COVEME

THE VALUE OF INNOVATION

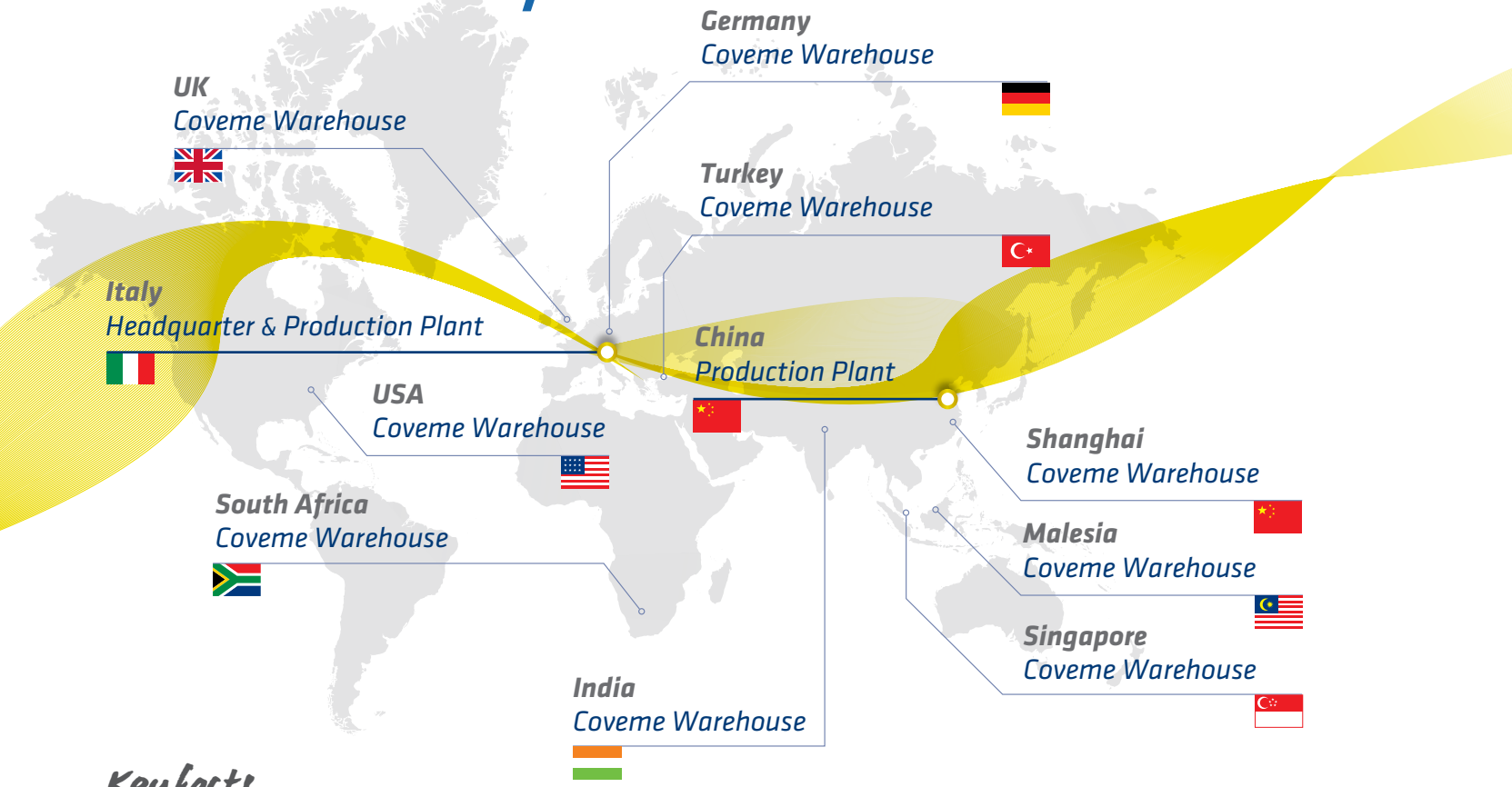
COVEME

FLEXIBLE ELECTRONICS


TAPE (55um)
FERRITE

COVEME
FLEXIBLE
ELECTRONICS

Coveme Today



Keyfacts

2 PRODUCTION PLANTS ITALY AND CHINA	**2** R&D LABS RESOURCES IN ITALY AND CHINA	**30.000** SQM OF PRODUCTION PLANT	**25.000** TONS OF POLYESTER FILM HANDLED EACH YEAR
10 PRODUCTION LINES	**10** COVEME WAREHOUSES AROUND THE WORLD	**64** COUNTRIES CATERED AROUND THE WORLD	**12%** TURN-OVER INVESTED IN TECHNOLOGY AND R&D

