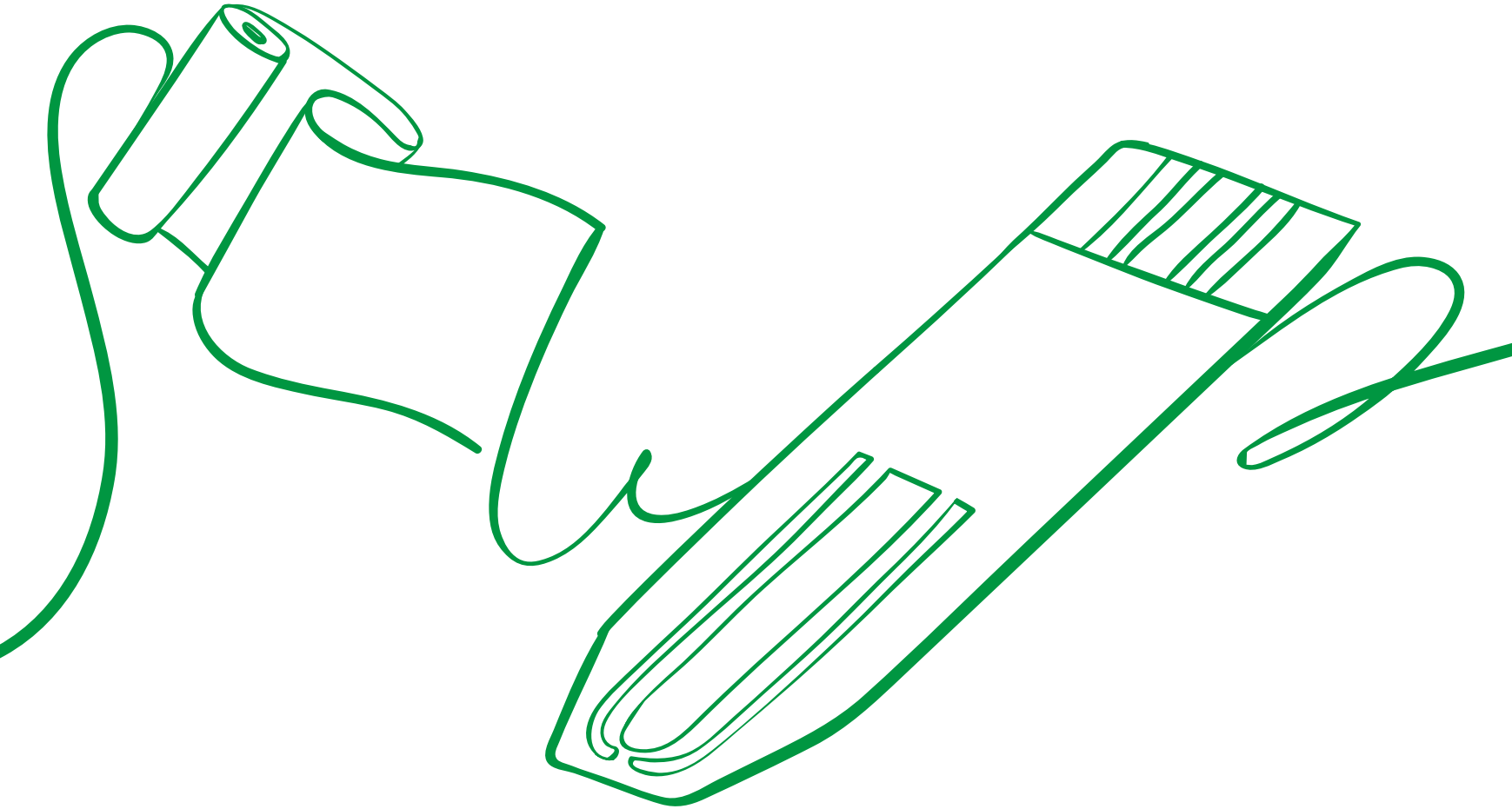
