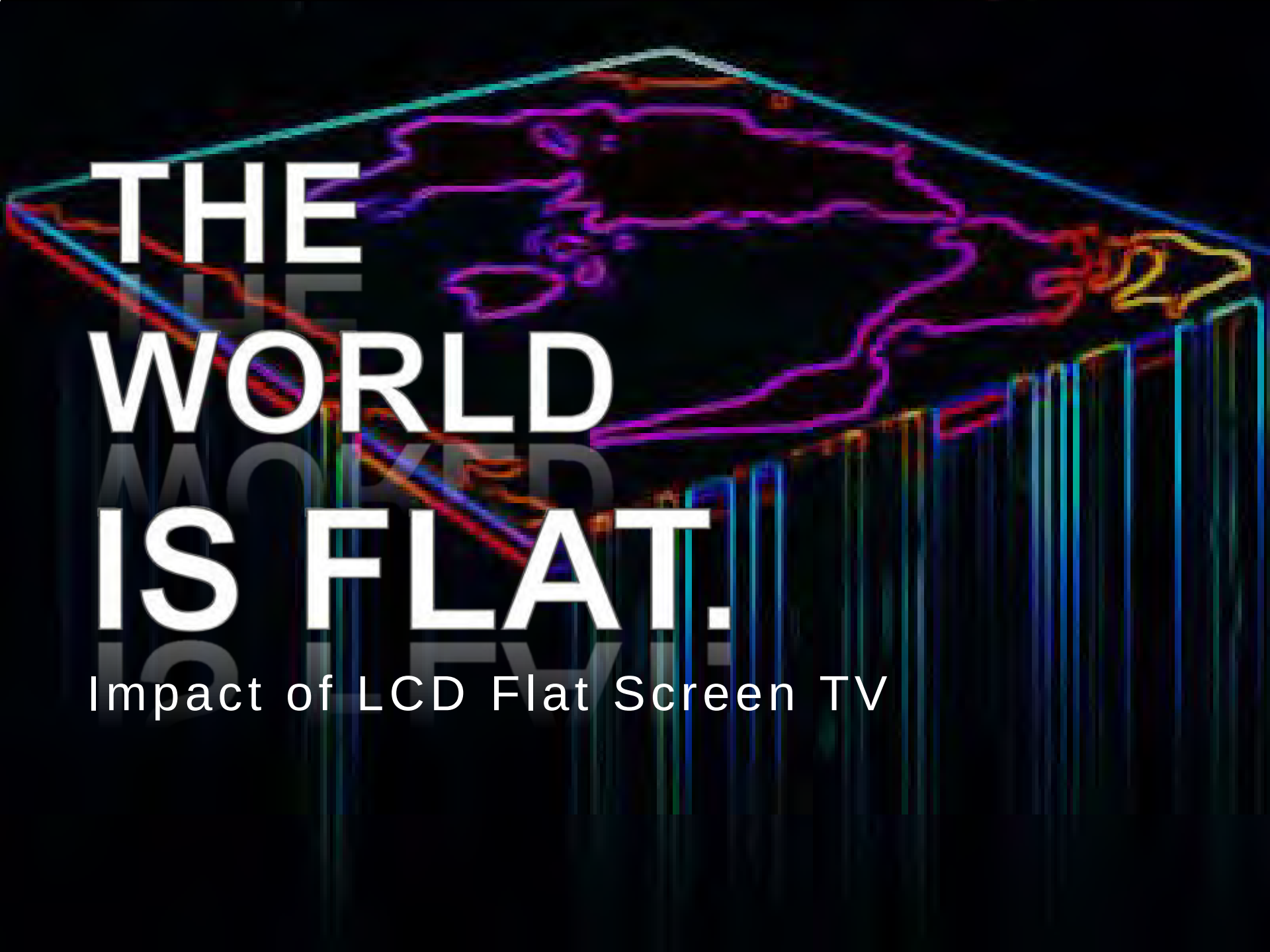
INNOPHENE
COMPANY LIMITED