Coveme, founded in Bologna, Italy, in 1965, converts polyester film for various industrial applications such as photovoltaic modules, RFID antennas, biomedical sensor strips, electrical insulation, automotive, screen print and flexible packaging. Product and process **innovation** are at the heart of Coveme's activities and fundamentals for the development of new products for highly technological industries of rapid growth and continuous evolution. In this context, the strong **partnerships** with our clients and suppliers are of utmost importance and vital for a successful common growth.Today Coveme has two production sites: the first, built in 1996 in Gorizia, Italy, and the second opened in 2011 in Zhangjiagang, China, around 200km north of Shanghai. They are the result of Coveme's **entrepreneurial mindset**, sagaciousness and know-how gained through the years.
Our factory in China, being the first of its kind by a European backsheet manufacturer, is yet another example for this spirit. Coveme's core business is positioned within renewable energy industry where PV module manufacturers are the main target of our backsheet films.
The company has kept pace with the rapid growth of this industry, and has reached a leading position within very few years.
Our concern for the **protection of the environment** is reflected not only in what we produce but also how we produce, which means a lean and green production technology and relationship with our partners.
Coveme has commercial and logistic networks all over the world. All our sales managers are responsible for their business 100%, that means they are trained to give our clients highly technical support before and after sales.
The **reliability** of Coveme, guaranteed by high quality standards and rigorous control, is the promise we keep to our clients.

GORIZIA

BOLOGNA

ZHANGJIAGANG

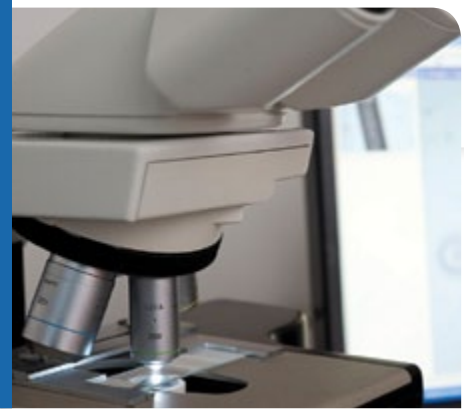
Production

Coveme has been converting polyester film for over 20 years and has successfully developed sophisticated technologies in the production of high-tech films for various industries. The value Coveme adds to the film is vital for its clients who, themselves, work with advanced production processes.
In the two production sites, Gorizia (Italy) and Zhangjiagang (China) 10 production lines are installed and set up for the following converting processes: lamination, surface treatment, heat stabilization, coating and slitting. Both production sites enable a widespread coverage: Italy serves the European and American markets, China serves the Asian market.
Thanks to its own slitting department Coveme can provide all materials in customized rolls, sheets and punched formats. Coveme's manufacturing processes are completely focused on high quality for high performance. For us, this means strict and consistent adherence to measurable and verifiable standards to achieve uniformity of output that satisfies specific customer requirements.

Coveme is
UNI EN ISO 9001-2008
Certified

Research & Development

Our Research and Development laboratory has always been one of the most advanced and strong points of the company, where our technological and operative know how is at complete disposal of the clients' needs, with the aim to find for each of them the very best solution possible.
Highly motivated teams of young technicians - in Italy and in China - generate and sustain a technical/ productive cross fertilization within the company while collaboration between clients and the production department and between the technical department and suppliers permits the exploitation of experience in order to realize innovative products.



Sustainability

Green production

in its two production sites Coveme works by adopting measures to protect the environment:

Coveme is
UNI EN ISO 9001:2008, ISO 14001:2004,
OHSAS 18001:2007 certified

- EMISSION TREATMENT
- STORAGE OF CHEMICALS
- WASTE DISPOSAL
- PEST CONTROL PROCEDURE
- OPTIMIZATION OF ENERGY RESOURCES
- ROHS AND REACH COMPLIANCE

Carbon footprint

- ENERGY SAVING

Coveme has invested in balancing its Carbon footprint through 258kW of solar panels installed on the roof of Coveme's headquarters and plant.

- WASTE MANAGEMENT

All the by-products generated by Coveme production process (like VOC from adhesive solvents) are burned to generate heat that finally is used for other facilities of Coveme's production plant in Zhangjiagang (China).

- WHITE CERTIFICATES

In the year 2013/2014 Coveme gained 1618 TEE (Energy Efficiency Securities or white certificates), achieving a target of energy saving.

Flexible Electronics

"Roll to Roll" and "Sheet to Sheet" printing systems within the field of flexible circuitry require specific support to guarantee planarity and dimensional stability, as well as high adhesion with conductive inks and pastes under the highest conductivity conditions. Coveme meets these requirements with a range of treated, heat-stabilized polyester films that are ideal for high speed printing and have been validated by major multinational companies active in electronics for automobiles, avionics, home appliances, smart devices etc. Coveme's materials are utilized in the automotive and avionic industries for the production of passenger detection devices as well as flat cables for steering wheel commands and filmic sensors. As far as electrical appliances are concerned, flexible circuitry printed on Coveme material can be used for a wide range of membrane switches.

One of the main applications in the field of flexible circuitry is represented by R.F.I.D. antennas and NFC tags where the product's control by labeling has focused upon the gradual replacement of barcode systems. This allows the remote electronic registration of all relevant information regarding logistical management. Therefore, R.F.I.D. antennas, equipped with a chip, are the receiving and transmitting information centers contained in smart labels.

