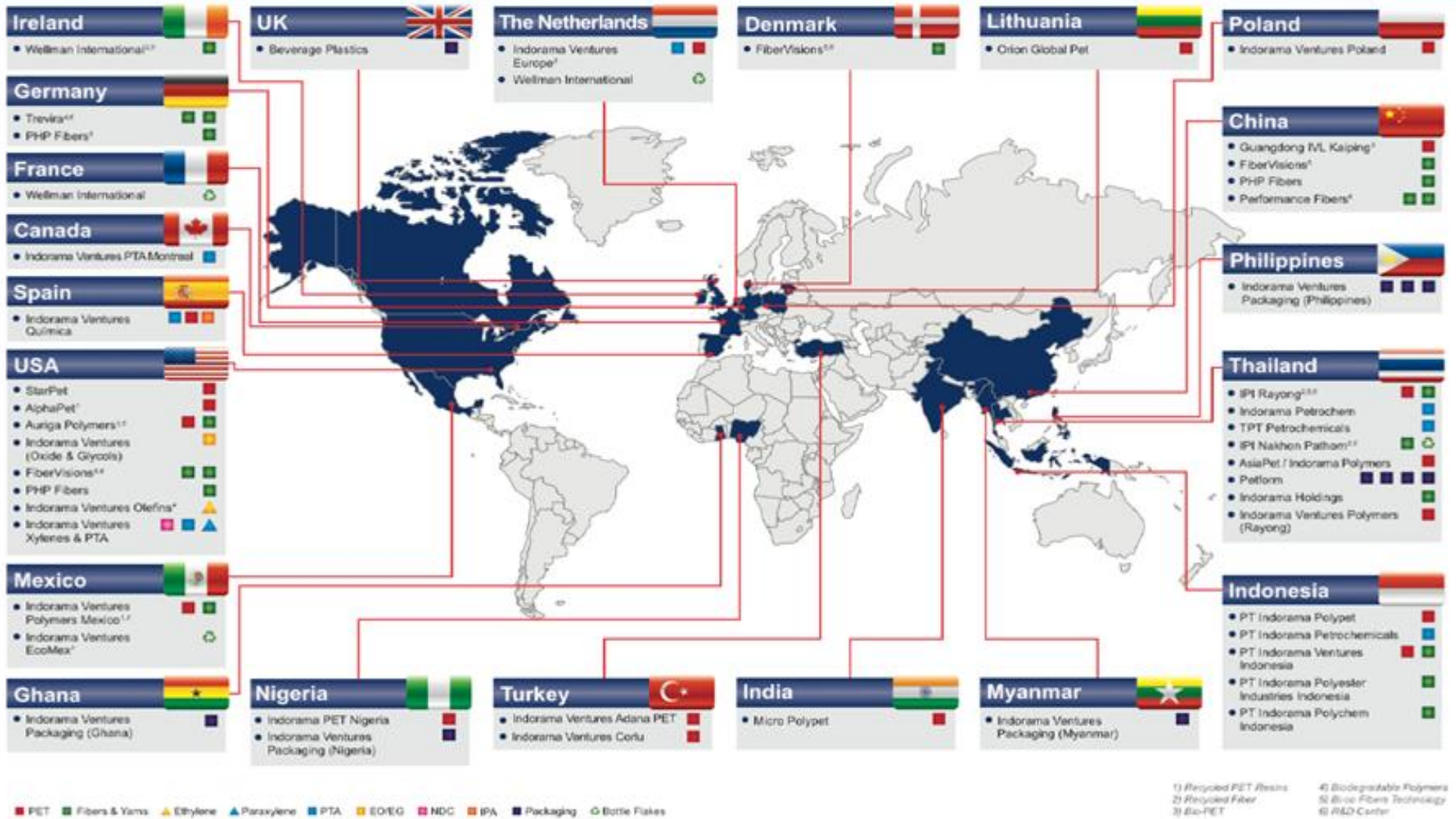


**Unique Global
Footprint with Local
Reach
>85% of sales within
the region**



**25% of fiber sales
from proprietary
products**

A Global Polymer Company



Wellman International – Recycling for over 4 decades



Europe's largest PET recycler, processing >2.6 billion post-consumer PET bottles and containers annually



70,000 tonne of flakes per annum



90,000 tonne of fibre per annum



380 employees

Wellman – Sustainability is at the Core of what we do

2.66 Billion

bottles recycled in one year



892,967

Barrels of oil saved



198 Million Kgs

of CO2 Saved



0.95kg

CO2 emissions per kg of rPET, 4 times lower than virgin PET fibre.

Wellman International Fibre Production Site



Wellman Fibre – Physical Form & Functionality

Physical Form

- **Fibre Profile**
 - Solid
 - Hollow
 - Conjugate
 - Trilobal
 - Pentalobal
- **Decitex range**
 - 1.7-28 Decitex (12-51micron)
- **Cut Length**
 - 6-150mm
- **Crimp Levels**
 - 0-12cpi
- **Fibre Colour**
 - Black/Blue/Green/Grey

Fibre Functionality

- **Bicomponent Polyesters**
 - Low and High melt
- **Modified Polyester**
 - Vapour/Moisture transport
- **Flame Retardant**
- **Inherent Treatments**
 - Dustmite protection
 - Microbial action
- **Topical Treatments**
 - Slick/Softhand/Scroopy
 - Dual-action AD/AM
 - Oleophobic/Water Repellent
 - Durable Hydrophilic
 - Food Contact

Wellman Fibre Applications

Industrial

- Pipelining
- Filters
- Geotextiles
- Abrasives
- Roofing Felts
- High Temperature Felts
- Hydrolysis Resistant Felts
- Breathable Membranes
- Thermal Insulation
- Acoustic Insulation
- Concrete/Asphalt
- Interlinings

