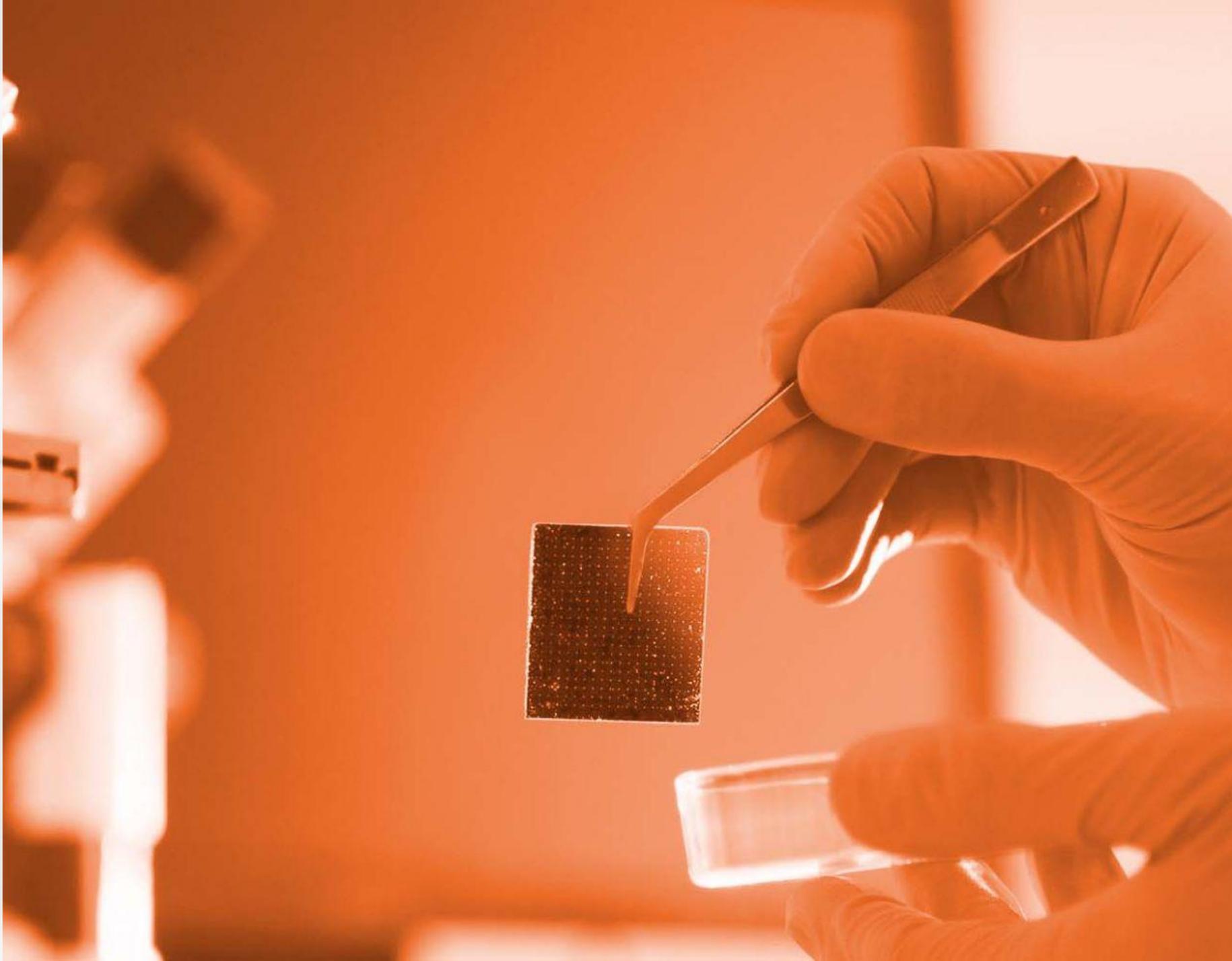


A blurred background image of a microscope, showing the eyepiece, objective lenses, and the base of the instrument.