Coveme has developed a film surface treatment to improve the adhesion of conductive inks, therefore guaranteeing the proper performance under mechanical stress and harsh environmental conditions. Recent technology, producing R.F.I.D. antennas by patterned deposition and/or ink-jet deposition is supported by Coveme's films, especially developed for this application. Coveme will continue its involvement in new frontiers of substrates for microelectronics in developing films for increased temperatures as well as micro-circuitry with sputtering systems.

Kemafoil®
Product range

Heat stabilised PET film

Kemafoil® TSL

Heat stabilised and treated PET film

Kemafoil® HSPL 20

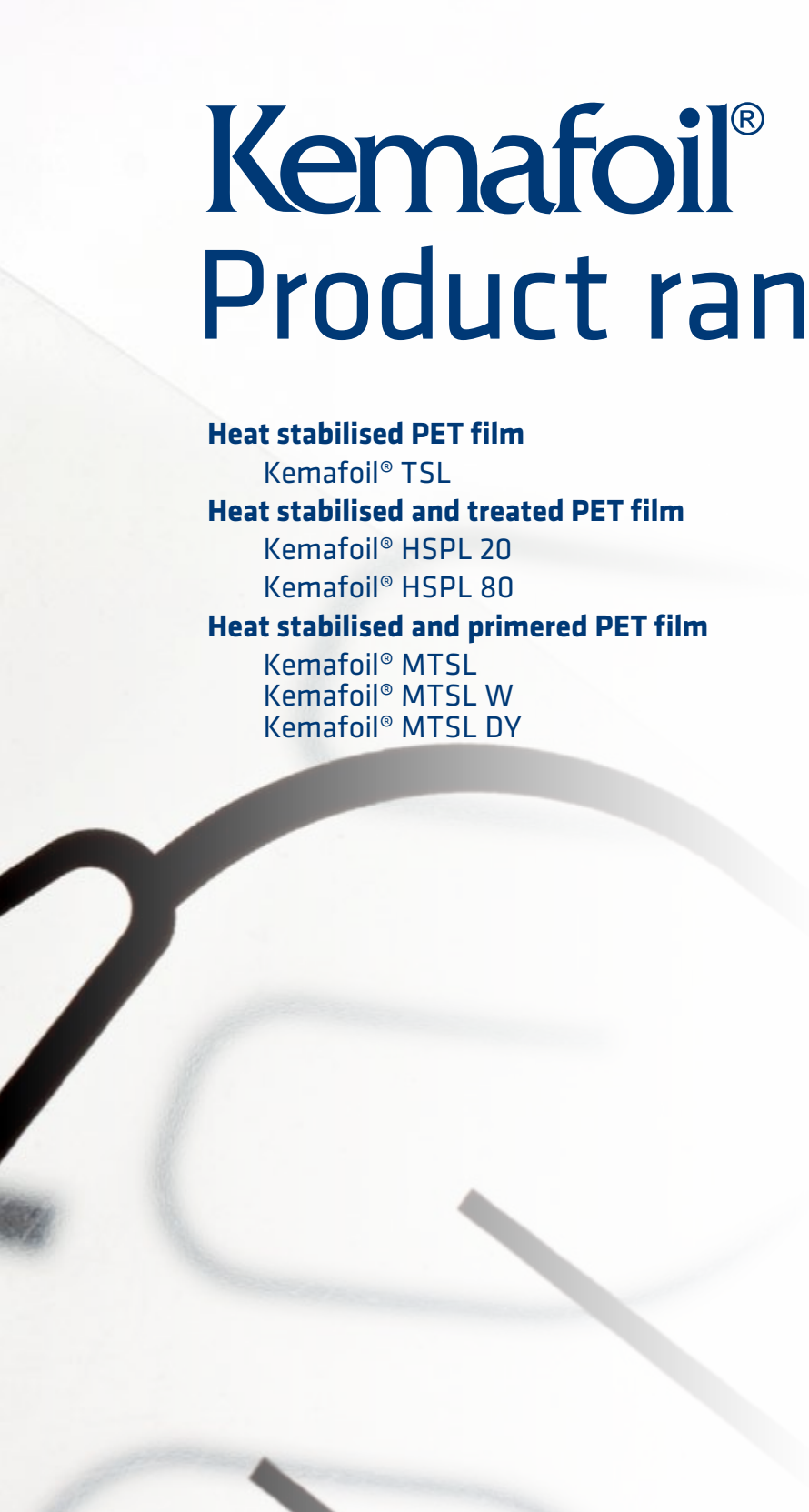
Kemafoil® HSPL 80

Heat stabilised and primered PET film

Kemafoil® MTSL

Kemafoil® MTSL W

Kemafoil® MTSL DY

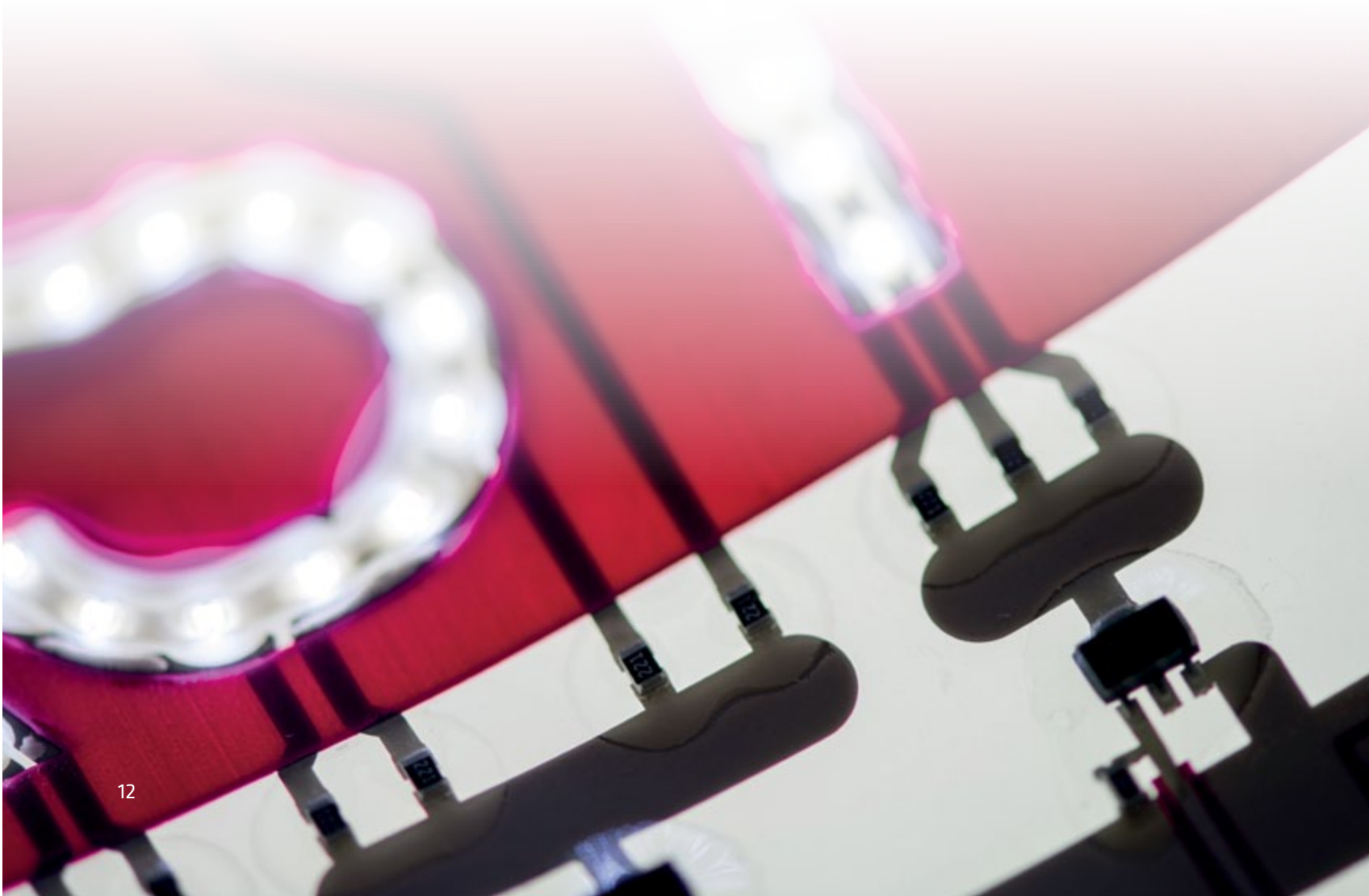


Heat stabilize PET film

Kemafoil® TSL is a polyester substrate with extremely low shrinkage value thanks to Coveme's heat stabilization process. As a result it is the ideal support for printing processes with high temperature curing.

Kemafoil® TSL is employed for the manufacturing of:

- RFID Radio Frequency Identification inlets