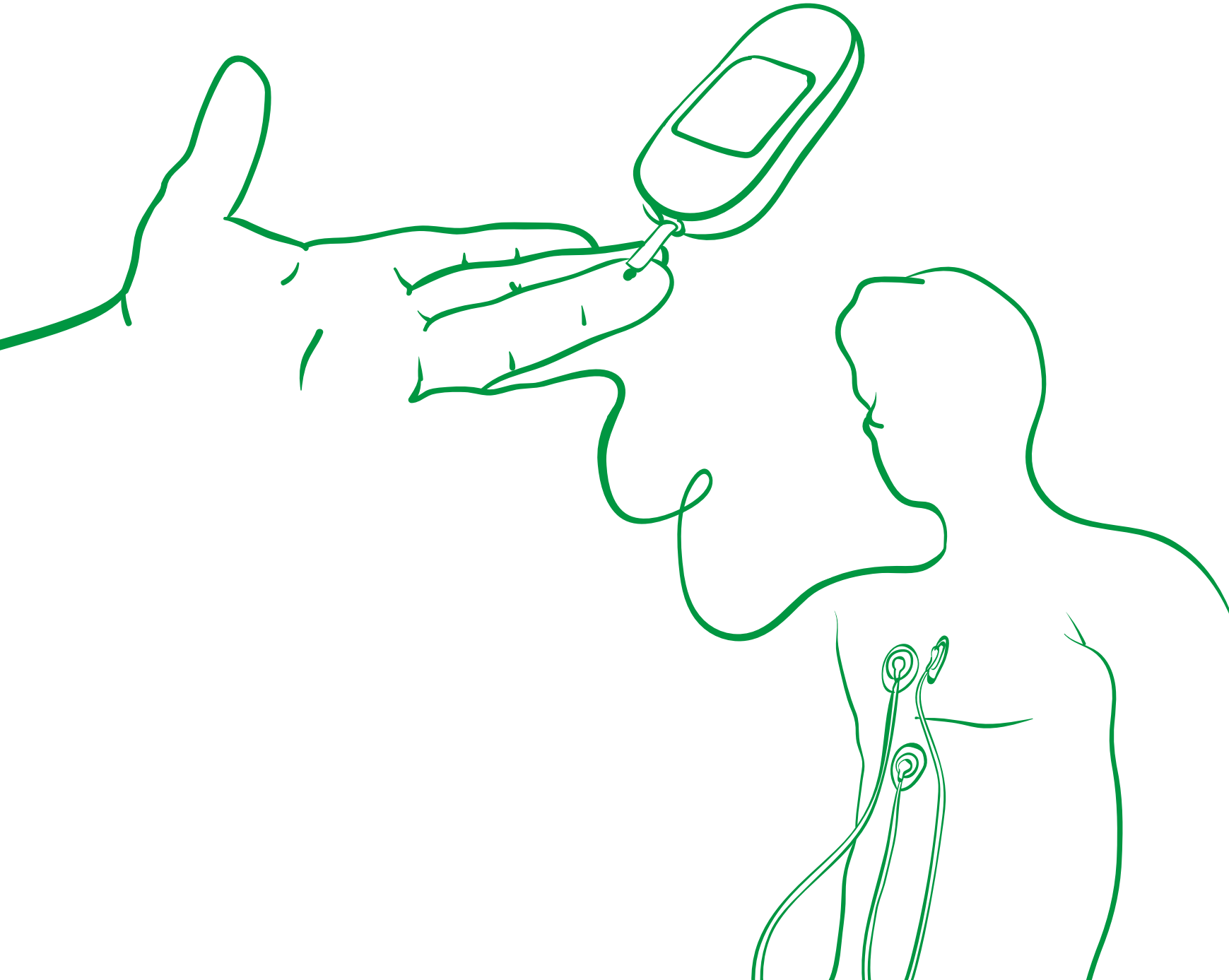
COVEME **BIOMEDICAL**



