

# COVEME **BIOMEDICAL SENSORS**

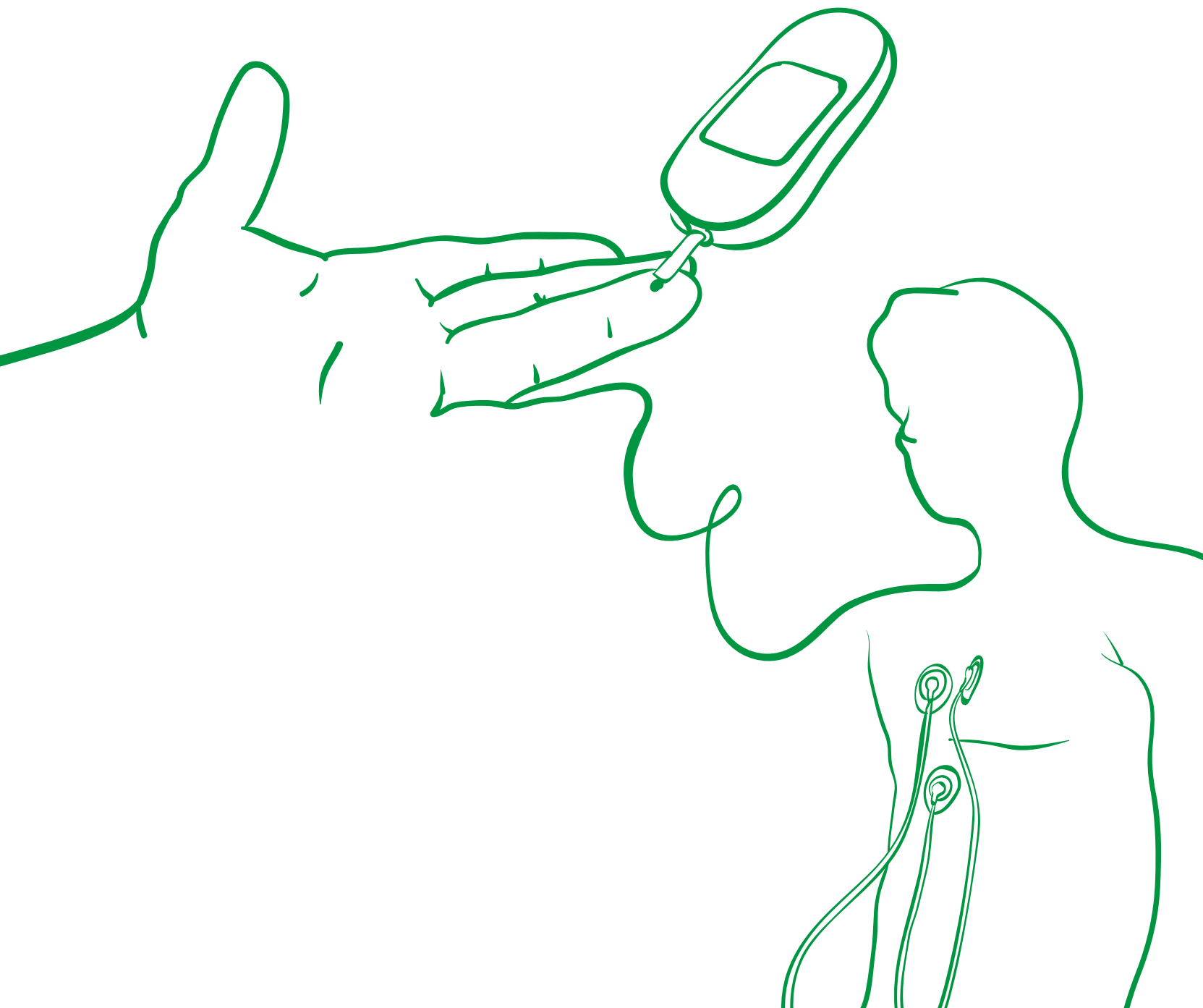
2024



*Films for biosensors in near patient  
diagnostics and point of care*

**COVEME**  
THE VALUE OF INNOVATION

# ***ENGINEERED FILMS FOR NEAR-PATIENT DIAGNOSTICS***



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# COVEME TODAY

## USA

Coveme branch

## GERMANY

R&D Lab

## ITALY

Headquarter  
Production Plant  
R&D Lab

## CHINA

Coveme Branch  
Production plant  
R&D Lab



# OVER 60 YEARS OF KNOW-HOW IN CONVERTING POLYESTER FILM

- ✓ Proprietary **manufacturing sites** in **Italy** and **Asia**
- ✓ **30.000 tons of polyester film** converted per year
- ✓ Three **R&D** hubs in **Italy**, **Germany** and **China**
- ✓ **First choice supplier** of leading manufacturers of biomedical sensors
- ✓ **13 coating, lamination and heat stabilization** lines
- ✓ **Worldwide distribution and service**
- ✓ Automated slitting department for **customized cuts**
- ✓ UNI EN **ISO 9001**, **ISO 14001** and **ISO 45001** certifications



# PRODUCTION AND SLITTING

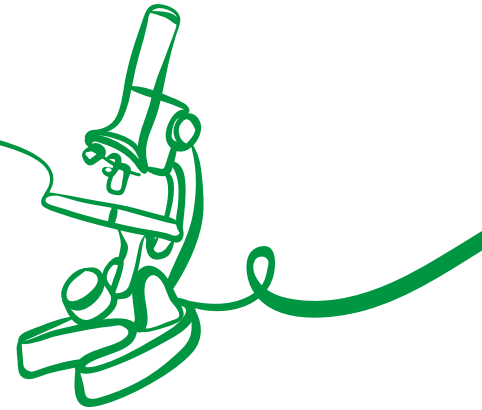
Strong investments in production capacity and technology are the core of Coveme's strategy. The company has successfully developed sophisticated automated processes for polyester film conversion to meet the requirements of its fast-evolving target markets. Clients' specifications are defined individually and monitored throughout the whole production chain, including suppliers, logistics and service process.