- FPC Flexible Printed Circuits
- MTS Membrane Touch Switches
- Electro-Luminescent Surfaces



Kemafoil® TSL

An optically clear, hazy, white and black heat stabilized polyester film

Properties	Unit	Method	Value 23 µ	Value 36 µ	Value 50 µ	Value 75 µ	Value 100 µ	Value 125 µ	Value 175 µ
Thickness variation	mic.	INTERNAL	21.8 - 24.2	34.0 - 38.0	47.5 - 52.9	72.0 - 78.0	95.0 - 105.0	119.0 - 131.0	166 - 184
Density	gm/cm3	ASTM D 1505	1.395 -1.405	1.395 -1.405	1.395 -1.405	1.395 -1.405	1.395 -1.405	1.395 -1.405	1.395 -1.405
Yield	sqm/kg	INTERNAL	31,06	19,84	14,28	9,52	7,14	5,71	4,08
Tensile strength (md)	Kg/cm2	ASTM D 882	1800 - 3100	1800 - 3200	1750 - 2500	1500 - 2500	1600 - 2500	1600 - 2500	1700 - 3000
Tensile strength (td)	Kg/cm2	ASTM D 882	1800 - 2800	1800 - 2800	1900 - 2800	1800 - 2800	1700 - 2800	1700 - 2800	1700 - 3000
Elongation at break (md)	%	ASTM D 882	90 - 180	90 - 180	90 - 180	90 - 180	90 - 180	90 - 180	90 - 180
Elongation at break (td)	%	ASTM D 882	90 - 180	90 - 180	90 - 180	90 - 180	90 - 180	90 - 180	90 - 180
Heat Shrinkage (md) (150°C x 30 minutes)	%	ASTM D 1204	TYPICOL	AVERAGE 0,5	< 0,3	< 0,3	< 0,2	< 0,2	< 0,2
Heat Shrinkage (td) (150°C x 30 minutes)	%	ASTM D 1204	< 0,2	< 0,2	< 0,2	< 0,2	< 0,2	< 0,2	< 0,2