Films for biosensors
in near patient diagnostics and point of care

coveme
THE VALUE OF INNOVATION

ENGINEERED FILMS FOR NEAR-PATIENT DIAGNOSTICS



INDEX

COVEME TODAY

GLOBAL LEADER IN THE RESEARCH AND CONVERTING OF POLYESTER FILM

- **OVER 50 YEARS OF KNOW-HOW** in converting polymer films.
- **TWO PRODUCTION SITES** in Italy and China.
- **THREE R&D HUBS** in Italy, Germany and China
- First choice **SUPPLIER OF LEADING MANUFACTURERS OF BIOMEDICAL SENSORS.**
- **WORLDWIDE COMMERCIAL, LOGISTIC AND SERVICE** network.
- **CERTIFIED QUALITY, SAFETY AND ENVIRONMENTAL** standards.

PRODUCTION

Coveme has successfully developed sophisticated technologies in the production of high-performance films for various industries. The added value to the normal native PET is given through the application of functional coatings, surface treatments, film stabilization. Clients' specifications are defined individually and monitored throughout the whole production chain, including suppliers, logistics and service process.

- **WIDE RANGE** of films for **VARIOUS COMPONENTS** of biosensor strips
- **PERSONALISED** reels, sheets and formats
- **FULLY AUTOMATED** processes
- **14** production lines
- **LAMINATION, SURFACE TREATMENT, HEAT STABILIZATION, COATING, SLITTING**

RESEARCH & DEVELOPMENT

Our laboratories have 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. Coveme's R&D team strives to develop new and up to date solutions for evermore sophisticated and precise biosensors, focusing on products that guarantee our customers extreme reliability.

- **3 R&D LABORATORIES** in Europe and Asia
- **CUSTOMIZED RESEARCH PROJECTS** for clients
- Highly **SOPHISTICATED EQUIPMENT**
- Dedicated **INNOVATION TEAM**
- Strong academic and industrial **PARTNERSHIPS**

QUALITY

Analytical devices must guarantee the highest and consistent performances, hence the film supplied by Coveme does not compromise in quality. We are committed to provide the most reliable and performing products in order to gain and maintain the trust of producers of diagnostic equipments.

- **20 YEARS OF EXPERIENCE** in manufacturing for the biomedical industry
- Top standards to secure **PREMIUM SUBSTRATE WETTABILITY, DIMENSIONAL STABILITY, NEAR TO ZERO PET CURVATURE**
- **SEVERE QUALITY INSPECTION** and production control in each critical phase of the process
- **INNOVATIVE TECHNOLOGIES** ensure limited pre-processing customer operations
- **CONSTANT INVESTMENT** in new machinery - new technology - new process - dedicated and highly skilled personnel

