



Tergal Protect®

A Concept  
An Innovation  
A Cross Over





For a safer life

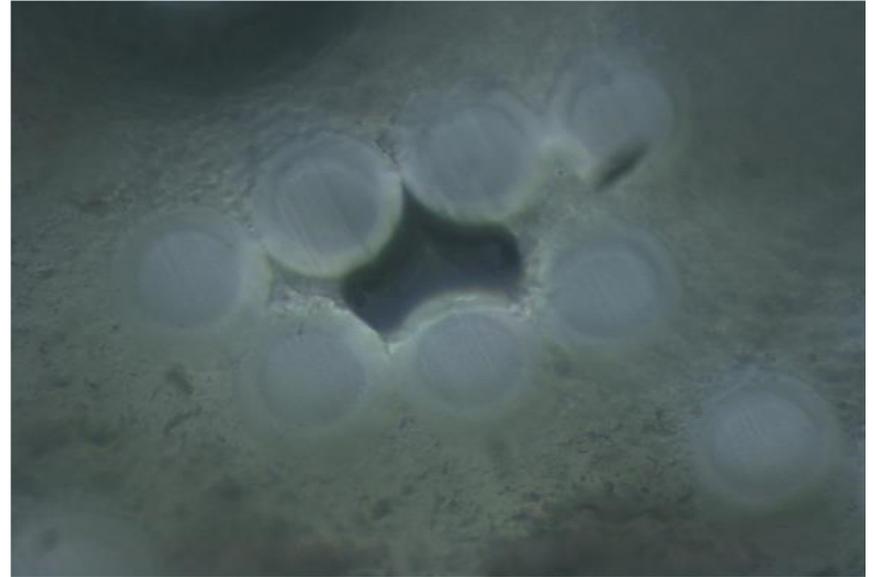




Tergal Protect®

# Tergal protect breakthrough

- Tergal protect breakthrough is a new type of Anti-insects weaved or knitted with Innovative polyester yarn incorporating during the extrusion phase a repulsive additive
- Totally embedded, the repulsive is merely chained to the polymer





Tergal Protect®

# Masterbach production process

- Manufacture of a controlled porosity polymer of polyethylene terephthalate (PET) with addition of an insecticidal active ingredient by catalysis

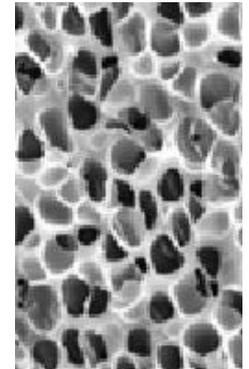
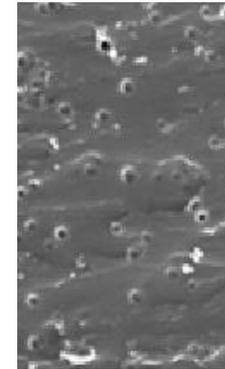
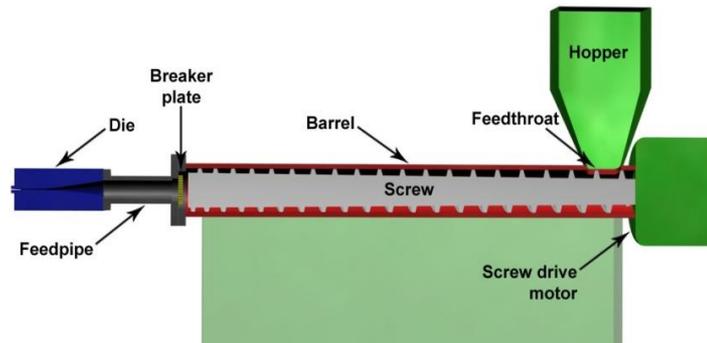
The PET structure is transformed during the process

1<sup>st</sup> step : ...

2<sup>nd</sup> step : ...

3<sup>rd</sup> step : ...

4<sup>th</sup> step : ...





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# Spinning process

- Melting of the masterbatch with the chips of PET at 180- 270 °C to make a spool of additive incorporated yarn



# Fabrics Properties

- Our Active Substances are operating by contact
- Their main action is to irritate the insect nervous system
- After a contact with a “**TERGAL PROTECT**” textile, Insects are shocked or repelled and some of them die later
- Depending on the components and concentration level of active substances chosen, Users can focus on different phylogenetic kinds of arthropods:
  - Mosquitoes
  - Flies
  - Fleas
  - Ticks
  - Aphids
  - Bedbugs



Our incorporation process requires **two time less active substances** than impregnation or coating processes. No risk of strewing related to water or friction, and furthermore “**TERGAL PROTECT** » textile is **totally recyclable**



# Textile Versatility and typical Applications

- Bed Nets
- Curtains
- Bedding
- Carpets
- Gardening and Arboriculture
- Camping - Free time