Standard supply specifications:
- Master roll
- Customized reels
- Inner core: 3" or 6"
- Cut sheets on request. Sizes and drills according to customer's drawings

Data and product descriprtion have to be considered indicative. -
The above information is liable to change due to innovation and improvement in the manufacturing process.
We assume no liability for any infringement of any patent, copyright or design on the part of the customer while exploiting the laminate for different end-uses.
Kemafoil® is a Coveme registered trade mark.

Heat stabilize and treated PET film

Kemafoil® HSPL20 and HSPL80 are polyester substrates with extremely low shrinkage values and high surface tension thanks to Coveme's heat stabilization and chemical treatment. As a result they are the ideal support for printing processes with high temperature curing and guarantee an outstanding bonding with adhesives and laquers.

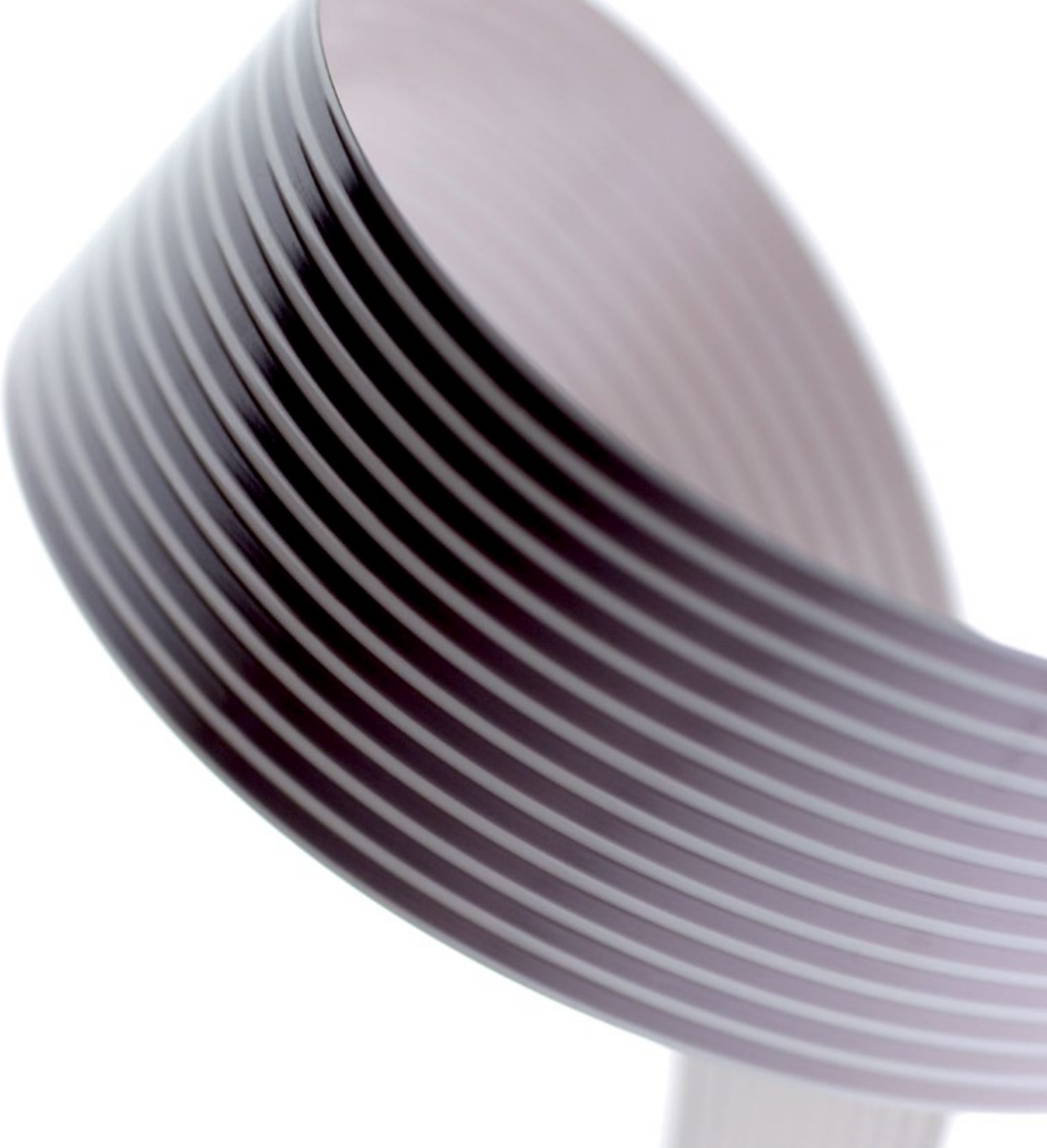
Kemafoil® HSPL20 and HSPL80 are employed for the manufacturing of:
- RFID Radio Frequency Identification inlets
- FPC Flexible Printed Circuits
- MTS Membrane Touch Switches
- Electro-Luminescent Surfaces