Personal Hygiene

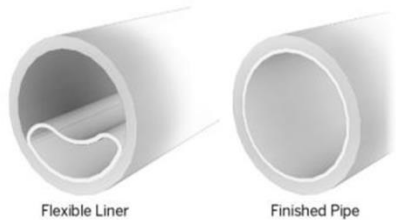
- Baby diapers
- Femcare
- Adult Incontinence
- Bandages/Wound care
- Pressure Relief

Automotive

- Moulded parts
- Carpet
- Filters
- Insulation
- Seating

Home and Apparel

- Duvets
- Mattress Components
- Seat Cushions
- Back Cushions
- Throw Cushions
- Carpet
- Flooring



Flexible Liner

Finished Pipe

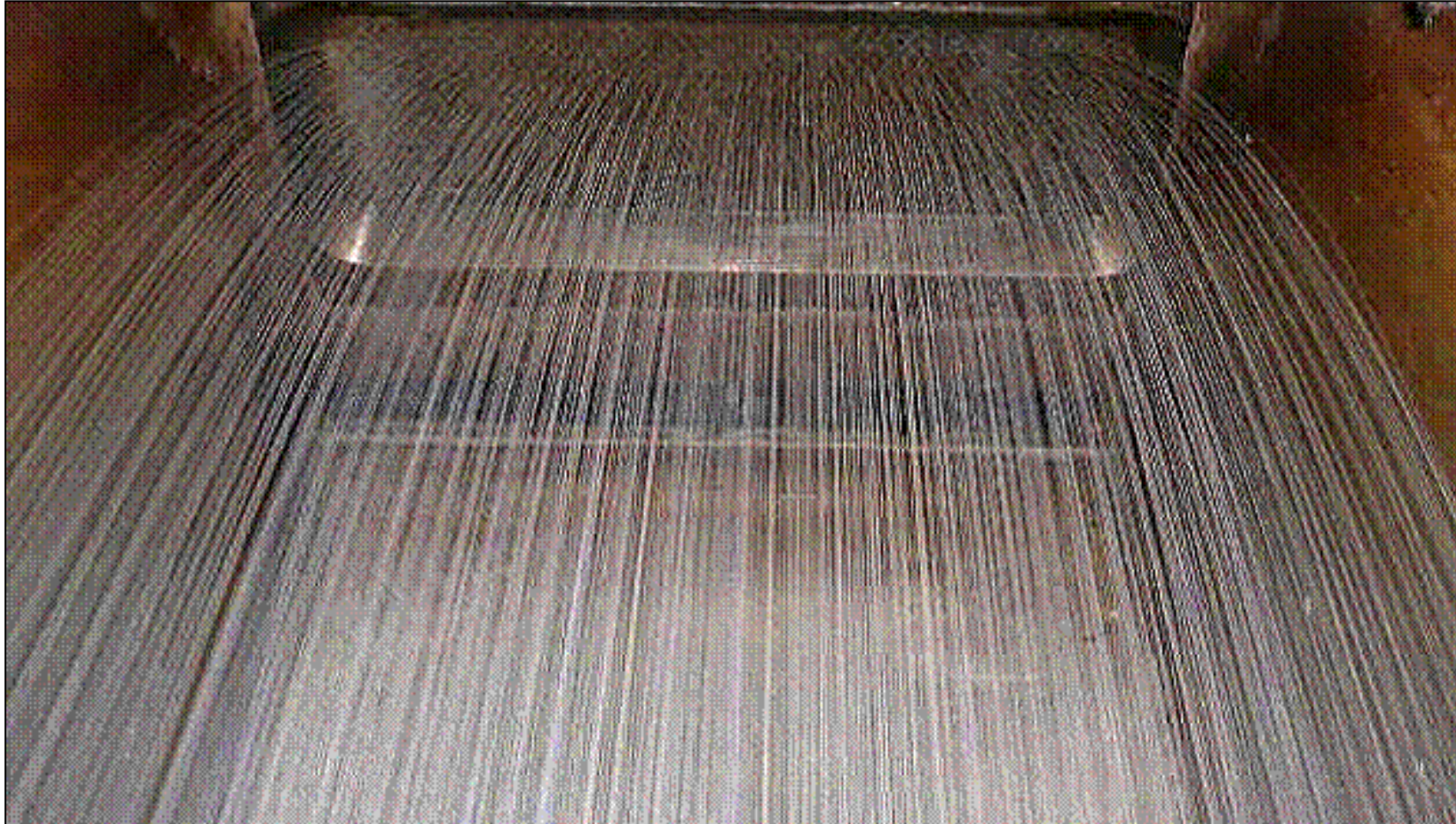


Fibre Production Process

Raw Material Storage



Fibre Spinning



Fibre Preparation



Fibre Storage



Wellman International and the Circular Economy

It starts with ecodesign

- Multiple and complex polymers
- Barrier layers
- New generation glues
- Multi-coloured designs

Quality is key

- Yields as low as 40%
- Recycling technology lags behind pace of manufacturing / market development
- Significant capital investment required to sort material

Where do all the bottles go?

- According to the EU Commission only 24% of plastic waste is recycled in the EU with up to 50% still going to landfill
- Very active Asian market for EU material competing against EU business
- Intra-EU trade in recyclable plastics has been increasing at a much slower pace than exports to non-EU countries (mostly Asia & China)

Collaboration will deliver results

- Among other initiatives Wellman are currently working on a project to recycle bottles collected from the Catalan sea shore – program aims to recycle material back into clothing made from 100% recycled PET

INDORAMA
VENTURES

WELLMAN INTERNATIONAL LTD.

Thank You