- ✓ **WIDE RANGE** of films for **VARIOUS COMPONENTS** of biosensor strips
- ✓ **CUSTOMIZED** reels, sheets and formats
- ✓ **FULLY AUTOMATED** processes equipped with latest technologies
- ✓ **13** production lines installed
- ✓ **WIDTH RANGE** 50mm - 2000mm, **THICKNESS RANGE** 50µm - 350µm
- ✓ **LAMINATION, SURFACE TREATMENT, HEAT STABILIZATION, COATING, SLITTING**

# RESEARCH & DEVELOPMENT

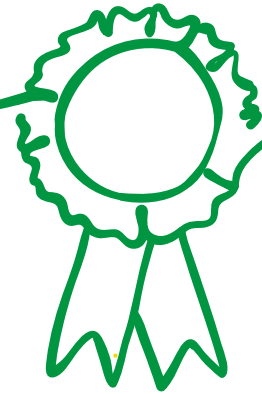
Our laboratories have always been one of the most advanced and strong points of the company, where our technological and operative know how is at complete disposal of the clients' needs. Coveme's R&D team strives to develop new and up to date solutions for evermore sophisticated and precise biosensors, focusing on products that guarantee our customers extreme reliability.



- ✓ Strong academic and industrial **PARTNERSHIPS**
- ✓ Dedicated **INNOVATION TEAM**
- ✓ **3** Proprietary **R&D LABS** in Italy , Germany and Cina
- ✓ **STATE-OF-THE-ART** equipment
- ✓ **CUSTOMIZED RESEARCH PROJECTS** for clients

# 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.



- ✓ **25 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, VISUAL 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.