Kemafoil® HSPL 20

A slightly hazy, white and black heat stabilized and both sides treated polyester film

Properties	Unit	Method	Value 23 µ	Value 36 µ	Value 50 µ	Value 75 µ	Value 100 µ	Value 125 µ	Value 175 µ
Thickness variation	mic.	INTERNAL	21.8 - 24.2	34.0 - 38.0	47.5 - 52.9	72.0 - 78.0	95.0 - 105.0	119.0 - 131.0	166 - 184
Density	gm/cm3	ASTM D 1505	1.395 -1.405	1.395 -1.405	1.395 -1.405	1.395 -1.405	1.395 -1.405	1.395 -1.405	1.395 -1.405
Yield	sqm/kg	INTERNAL	31,06	19,84	14,28	9,52	7,14	5,71	4,08
Tensile strength (md)	Kg/cm2	ASTM D 882	1800 - 3100	1800 - 3200	1750 - 2500	1500 - 2500	1600 - 2500	1600 - 2500	1700 - 3000
Tensile strength (td)	Kg/cm2	ASTM D 882	1800 - 2800	1800 - 2800	1900 - 2800	1800 - 2800	1700 - 2800	1700 - 2800	1700 - 3000
Elongation at break (md)	%	ASTM D 882	90 - 180	90 - 180	90 - 180	90 - 180	90 - 180	90 - 180	90 - 180
Elongation at break (td)	%	ASTM D 882	90 - 180	90 - 180	90 - 180	90 - 180	90 - 180	90 - 180	90 - 180
Wetting tension	Dynes/cm	ASTM D 2578	>54	>54	>54	>54	>54	>54	>54
Heat Shrinkage (md) (150°C x 30 minutes)	%	ASTM D 1204	< 0,3	< 0,3	< 0,3	< 0,3	< 0,2	< 0,2	< 0,2
Heat Shrinkage (td) (150°C x 30 minutes)	%	ASTM D 1204	< 0,2	< 0,2	< 0,2	< 0,2	< 0,2	< 0,2	< 0,2
Opacity (*)	%	PHOTO-VOLT	avg 7	avg 7	avg 7	avg 7	avg 7	avg 7	avg 7

(*) Opacity value refers to clear base film



Kemafoil® HSPL 80

A medium hazy, white and black heat stabilized and both sides treated polyester film