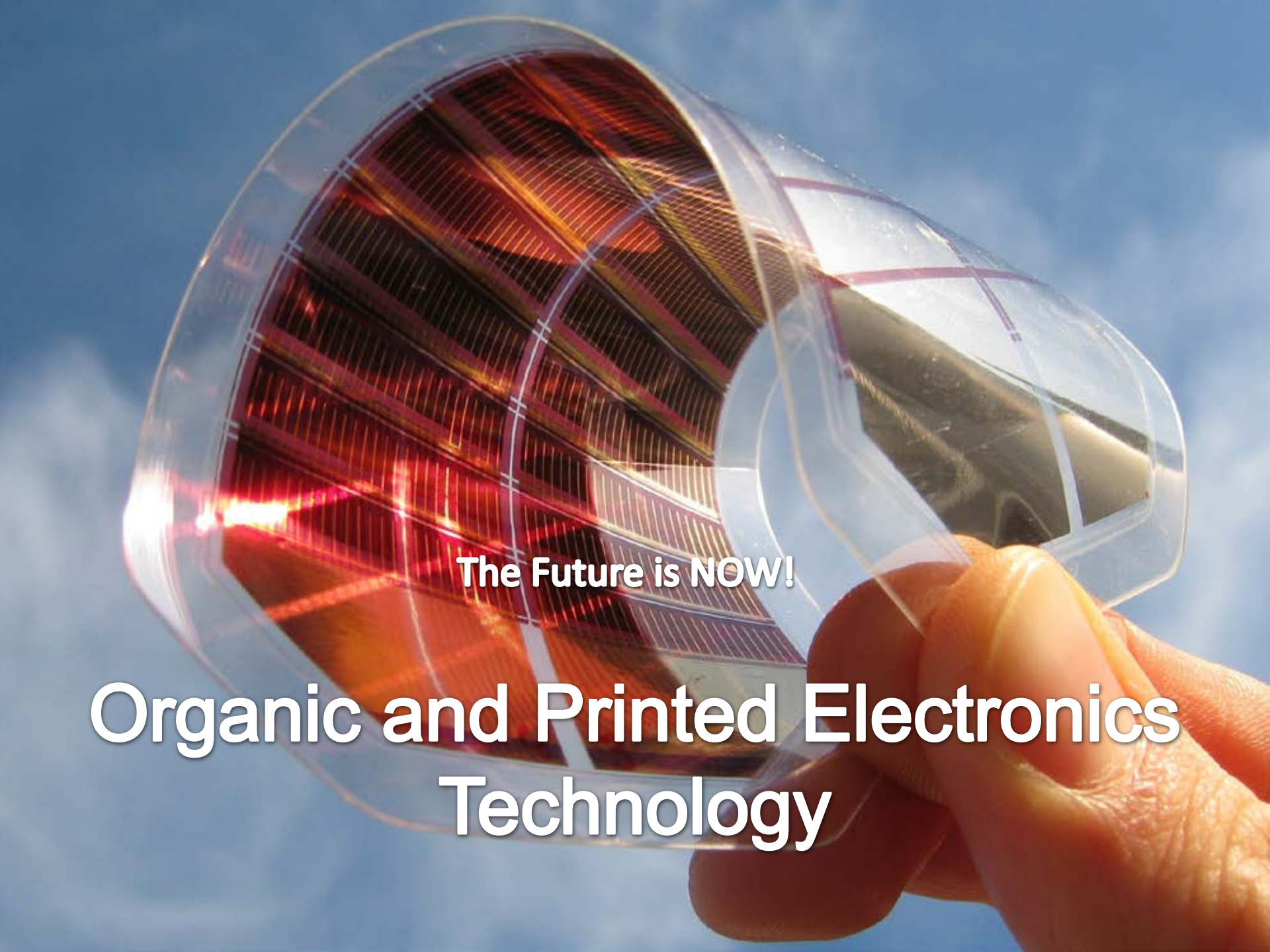
Proudly Present



Impact of LCD Flat Screen TV

And Now….