## SUSTAINABILITY STANDARD



**ISO 14001: 2015**  
for environmental  
management



**ISO 45001:2018**  
for health and safety  
at work



**Compliance with  
Ecomate ESG rating**



**Compliance with  
Ecovadis Sustainability  
rating**

## SUSTAINABILITY MEASURES



**Self-powering** and  
**Solvent-free** production lines



**Packaging disposal  
instructions** for clients



Treatment and **cleaning  
of harmful fumes and water**



**Autothermal** and **regenerative  
processes in production**



**Energy production and  
self-consumption** through  
installed solar panels



**Reusable and recyclable**  
exhibition stands



**Recovery and reuse**  
of packaging, encaps and core



**Differentiation and recycling**  
of production and office waste



**Replacement of single-use  
plastic** materials

## FUTURE GOALS



In 2024 Analysis and **Calculation of the CFP Carbon  
Footprint , scope 1-2-3** , of the entire Coveme group



Implementation of a **Strategic Decarbonization  
Plan starting from 2024**

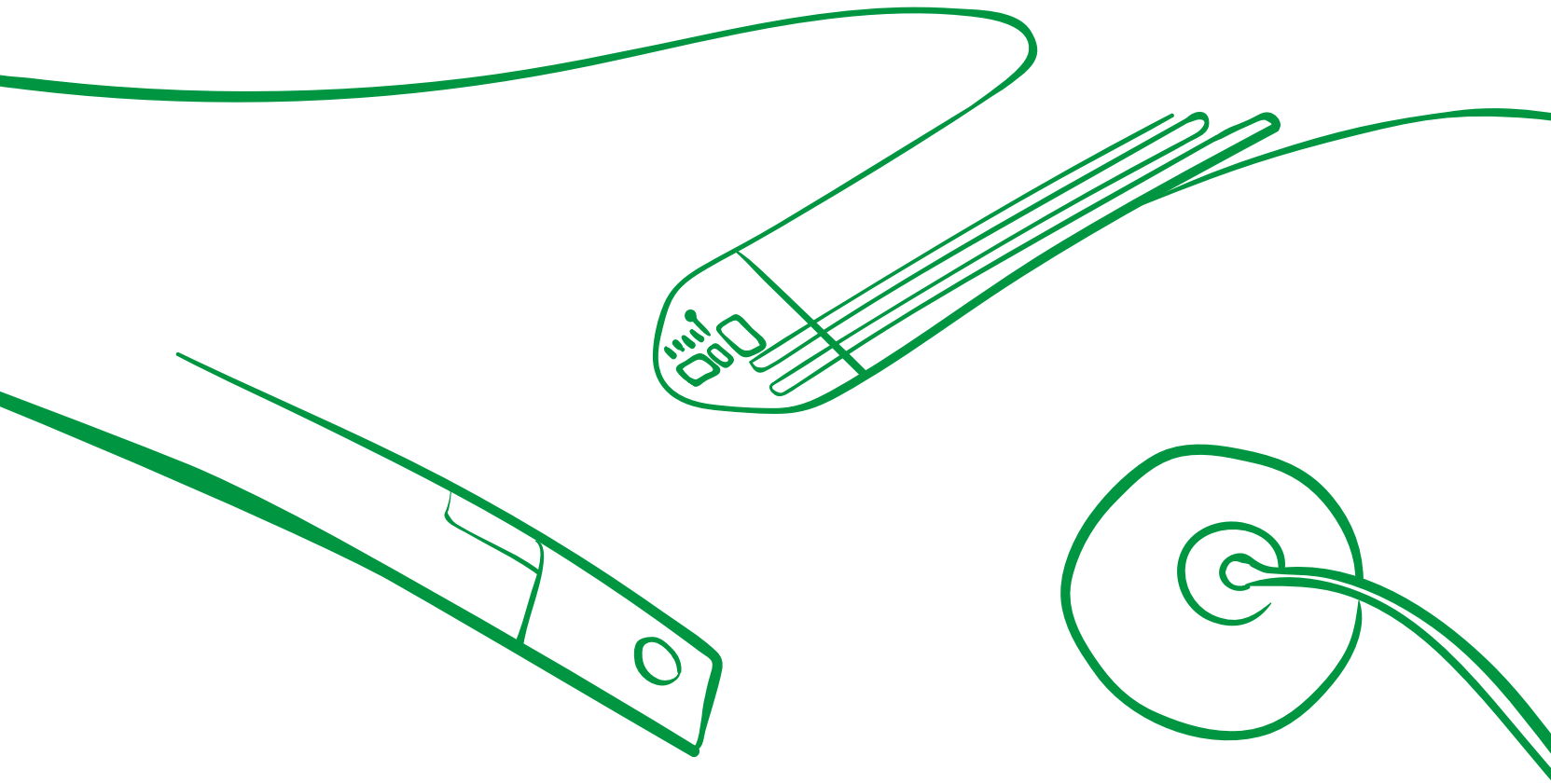


## SUSTAINABILITY REPORT

In 2023, Coveme published its  
**first sustainability report**

# 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 renowned for the **extreme reliability**, employed by the world's leading biomedical manufacturers and approved by the **major pharmaceutical companies**.



