



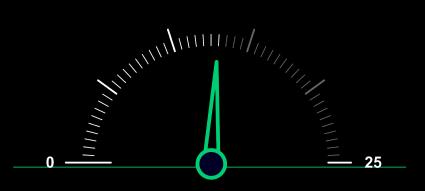
NEW DEVELOPMENTS
IN FILMS FOR MODERN ORGANIC
ELECTRONICS

WHO ARE WE? 2004 Restructurisation of PVC 2014 rigid films division Printed flexible We are a Central European leader in film packaging for food production for various industries with purposes; emphasis on the food sector. We are 2007 Rigid films: PVC, currently expanding to explore organic Printed flexible packaging for PVC/PE. PET and electronics. food applications; PET/PE laminates for 2019 Rigid films: PVC, PVC/PE, food packaging 2002 Ultra-high barrier films PET and PET/PE laminates Decorative for modern organic for food packaging **PVC** electronics project rollout 1922 2018 2013 Establishment of first factory Circular Packaging 2001 Recycling of plastics marks the beginning of ISO 9002:1004 and 2005 2009 Design division **ERGIS Group** ISO 14001: 2004 BRC / IOP the ISO 9001:2000 Start of ultra-high barrier certificate certificate films for modern organic certifications electronics project 2000 2012 First PF stretch film Launch of nanoERGIS® production line production HACCP standards and BRC certificate



GLOBAL USAGE OF ELECTRICAL ENERGY

The US Department of Energy, the Energy Information Administration (EIA), predicts a global increase in energy consumption of almost 50% by 2050. Increasing the use of organic electronics could assist in moving towards utilizing natural "green" energy.



2018

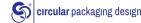
2050 Mtoe



Thin-layer organic electronics are seen as a promising new way of optimizing energy consumption.







WHY CHOOSE ORGANIC ELECTRONICS?













Flexible

Bright and vibrant colors

Lightweight

Thin

Energyefficient Cost saving



FLEXIBLE ORGANIC ELECTRONICS IN ACTION



DISPLAYS



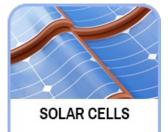








STRAPS





HEAD UP DISPLAYS



CAR DISPLAYS

OLED - A NEW GENERATION LIGHT SOURCE



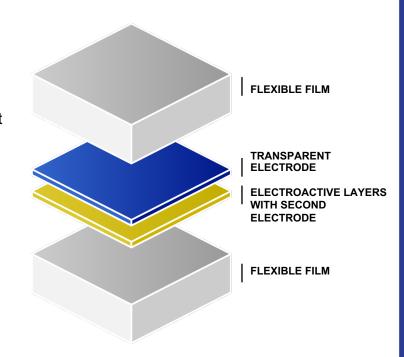


Organic Light Emitting Diode (OLED) - emission of visible light without unnecessary additional backlight of the entire matrix.



Challenges of OLED technology:

Electroactive layer sensitive to oxygen and moisture.

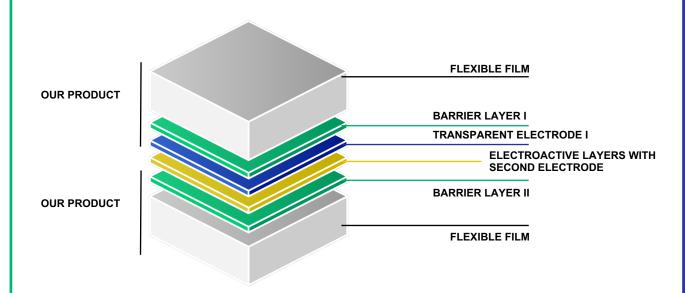


OLED - A NEW GENERATION LIGHT SOURCE



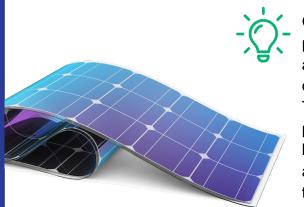
Our solution:

The electroactive material must be protected against oxygen and moisture by means of barrier layers.





OLED - A NEW GENERATION LIGHT SOURCE

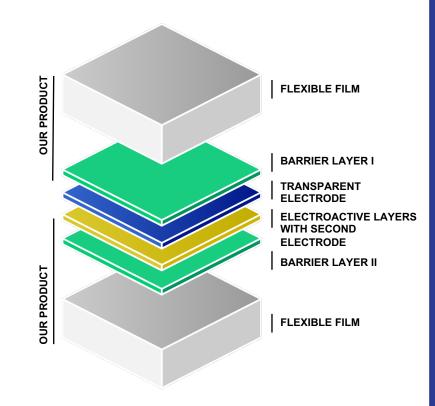


Goal of flexible photovoltaics (FPV) is absorption of sunlight and conversion into electricity. The ideal flexible photovoltaics will be lightweight, highly flexible and optionally partially transparent.



Challenges of FPV technology:

Electroactive layer sensitive to oxygen and moisture.



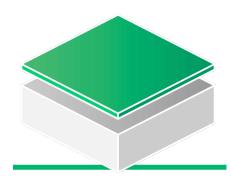


OUR SOLUTION FOR FLEXIBLE ORGANIC ELECTRONICS

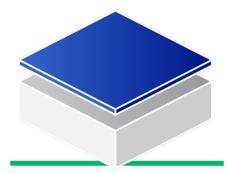
Ergis ultra barrier film noDiffusion®



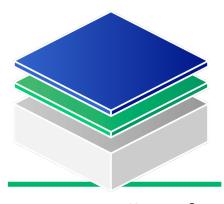
OUR RANGE



Ergis noDiffusion®
BARRIER FILMS



Ergis noDiffusion®
FILMS WITH A
TRANSPARENT
CONDUCTIVE LAYER



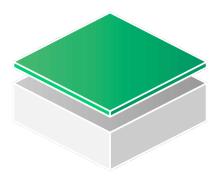
Ergis noDiffusion®

BARRIER FILMS WITH

A TRANSPARENT

CONDUCTIVE LAYER

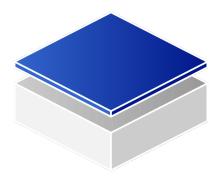
Ergis noDiffusion® BARRIER FILMS



Substrate	PET, PMMA
Water Vapor Transmission Rate (WVTR)	10 ⁻⁶ g/m ² 24h
Oxygen Transmission Rate (OTR)	10 ⁻⁴ cm ³ /m ² 24h
Film Thickness	12-150 μm
Transmittance	> 90% in the visible range
Other properties	Weather resistant, UV stable



Ergis noDiffusion® FILMS WITH A TRANSPARENT CONDUCTIVE LAYER



Substrate	PET, PMMA
Surface conductivity	15 ohm/square
Film Thickness	12-150 µm
Transmittance	> 80% in the visible range
Other properties	Weather resistant, UV stable



Ergis noDiffusion® BARRIER FILMS WITH A TRANSPARENT CONDUCTIVE LAYER



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www.ergis.eu



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