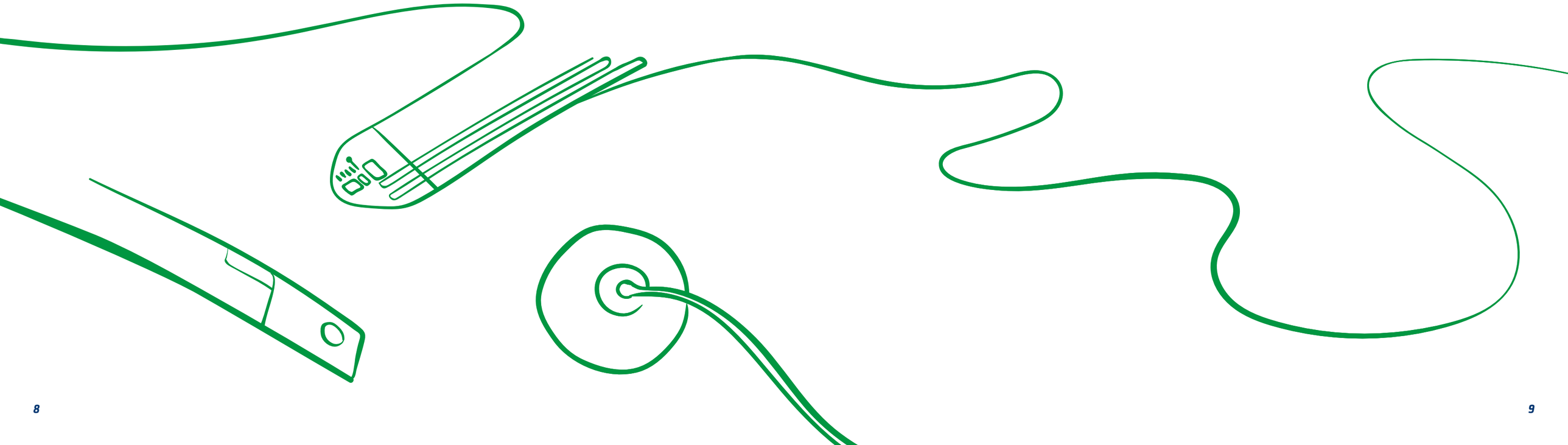
SUSTAINABILITY

Coveme is well aware of its responsibility in terms of environment and social well-being. This is reflected not only in what we produce but also how we produce, which means a lean and green production technology and strategic partnerships with our customers and suppliers. The company continuously optimizes its emission treatments, waste disposal and energy resources and actively pushes forward the topics of carbon footprint reduction, LCA assessment and circular economy.

- **ENERGY PRODUCTION FOR SELF-CONSUMPTION** through installed solar panels.
- **TREATMENT AND REGENERATION** of solvents to be reused in production.
- **TREATMENT AND CONVERTING** of harmful fumes into clean emissions.
- **POST-COMBUSTION SYSTEM** as part of autothermal process for reduced gas consumption.
- **REGENERATIVE THERMO OXIDIZER** for thermal energy recovery of gases and solvents.
- **DIFFERENTIATION FOR RECYCLING** of production and office waste.
- **REPLACEMENT OF SINGLE-USE** plastic materials with recycled and recyclable ones.
- **COLLECTION, TAKE BACK AND REUSE** of packaging, pallets, cores and end caps.
- **EOL AND LCA** studies, assessment and certification of products and processes.
- **RECYCLED PRODUCTS AND CLOSED LOOP RECYCLING** through innovative product design.

BIOMEDICAL DIVISION

Coveme's biomedical division supplies polyester films for the manufacturing of near-patient diagnostic kits. This range of products includes **treated, coated and heat stabilized films**, printable with conductive or enzymatic inks or sputterable with noble metals, as well as hydrophilic films and other customized materials. Coveme's products are renown for the **extreme reliability**, employed by the world's leading biomedical manufacturers and approved by the **major pharmaceutical companies**.

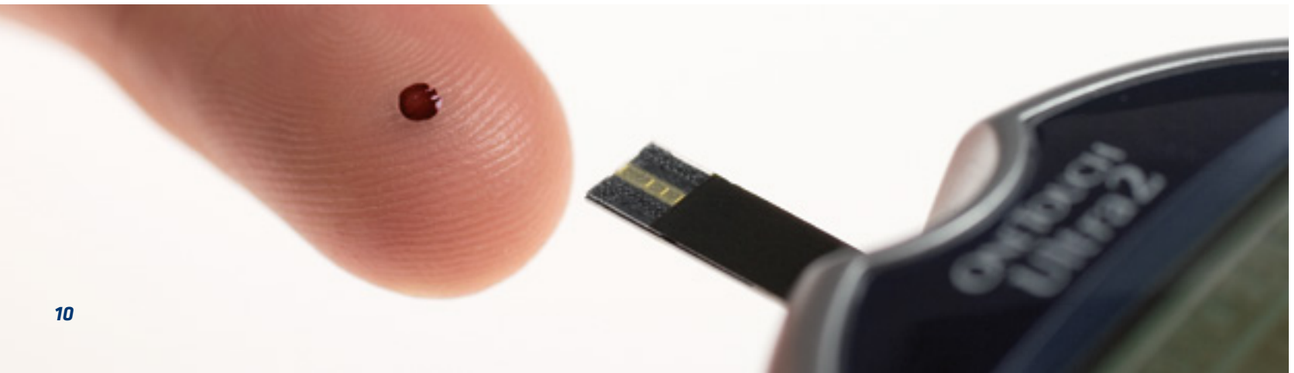


Kemafoil® PRODUCT RANGE

HYDROPHILIC COATED PET FILM

Kemafoil® hydrophilic films are used in the manufacturing of IVD devices like colorimetric, amperometric and potentiometric biosensor strips.
Thanks to its long-standing experience in the field, Coveme has developed special coatings to enhance the wicking of biological fluids along the capillary channels till the reaction point on the test strip.