# **Kemafoil® PRODUCT RANGE**



|  |           |
|--|-----------|
| <b>HYDROPHILIC COATED PET FILM</b>           | <b>10</b> |
| <i>Kemafoil® HNWC / HHNWC</i>                | 11        |
| <b>HEAT STABILIZED AND TREATED PET FILM</b>  | <b>14</b> |
| <i>Kemafoil® HSPL / HSPL W</i>               | 15        |
| <b>HEAT STABILIZED AND PRIMERED PET FILM</b> | <b>18</b> |
| <i>Kemafoil® MTSL / MTSLW</i>                | 19        |

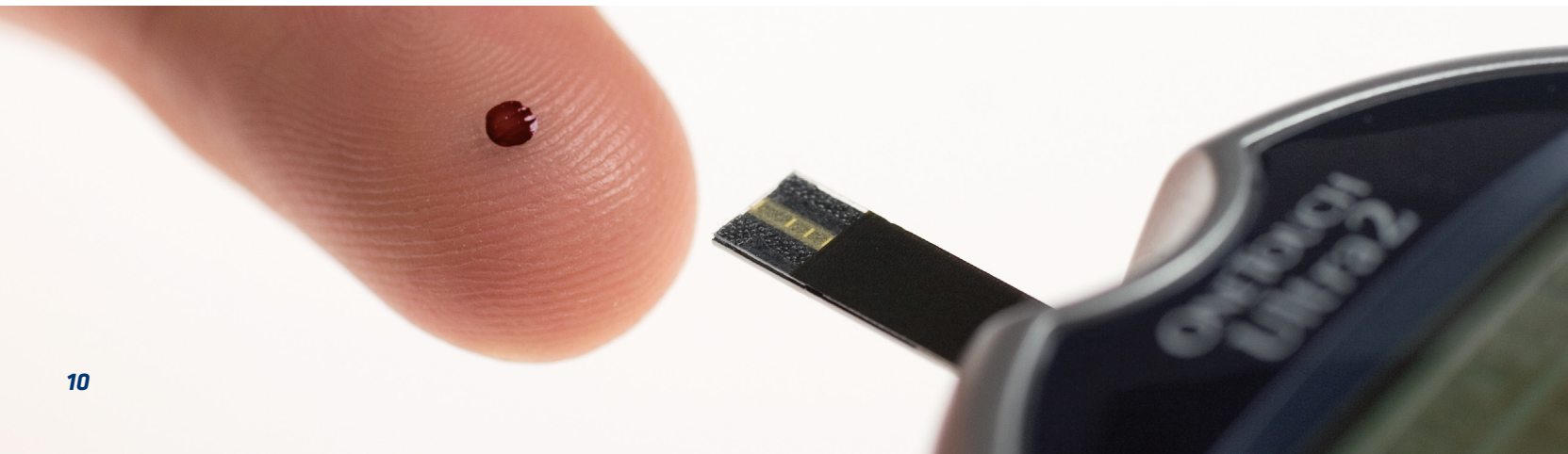


# HYDROPHILIC COATED PET FILM

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.***
- ✓ ***One or two sides treated***
- ✓ ***Superior adhesion with PSA and heat sealable laminating tapes***
- ✓ ***Availability in different thicknesses upon request***
- ✓ ***Hydrophilic side can be liner protected on request***
- ✓ ***Full traceability for each production batch***