And Then….
THEY NEED…
FLEXIBLE,
THIN,
and LIGHTWEIGHT.


The Future is NOW!
Organic and Printed Electronics Technology

Film

Printed Electronics

Ready to Go!

english

VDMA

TV Service

INNOPHENE

GRAPHENE PRINTED ELECTRONICS

Future

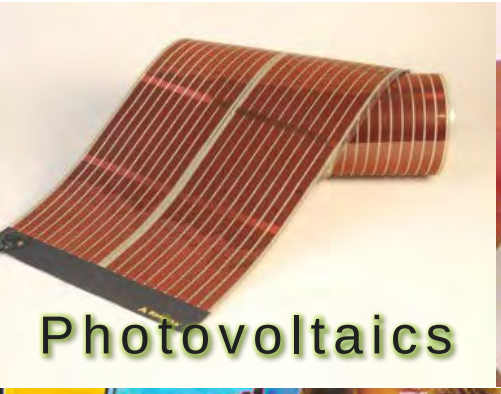
Organic
photovoltaic

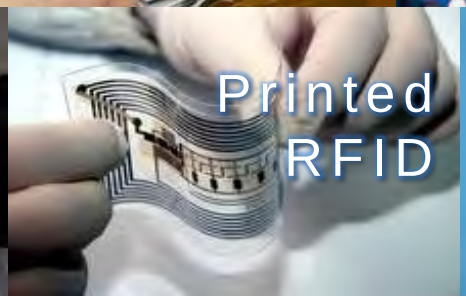
Today

Now, It is ready for…

Organic and Printed Electronics

Solutions





INNOPHENE
GRAPHENE PRINTED ELECTRONICS

Now….

INTRODUCING

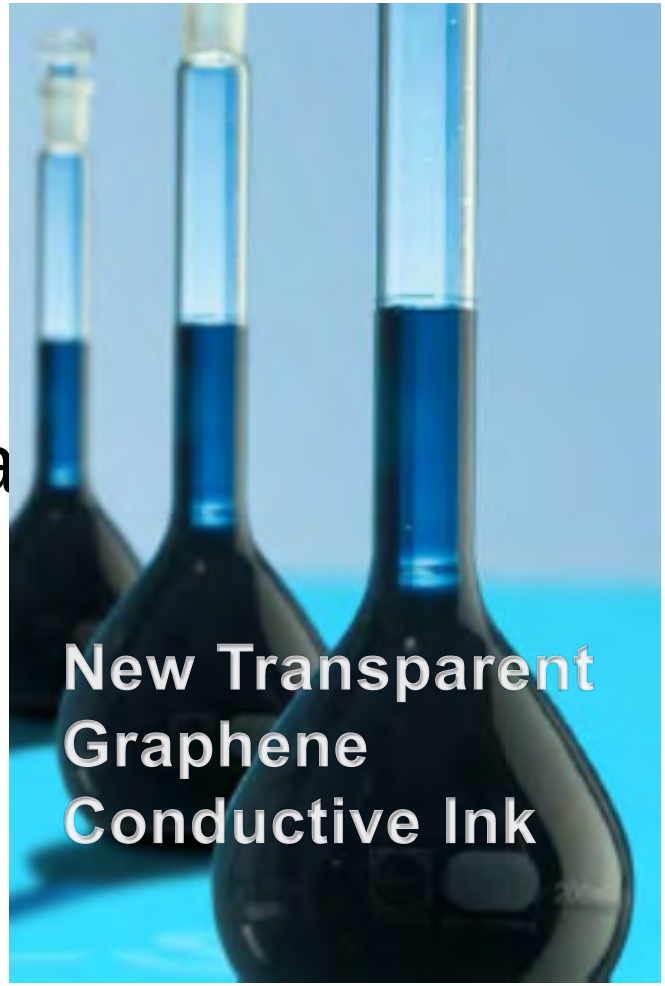
“The World’s First Transparent Graphene Conductive Ink”

- Unbreakable Transparent Electrodes
- Easy for Large -Area Production
- Alternative to ITO Substitution