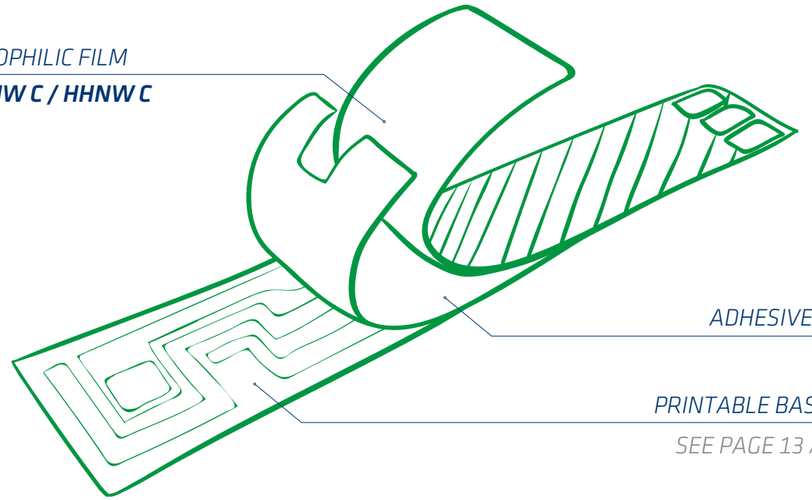
- ***Dimensional stability***
- ***Non-leaching features of hydrophilic layers***
- ***Clear, hazy and white versions available.***
- ***Superior adhesion with PSA and heat sealable laminating tapes***
- ***Availability in different thicknesses upon request***
- ***Hydrophilic side can be liner protected on request***



KEMAFOIL®
HNW C / HHNW C

Kemafoil® HNW C (**1 side coated**) and HHNW C (**2 sides coated**) fulfill the highest requests of consistency and reliability due to their features:

- **NO WOBBLING OF DROP**
  (controlled hysteresis)
- **PREMIUM DIMENSIONAL STABILITY**
- **CONTACT ANGLE < 20°**
- **SPREAD DROP RANGE 46 – 50**
- **NON-LEACHING COATING**



SEE PAGE 13 AND 15

TECHNICAL DATA

KEMAFOIL® HNW C / HHNW C

Property	Unit	Method	Typical values				
			50µ	75µ	100µ	125µ	175µ
Thickness	micron	Internal	50	75	100	125	175
Unit weight		Internal	70	105	140	175	245
Haze	%	ASTM D 1003	3,5	3,5	3,5	3,5	3,5
Water Contact Angle	degrees	internal	13	13	13	13	13
Spreading Drop Test on hydrophilic treated side	points	Internal	>46	>46	>46	>46	>46

The above information are given in good faith and is generally reliable. However, the customer will have to examine the suitability of the film for individual application.Hence no general or particular warranty for the applications of the film is offered by us. 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 film for different end-uses.