# **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**
- ✓ **HYDROPHILIC SIDE CAN BE LINER PROTECTED ON REQUEST**

*COVEME HYDROPHILIC FILM*  
**KEMAFOIL® HNW C / HHNW C**



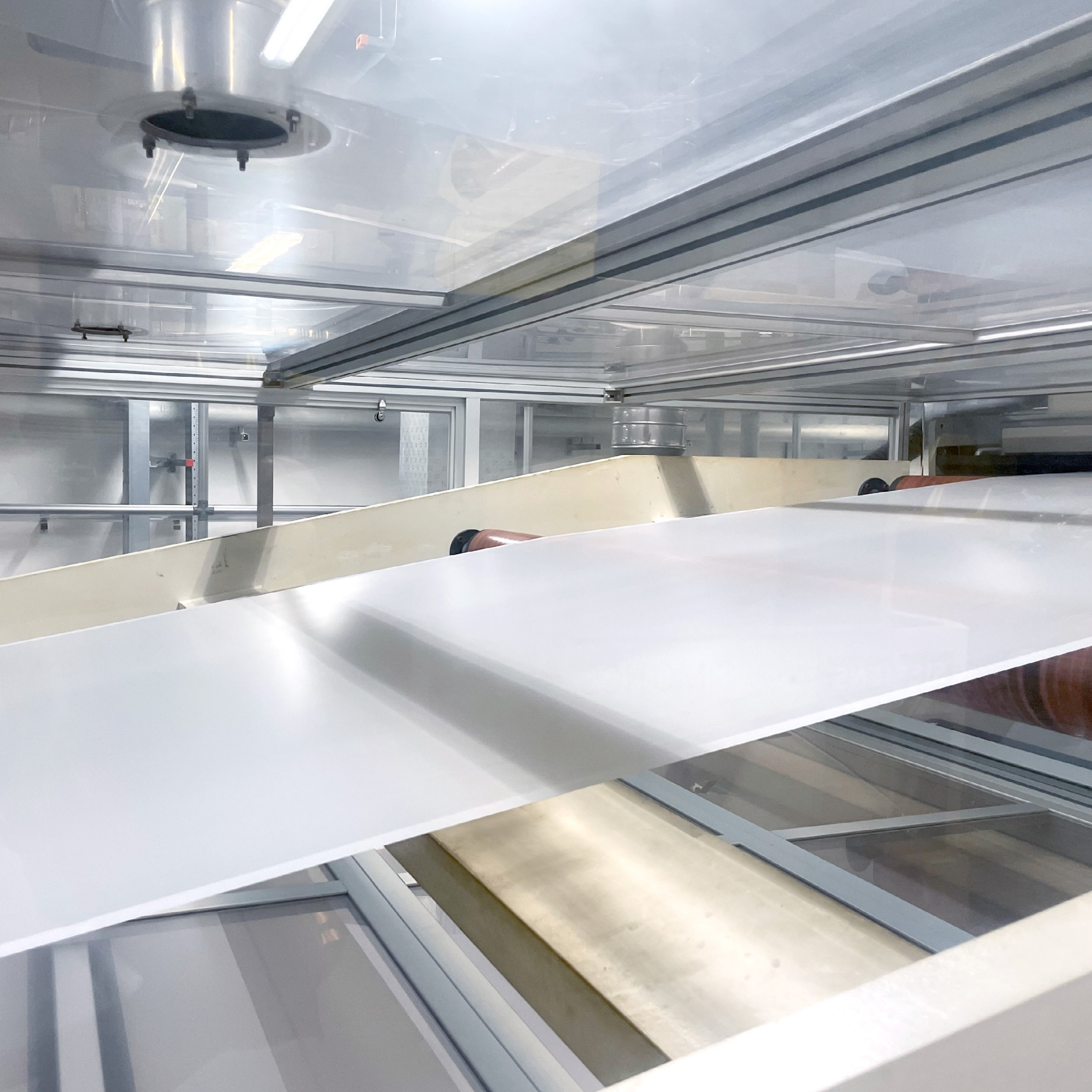
SEE PAGE 13 AND 15

# 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**
- ✓ **Tear resistance**
- ✓ **Suitable for roll-to-roll and sheet-to-sheet production systems**
- ✓ **One or two sides treated**
- ✓ **High bond with cushion substrates and premium dimensional stability**
- ✓ **Availability in different thicknesses (50-350 mic) and colours (hazy, clear and white)**
- ✓ **Antistatic treatment on backside available on request**
- ✓ **Full traceability for each production batch**