INNOPHENE
GRAPHENE PRINTED ELECTRONICS

New Solution for Flexible ITO Substitution

- Unbreakable ITO Substitution
- High Conductivity
- Easy to use in Large Area
- Affordable Price



INNOPHENE
GRAPHENE PRINTED ELECTRONICS

Your Market

Our Solutions

Creating Value Added Technologies for Industries

INNOPHENE
GRAPHENE PRINTED ELECTRONICS

INNOPHENE
COMPANY LIMITED

Creating Value Added Technologies for Industries

www.innophene.com

The Company

Founded in 2011, **INNOPHENE**'s vision is to "***Creating Value-added Technologies for Industries***". Our business model is based on **'Open-Innovation Strategy'** that is able to create competitiveness for **"Organic and Printed Electronic business"** and related industry by appointed our research and development of our unmet technology for high value products of **Graphene composite polymers and the related applications**.

INNOPHENE
GRAPHENE PRINTED ELECTRONICS

Our Vision

Graphene Technology

Graphene is a 2010 NOBLE PRIZE winning material that has their various amazing properties, mainly in the electrical conductivity property. Our scientist team has discovered and patented how to produce the quality and affordable Graphene Conductive ink with the Green Technology Process in order to create near zero waste and low energy consumption and cost effectiveness..