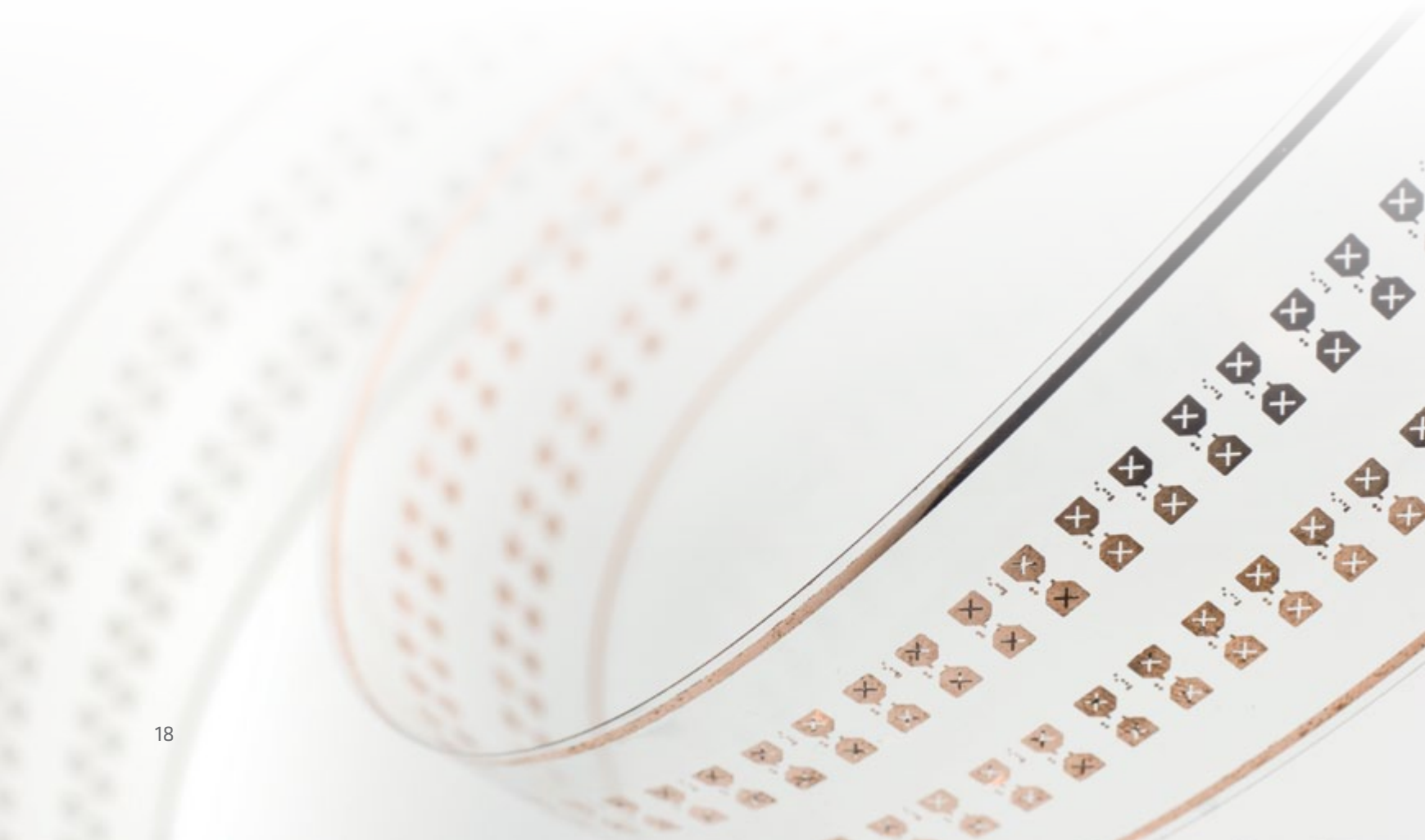
Properties	Unit	Method	Value 23 µ	Value 36 µ	Value 50 µ	Value 75 µ	Value 100 µ	Value 125 µ	Value 175 µ
Thickness variation	mic.	INTERNAL	21.8 - 24.2	34.0 - 38.0	47.5 - 52.9	72.0 - 78.0	95.0 - 105.0	119.0 - 131.0	166 - 184
Density	gm/cm3	ASTM D 1505	1.395 -1.405	1.395 -1.405	1.395 -1.405	1.395 -1.405	1.395 -1.405	1.395 -1.405	1.395 -1.405
Yield	sqm/kg	INTERNAL	31,06	19,84	14,28	9,52	7,14	5,71	4,08
Tensile strength (md)	Kg/cm2	ASTM D 882	1800 - 3100	1800 - 3200	1750 - 2500	1500 - 2500	1600 - 2500	1600 - 2500	1700 - 3000
Tensile strength (td)	Kg/cm2	ASTM D 882	1800 - 2800	1800 - 2800	1900 - 2800	1800 - 2800	1700 - 2800	1700 - 2800	1700 - 3000
Elongation at break (md)	%	ASTM D 882	90 - 180	90 - 180	90 - 180	90 - 180	90 - 180	90 - 180	90 - 180
Elongation at break (td)	%	ASTM D 882	90 - 180	90 - 180	90 - 180	90 - 180	90 - 180	90 - 180	90 - 180
Wetting tension	Dynes/ cm	ASTM D 2578	>58	>58	>58	>58	>58	>58	>58
Heat Shrinkage (md) (150°C x 30 minutes)	%	ASTM D 1204	< 0,3	< 0,3	< 0,3	< 0,3	< 0,2	< 0,2	< 0,2
Heat Shrinkage (td) (150°C x 30 minutes)	%	ASTM D 1204	< 0,2	< 0,2	< 0,2	< 0,2	< 0,2	< 0,2	< 0,2
Opacity (*)	%	PHOTOVOLT	avg 25	avg 25	avg 25	avg 25	avg 25	avg 25	avg 25

(*) Opacity value refers to clear base film

Heat stabilize and primered PET film

Kemafoil® MTSL, MTSL W and MTSL DY are primered polyester substrates with extremely low shrinkage values thanks to Coveme's heat stabilization process. As a result they are the ideal support for printing processes of conductive inks with high temperature curing guaranteeing outstanding lay flat properties and bonding.

Kemafoil® MTSL, MTSL W and MTSL DY are employed for the manufacturing of:
- RFID Radio Frequency Identification inlets
- TFM Thin Flexible Microelectonics
- FPC Flexible Printed Circuits
- MTS Membrane Touch Switches
- Electro-Luminescent Surfaces