# **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

✓ **PREMIUM ADHESION**  
of inks and pastes

✓ **AVAILABLE ONE SIDE TREATED**

✓ **LOWEST RESIDUAL SHRINKAGE**

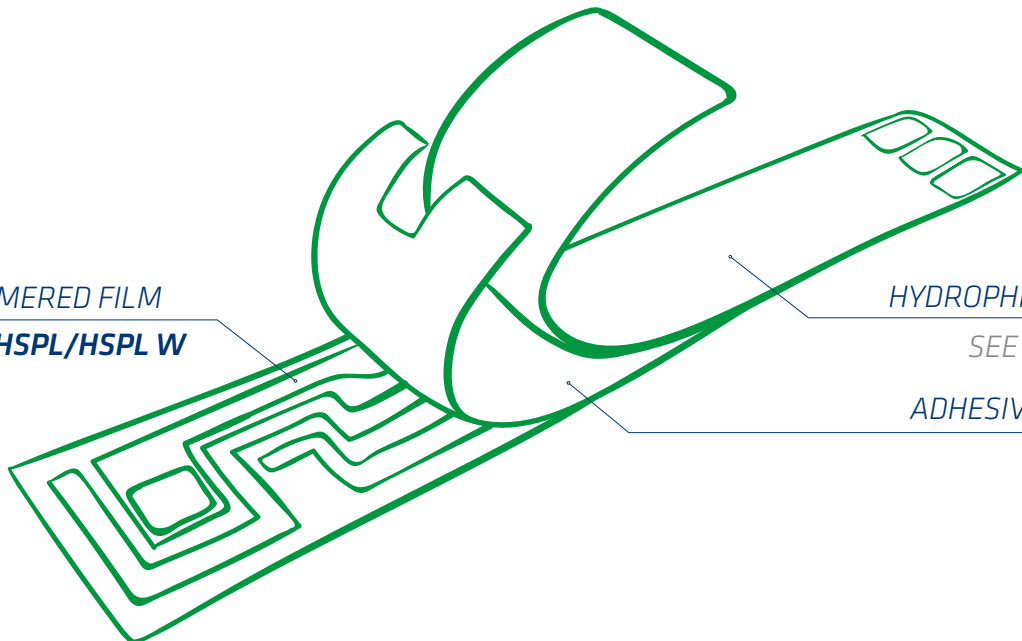
✓ **HIGHEST SURFACE TENSION**

✓ **FULL TRACEABILITY FOR EACH PRODUCTION BATCH**

*COVEME PRIMERED FILM*  
**KEMAFOIL® HSPL/HSPL W**

*HYDROPHILIC FILM*  
*SEE PAGE 11*

*ADHESIVE INLAY*



# TECHNICAL DATA

## KEMAFOIL® HSPL

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

# KEMAFOIL® HSPL W

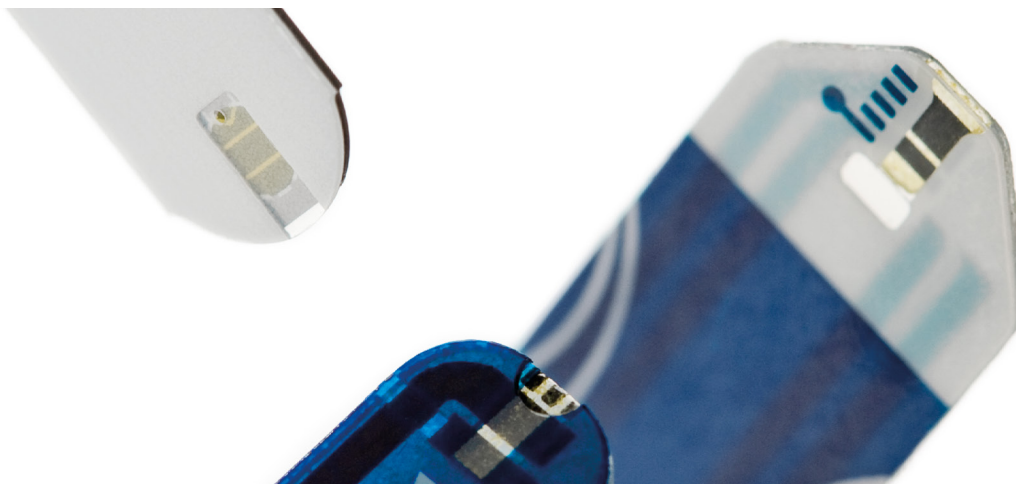
| Property                              | Unit     | Method      | Typical values |       |       |       |       |       |       |
|---------------------------------------|----------|-------------|----------------|-------|-------|-------|-------|-------|-------|
|                                       |          |             | 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 -<br>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 -<br>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**
- ✓ **Full traceability for each production batch**