Our Mission

An Open Innovation for
Organic and Printed Electronics

INNOPHENE
GRAPHENE PRINTED ELECTRONICS

We

S H A R E

our Values

Smart

Hospitality

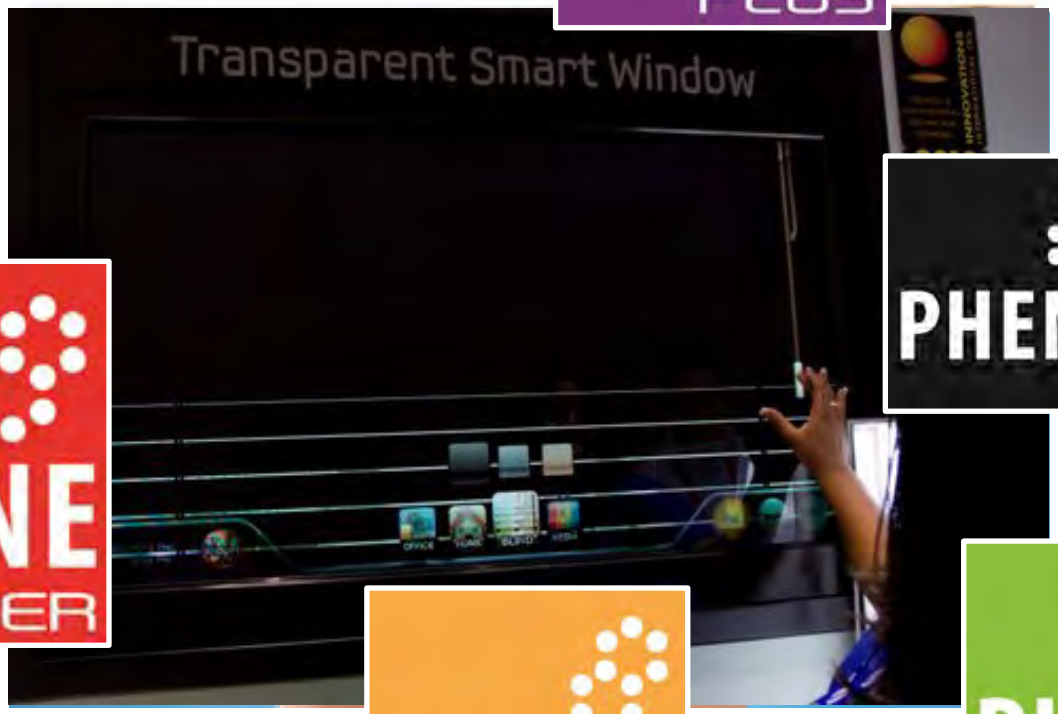
Accountability

Reliable

Entrepreneurship

INNOPHENE
GRAPHENE PRINTED ELECTRONICS

Our Values



PHENE PLUS

PHENE POWER

PHENE

PHENE

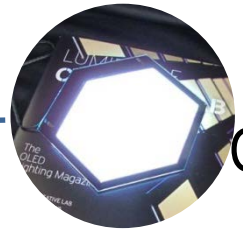
PHENE SOLUTION

INNOPHENE
GRAPHENE PRINTED ELECTRONICS

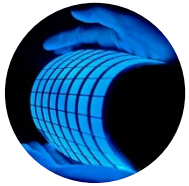
PHENE PLUS

"the World's First Transparent Graphene Conductive Ink"

OLED Screen

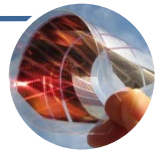


OLED Lighting



Electro-luminescent

Flexible Display



Solar Cell

It is Transparent Electrodes that give you a better transparency, higher conductivity and than available compatible products. PHENE PLUS is a "Flexible ITO Electrodes".

INNOPHENE
GRAPHENE PRINTED ELECTRONICS

PHENE

Printed
RFID

Electronic
Components

Security
Printing

Smart
Objects

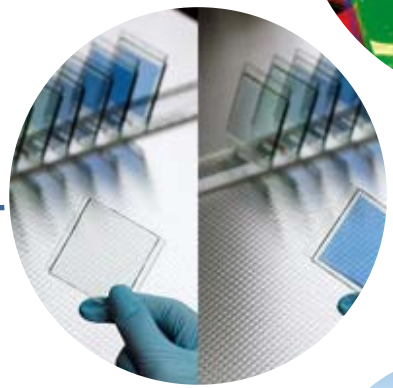
"Functional Graphene Conductive Ink"

Graphene Conductive Ink series that are suitable for Security printing, Electronic components and Applications as well as Printed RFID Applications.

INNOPHENE
GRAPHENE PRINTED ELECTRONICS

PHENE

OLED



Electro-
chromics

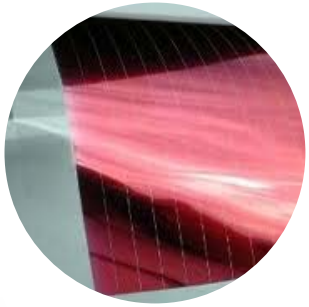
Bio-
sensor

"Special Graphene Composite & Chemicals"

They are special Graphene Composite products that are customized for high value materials such as Enhancing Bio-sensor agent, OLED lighting reagents, and Electrochromic reagents.

INNOPHENE
GRAPHENE PRINTED ELECTRONICS

PHENE POWER



Printed Solar Cell

Printed Battery

Ultra Capacitors

Vehicle Power

"Graphene Composite for Energy Harvest Industry"

PHENE Power is Graphene Composite series that are using for enhancing the battery power, enriching high capacitor power, a part of printed Ultra-Thin Battery, or Solar cells components

INNOPHENE
GRAPHENE PRINTED ELECTRONICS

PHENE SOLUTION

Conductive Plastic

Defogger Glass

SPA (Skin Power Application)

Brain-Up

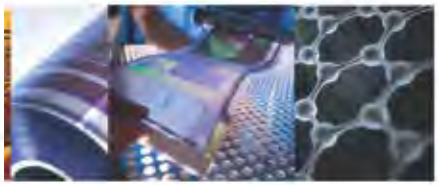
“Open Innovation Solutions ”

PHENE Solutions are the services that provide the Organic and Printed Electronics solutions for industry. It is project oriented approach, such as Electric Heated Glass, Plastic Conductive, Brain-Up sensor, SPA (Skin Power Application).