HEAT STABILIZED AND TREATED PET FILM

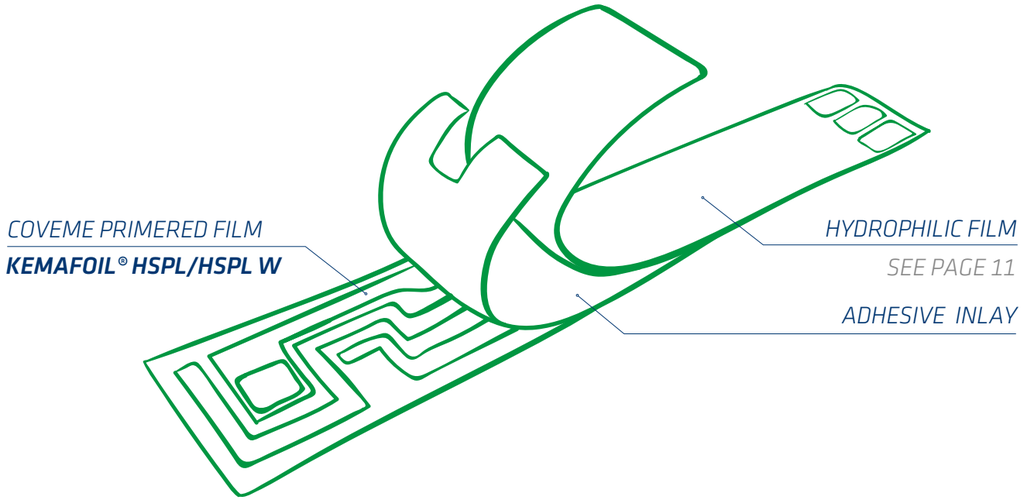
Kemafoil® treated and heat stabilized polyester film is suitable to be printed with conductive inks thanks to the premium surface treatment. Main end-uses are the manufacturing of printed flexible circuits for medical devices.

- ***Excellent conductive inks adhesion, maintaining electrical input transport during patient movements***
- ***High bond with cushion substrates and premium dimensional stability***
- ***Tear resistance***
- ***Availability in different thicknesses (50-350 mic)***
- ***Suitable for roll-to-roll and sheet-to-sheet production systems***
- ***Antistatic treatment on backside available on request***

KEMAFOIL® HSPL / HSPL W

Kemafoil® HSPL and HSPL W are hazy or white polyester films, trichloroacetic acid **treated and heat stabilized**.

- **PRINT-ADHESION TREATMENT**
  on either 1 or both sides available
- **LOWEST RESIDUAL SHRINKAGE**
- **PREMIUM ADHESION**
  of inks and pastes
- **HIGHEST SURFACE TENSION**



TECHNICAL DATA

KEMAFOIL® HSPL

Property	Unit	Method	Typical values							
			23µ	36µ	50µ	75µ	100µ	125µ	175µ	190µ
Thickness	micron	internal	23	36	50	75	100	125	175	190
Yield	sqm/kg	internal	31,0	19,8	14,3	9,5	7,1	5,7	4,1	3,7
Wettability	dynes/cm	ASTM D 2578	58	58	58	58	58	58	58	58
Heat shrinkage 150°C - 30 min M.D.	%	ASTM D 1204	0,7	0,7	0,2	0,2	0,2	0,2	0,2	0,2
Heat shrinkage 150°C - 30 min T.D.	%	ASTM D 1204	0,3	0,3	0,1	0,1	0,1	0,1	0,1	0,1

KEMAFOIL® HSPL W

Property	Unit	Method	Typical values						
			50µ	75µ	100µ	125µ	175µ	250µ	350µ
Thickness	micron	internal	50	75	100	125	175	250	350
Yield	sqm/kg	internal	14,1	9,4	7,1	5,7	4,1	2,8	2,1
Wettability	dynes/cm	ASTM D 2578	>58	>58	>58	>58	>58	>58	>58
Heat shrinkage 150°C - 30 min M.D.	%	ASTM D 1204	< 0,3	< 0,3	< 0,2	< 0,2	< 0,2	< 0,2	< 0,2
Heat shrinkage 150°C - 30 min T.D.	%	ASTM D 1204	< 0,2	< 0,2	< 0,2	< 0,2	< 0,2	< 0,2	< 0,2

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HEAT STABILIZED AND PRIMERED PET FILM