# 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.

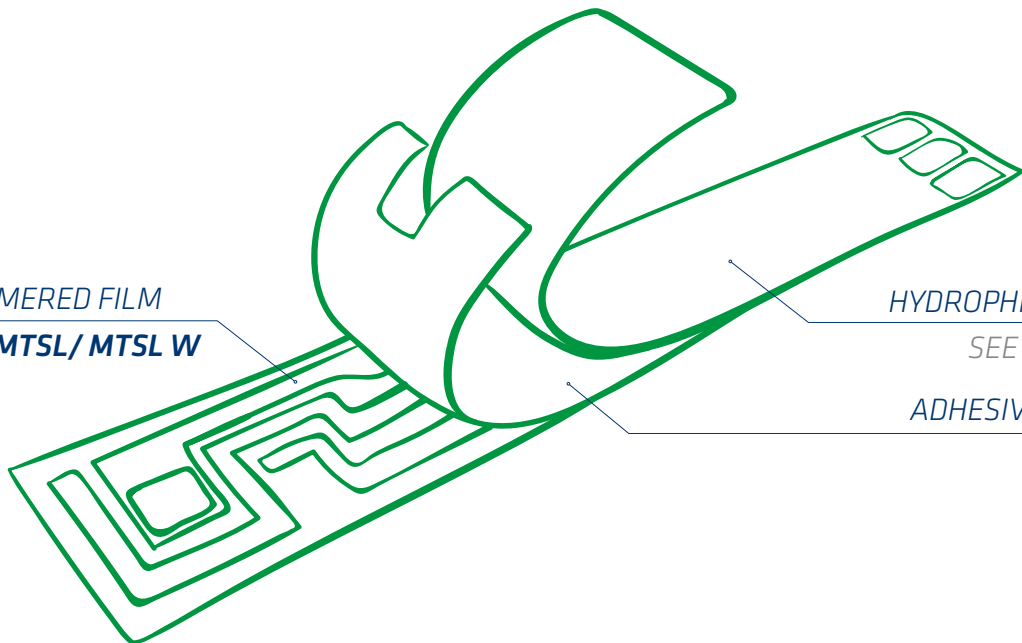
- ✓ **HIGH TREATMENT**  
consistency and durability
- ✓ **GRANTED DIMENSIONAL STABILITY**  
to ensure optimal print register
- ✓ Lowest possible  
**RESIDUAL SHRINKAGE, R2R**
- ✓ Near to zero PET curvature  
for **BEST Y-REGISTRATION**
- ✓ **HIGH PERFORMANCE COATING**  
to promote a superior bond with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

*COVEME PRIMERED FILM*  
**KEMAFOIL® MTSL/ MTSL W**

*HYDROPHILIC FILM*

*SEE PAGE 11*

*ADHESIVE INLAY*



# 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<br>- 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<br>- 30 min T.D. | %      | ASTM D 1204 | < 0,2          | < 0,2 | < 0,2 | < 0,2 | < 0,2 | < 0,2 | < 0,2 |

# KEMAFOIL<sup>®</sup> 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<br>- 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<br>- 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 ITALY CERTIFICATES