INNOPHENE
GRAPHENE PRINTED ELECTRONICS

New Alternative to Your Transparent Electrodes

"Create your new applications with a new Oxygen-Free Graphene Conductive Inkjet"



New Graphene Technology
Flexible & High Performance
Sinter-free Processing
An ITO substitution
Cost Benefit

Manufactured by
Innophene Company Limited
501/1 Soi Soonvijai 4, Rama 9 Road,
Huai Khwang, Bangkok 10310, THAILAND
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www.innophene.com

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rent

ene

ctive Ink

raphene Conductive Inkjet

ctive inkjet polymer. It is particular
d Glass, to meet the requirements of
ns, such as alternative to ITO. **PHENE+**
rms such as Dimatix DMP-2800.

g condition: 100 °C/ 6 min.

MSDS) and product labels before using.

Keep product container closed when
vaporation that may occur a non

enting the ink contamination.

filter (0.2 µm) or glass fiber filter (0.4
there are no large particles or

minutes before using.

ents conducted in our laboratories and are intended to
n methods to confirm the results for their application.

hene.com

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www.rsc.org/materials

PAPER

Inkjet-printed graphene-PEDOT:PSS modified screen printed carbon electrode for biochemical sensing

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In this work, a novel method for electrode modification based on inkjet-printing of electrochemically synthesized graphene-PEDOT:PSS (GP-PEDOT:PSS) nanocomposite is reported for the first time. GP-PEDOT:PSS dispersed solution is prepared for use as an ink by one-step electrolytic exfoliation from a graphite electrode. GP-PEDOT:PSS layers are then printed on screen printed carbon electrodes (SPCEs) by a commercial inkjet material printer (Dimatrix Inc.) and their electrochemical behaviors towards three common electroactive analytes, including hydrogen peroxide (H_2O_2), nicotinamide adenine dinucleotide (NAD$^+$/NADH) and ferri/ferro cyanide ($Fe(CN)_6^{3-/4-}$) redox couples, are characterized. It is found that the oxidation signals for H_2O_2, NADH and $K_4Fe(CN)_6$ of PEDOT:PSS modified and GP-PEDOT:PSS modified SPCEs are ~2–4 and ~3–13 times higher than those of unmodified SPCE, respectively. In addition, excellent analytical features with relatively wide dynamic ranges, high sensitivities and low detection limits have been achieved. Therefore, the inkjet-printed GP-PEDOT:PSS electrode is a promising candidate for advanced electrochemical sensing applications.

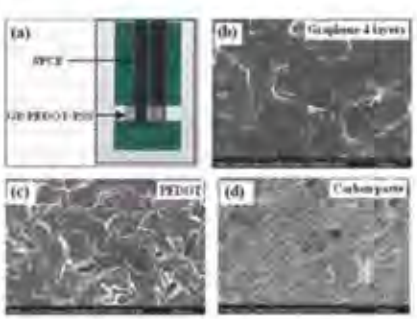

Fig. 1(a) Typical photograph of inkjet-printed GP-PEDOT:PSS SPCE and SEM micrographs of (b) inkjet-printed GP-PEDOT:PSS SPCE, (c) inkjet-printed PEDOT:PSS SPCE and (d) SPCE.

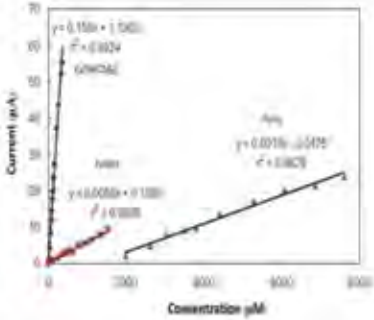

Fig. 2 Oxidation currents at a moderate potential (0.9 V) for H_2O_2 and at oxidation peaks for NADH and $K_4Fe(CN)_6$ vs. concentration. Scan rate was 100 mVs^{-1}.

Corresponding author.
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INNOPHENE is a new concept of
“INNOVATION HOUSE”

for

“Creating Value-Added Technologies for Industries”

We are an

“OPEN INNOVATION OF ORGANIC AND PRINTED ELECTRONICS TECHNOLOGY”

Our Core Business is

Graphene Conductive Ink and

O-PE Solutions

Such as

Printed RFID, Smart Packaging, OLED Lighting, and Medical Devices.

INNO+PHENE
II
“Innovation”
+
“Gene”

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