Kemafoil® MTSL

An optically clear heat stablized and two sides primered polyester film

Properties	Unit	Method	Value 100 µ	Value 125 µ	Value 175 µ
Thickness variation	mic.	INTERNAL	95.0 - 105.0	119.0 - 131.0	166.0 - 184.0
Density	gm/cm3	ASTM D 1505	1.395 -1.405	1.395 -1.405	1.395 -1.405
Yield	sqm/kg	INTERNAL	7,14	5,71	4,08
Tensile strength (md)	Kg/cm2	ASTM D 882	1800 - 2500	1800 - 2500	1800 - 2500
Tensile strength (td)	Kg/cm2	ASTM D 882	2000 - 2700	2000 - 2700	2000 - 2700
Elongation at break (md)	%	ASTM D 882	100 - 200	100 - 200	100 - 200
Elongation at break (td)	%	ASTM D 882	100 - 200	100 - 200	100 - 200
Heat Shrinkage (md) (150°C x 30 minutes)	%	ASTM D 1204	0,20	0,15	0,15
Heat Shrinkage (td) (150°C x 30 minutes)	%	ASTM D 1204	0,10	0,10	0,10
Haze	%	ASTM D 1003	1,0	1,5	1,5
Breakdown voltage	Kv	ASTM D 149	13	15	16
Dielectric costant		ASTM D 150	2,9	2,9	2,9

Standard supply specifications:
- Master roll
- Customized reels
- Inner core: 3" or 6"
- Cut sheets on request. Sizes and drills according to customer's drawings

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Kemafoil® MTSL W

A white heat stablized and two sides primered polyester film

Properties	Unit	Method	Value 50 µ	Value 75 µ	Value 100 µ	Value 125 µ	Value 175 µ	Value 250 µ	Value 350 µ
Thickness variation	microns	INTERNAL	47.5 - 52.9	72.0 - 78.0	95.0 - 105.0	119.0 - 131.0	166.0 - 184.0	237.0 - 262.0	343.0 - 367.0
Density	g/cm3	ASTM D 1505	1,41	1,41	1,41	1,41	1,41	1,41	1,41
Yield	sqm/kg	INTERNAL	14,08	9,39	7,14	5,71	4,08	2,82	1,98
Tensile strength (md)	Kg/cm2	ASTM D 882	> 1250	> 1250	> 1250	> 1250	> 1250	> 1250	> 1250
Tensile strength (td)	Kg/cm2	ASTM D 882	> 1550	> 1550	> 1550	> 1550	> 1550	> 1550	> 1550
Elongation at break (md)	%	ASTM D 882	> 50	> 50	> 50	> 50	> 50	> 50	> 50
Elongation at break (td)	%	ASTM D 882	> 50	> 50	> 50	> 50	> 50	> 50	> 50
Heat Shrinkage (md) (150°C x 30 minutes)	%	ASTM D 1204	< 0,3	< 0,3	< 0,3	< 0,3	< 0,2	< 0,2	< 0,2
Heat Shrinkage (td) (150°C x 30 minutes)	%	ASTM D 1204	< 0,2	< 0,2	< 0,2	< 0,2	< 0,2	< 0,2	< 0,2
Whiteness		ASTM E 313	> 90	> 90	> 90	> 90	> 90	> 90	> 90
Total light transmission	%	ASTM D 1003	< 23	< 18	< 10	< 8	< 5	< 4	< 2

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- Customized reels
- Inner core: 3" or 6"
- Cut sheets on request. Sizes and drills according to customer's drawings

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Kemafoil® MTSL DY

An optically clear, white, hazy and black heat stabilized and two sides co-polyester primered polyester film

Properties	Unit	Method	Value 50 µ	Value 75 µ
Thickness variation	mic.	BY WEIGHT	48 - 52	72 - 78
Density	g/cm3	ASTM D 1505	1.395 -1.405	1.395 -1.405
Yield	sqm/kg	INTERNAL	14,28	9,52
Tensile strength (md)	Kg/cm2	ASTM D 882	1800 - 2500	1800 - 2500
Tensile strength (td)	Kg/cm2	ASTM D 882	2000 - 2700	2000 - 2700
Elongation at break (md)	%	ASTM D 882	100 - 200	100 - 200
Elongation at break (td)	%	ASTM D 882	100 - 200	100 - 200
Heat Shrinkage (md) (150°C x 30 minutes)	%	ASTM D 1204	0,30	0,20
Heat Shrinkage (td) (150°C x 30 minutes)	%	ASTM D 1204	0,10	0,10
Haze	%	ASTM D 1003	3 - 7	3 - 7
Breakdown voltage	Kv	ASTM D 149	10	12

Standard supply specifications:
- Master roll
- Customized reels
- Inner core: 3" or 6"
- Cut sheets on request. Sizes and drills according to customer's drawings

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Certifications

coveme
THE VALUE OF INNOVATION

Coveme is
UNI EN ISO 9001:2008, ISO 14001:2004,
OHSAS 18001:2007 certified

COVEME

THE VALUE OF INNOVATION

COVEME EUROPE
Headquarters via Emilia Levante, 288 - 40068 S. Lazzaro di Savena - Bologna - Italy - Tel. +39 051 6226111
Registered Offices & Production Plant via A. Gregorcic, 16 - 34170 Zona Ind.le S. Andrea - Gorizia - Italy - Tel. +39 0481 579911

COVEME ASIA
Production Plant COVEME ZJG - No.4,Yuefeng road - Zhangjiagang - Jiangsu Province - China P.C. 215600 - Tel. +86 512 82559911