## COVEME CHINA CERTIFICATES

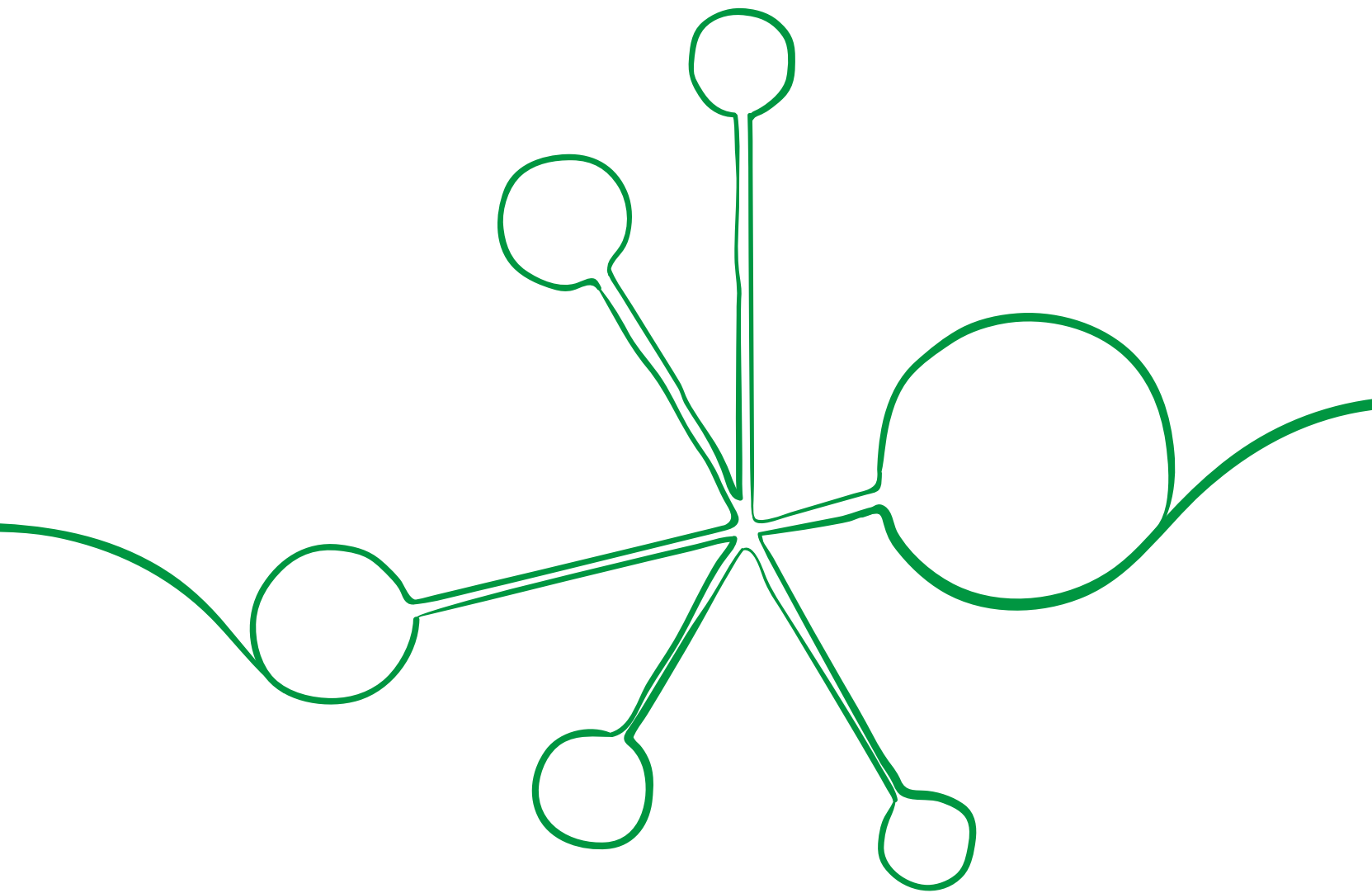


Coveme complies with the Ecovadis rating which evaluates the sustainability performance of company



Coveme complies with the Ecomate rating which evaluates the environmental, social and governance (ESG) performance of the company







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