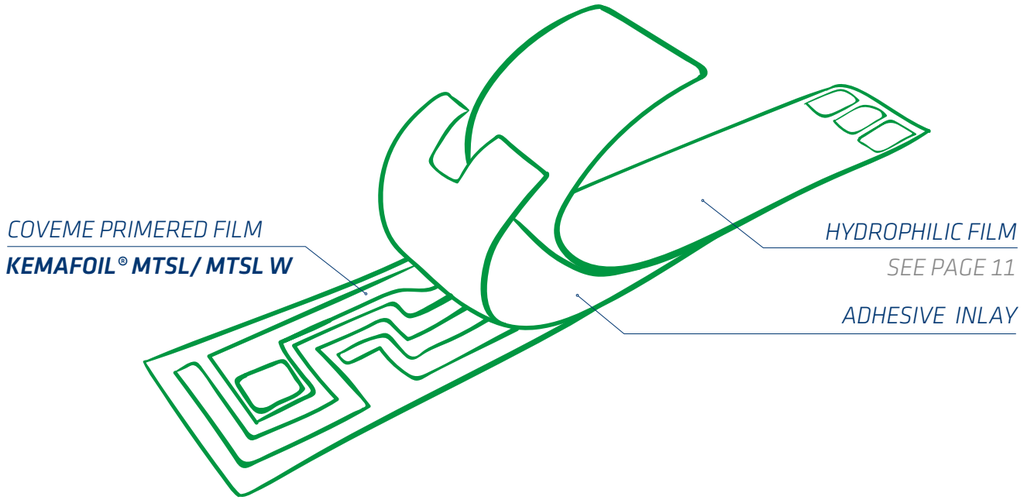
Kemafoil® primered polyester films are suitable to be printed with conductive inks. They are employed as base substrate for the manufacturing of amperometric biosensor strips, IVD substrates and others.

- ***Outstanding conductive inks adhesion***
- ***Availability in different thickness (50 – 350 mic)***
- ***Suitable roll-to-roll and sheet-to-sheet production systems***
- ***Optimal adhesion with most common PSA mounting tapes***
- ***Excellent layflat properties during the inks curing***
- ***Antistatic treatment on backside available on request***

KEMAFOIL® MTSL/ MTSL W

Kemafoil® MTSL and MTSL W are clear or white **heat stabilized** polyester films with a print receptive **chemical coating** on both sides.

- **HIGH TREATMENT** consistency and durability
- **GRANTED DIMENSIONAL STABILITY** to ensure optimal print register
- Lowest possible **RESIDUAL SHRINKAGE, R2R**
- Near to zero PET curvature for **BEST Y-REGISTRATION**
- **HIGH PERFORMANCE COATING** to promote a superior bond with H2O based inks and pastes



TECHNICAL DATA

KEMAFOIL® MTSL

Property	Unit	Method	Typical values						
			50µ	75µ	100µ	125µ	175µ	250µ	350µ
Thickness	micron	internal	50	75	100	125	175	250	350
Yield	sqm/kg	internal	14,1	9,4	7,1	5,7	4,1	2,8	2,1
Heat shrinkage 150°C - 30 min M.D.	%	ASTM D 1204	< 0,5	< 0,3	< 0,2	< 0,2	< 0,2	< 0,2	< 0,2
Heat shrinkage 150°C - 30 min T.D.	%	ASTM D 1204	< 0,2	< 0,2	< 0,2	< 0,2	< 0,2	< 0,2	< 0,2

KEMAFOIL® MTSL W

Property	Unit	Method	Typical values						
			50µ	75µ	100µ	125µ	175µ	250µ	350µ
Thickness	micron	internal	50	75	100	125	175	250	350
Yield	sqm/kg	internal	14,1	9,4	7,1	5,7	4,1	2,8	2,1
Heat shrinkage 150°C - 30 min M.D.	%	ASTM D 1204	< 0,3	< 0,3	< 0,2	< 0,2	< 0,2	< 0,2	< 0,2
Heat shrinkage 150°C - 30 min T.D.	%	ASTM D 1204	< 0,2	< 0,2	< 0,2	< 0,2	< 0,2	< 0,2	< 0,2

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CERTIFICATIONS

Coveme is certified ISO 9001:2015 for quality management standards, ISO 14001:2015 for environmental management and ISO 45001:2018 for occupational health and safety.

Coveme has obtained the Silver Medal Sustainability Rating by Ecovadis

Coveme Italy Certificates

ISO 9001:2015

ISO 14001:2015

ISO 45001:2018

Coveme China Certificates

ISO 9001:2015

ISO 14001:2015

ISO 45001:2018

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