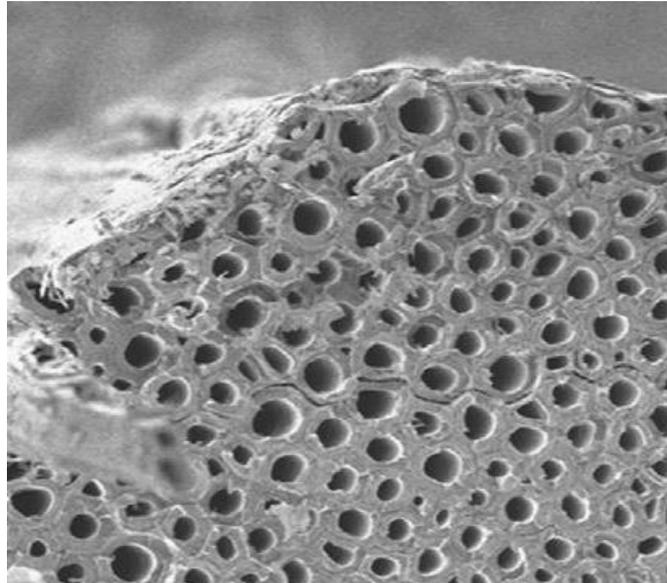
## WIRE SPOOLS ( Italy)



## FABRICS (France)



- In a close future we will be able to bring on the market a natural fibre with properties at least equal to these of PET

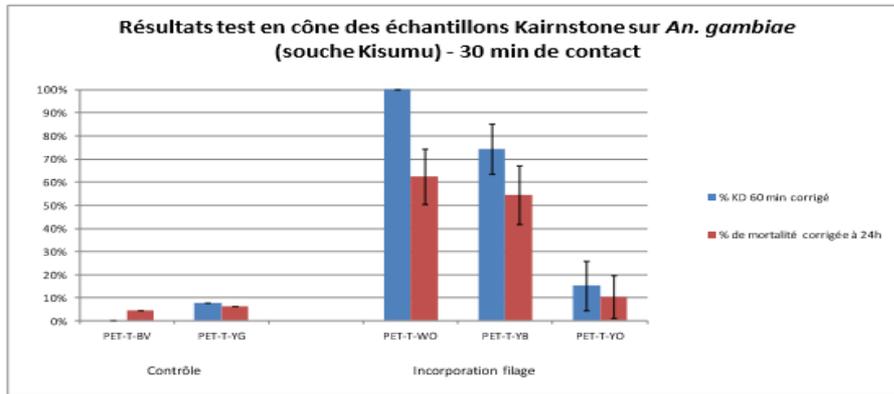


- Industrial processes: **Oekotex** certification
- Scientific and biological tests conducted by **IRD** according to WHO Rules and requirements



# Tests Results

- Mosquitoes are introduced into a plastic cone (OMS cone) which is in contact with the standard fabric (as a reference) and with a fabric made with yarn additivated for 3 minutes and for 30 minutes.
- After the exposition the mosquitos are observed.
- The percentage of Knockdown and mortality is checked after 30 minutes and the after 24 hours.



reference	Traitement	lavage	Matière	Effectif testé N	KD 60 min	% KD 60 min corrigé	% IC KD 60 min corrigé	mortalité à 24 h	% de mortalité corrigée à 24h	% IC mortalité corrigée à 24h	Espèce testée	Remarque
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#### Incorporation filage

Contrôle 78/24	PET-T-BV	écru	-	PET tricot	52	0	0%	-	2	4%	-	KIS	test 3 min de contact
Contrôle 167/48	PET-T-YG	écru	-	PET tricot	53	0	0%	-	1	2%	-	KIS	test 3 min de contact
FDY 78/24 5%	PET-T-WO	écru	-	PET tricot	48	26	54%	14%	23	48%	15%	KIS	test 3 min de contact
FTF 167/48 5%	PET-T-YB	écru	-	PET tricot	58	4	7%	7%	6	9%	8%	KIS	test 3 min de contact
FTF 167/48 2,5%	PET-T-YO	écru	-	PET tricot	63	0	0%	-	2	1%	4%	KIS	test 3 min de contact

#### Incorporation filage - Test complémentaire 30 min

Contrôle 78/24	PET-T-BV	écru	-	PET tricot	66	0	0%	-	3	5%	-	KIS	test 30 min de contact
Contrôle 167/48	PET-T-YG	écru	-	PET tricot	63	5	8%	-	4	6%	-	KIS	test 30 min de contact
FDY 78/24 5%	PET-T-WO	écru	-	PET tricot	67	67	100%	-	43	62%	12%	KIS	test 30 min de contact
FTF 167/48 5%	PET-T-YB	écru	-	PET tricot	68	52	74%	11%	39	54%	13%	KIS	test 30 min de contact
FTF 167/48 2,5%	PET-T-YO	écru	-	PET tricot	68	15	15%	11%	11	10%	9%	KIS	test 30 min de contact



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Thank  
you