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## First Half Interims

December 8th 2021



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## Interim Results for the six months ended 30 September 2021

Versarien Plc (AIM: VRS), the advanced engineering materials group, is pleased to announce its unaudited interim results for the six months ended 30 September 2021.

**Group revenues from continuing operations up 41% to £3.8 million (H1 2020: £2.7 million)\***

**Graphene revenues up 166% to £0.93 million (H1 2020: £0.35 million)**

**Adjusted LBITDA\*\* for continuing operations reduced by 37% to £0.71 million (H1 2020: £1.16 million)**

**Reported loss before tax of £3.11 million (H1 2020: £4.34 million)**

**Reported loss before tax of continuing operations of £2.96 million (H1 2020: £4.31 million)**

**Cash of £3.46 million at 30 September 2021 (31 March 2021: £2.36 million)**

\* Excludes discontinued revenues of £0.45 million (H1 2020: £0.41million)

\*\*Adjusted LBITDA (Loss Before Interest, Tax, Depreciation and Amortisation) excludes exceptional items, share-based payment charges and other losses)

## Revenues - Key Points

### **£1.1m total revenue increase:**

£0.5m is from the recovery in the two mature businesses (AAC and TC)

£0.6m from the graphene businesses.

### **£0.9m graphene revenues:**

£0.3m product revenues

£0.6m graphene product development agreement

**£0.9m recognised from graphene product development of £1.95 million agreement announced last year**

## Cashflow and Balance Sheet

**H1 net monthly burn rate £0.4m.**

**Cash/headroom of £6m**

**Lanstead proceeds dependent upon share price  
and end in 2022**

**We have expended £1.1m in the  
period on scale up equipment.**

**IUK loan becomes  
repayable in 2024.**

## Operational Highlights

**£1.93 million strategic investment in Versarien by Graphene Lab Limited, South Korea together with royalty and trademark agreements including 5% royalty agreement and 2% trademark agreement on sales**

**Acquisition of Spanish graphene manufacturing assets to provide up to an additional 100 tonne powder capacity per annum**

**Orders placed for the purchase of ink scale up equipment to give up to an additional 12,000 litres of ink capacity per annum**

**Lease signed on new dedicated graphene production facility in Longhope, Gloucestershire**

**Textile supply agreement signed with Crosslete and discussions ongoing with multiple garment suppliers**

**Agreement signed with one of the world's largest packaging companies to evaluate graphene-based coatings**

## Post Period Highlights

**Grant agreement signed to support the development of a Pseudo-Capacitor technology aimed at zero emissions for port-side infrastructure**

**Commercial agreement signed with Superdry to produce graphene enhanced garments**

**Royalty agreement signed with Gerdau S.A for the distribution of graphene masks primarily in Latin America**

## Longhope Expansion Update



- Increase in Ink production
- Increase in Nanoplatelet production
- Increase in Process testing
- Increase in confidential development area (TBC)

- Move from c2000sqft to 18000sqft, incorporating the Cementene™ Innovation area
- 10,000 sqft Innovation hub including the process lab and material testing facility





# VKL South Korea

An update  
Dr. Steve Hodge

The story  
so far...

**Versarien**<sup>®</sup>  
버사리언 코리아

## **Samsung Techwin (2009-2015)**

Samsung Techwin initiated the graphene business under the Operation Department of Semi-conductor Parts.

3 National projects with MOTIE and MSIT amounting to £23.6 million.

### **Main goals:**

500mm-level large-scale CVD growth).

Develop and commercialize graphene-based transparent electrodes for touch panels substituting ITO(Indium Tin Oxide).

Building the systems for production of large-scale (900\*1600 mm<sup>2</sup>) graphene.

## **Hanwha Techwin (2015-2020)**

Launched the Nano-materials Source Technology Development Project by MSIT.

Development of equipment and techniques for non-destructive quality evaluation of large-area graphene.

The goal was to develop graphene inspection devices which were later transferred to Versarien Korea.

2 ongoing national projects (MOTIE, MSIT) from Samsung Techwin era were completed in 2020.

## **Versarien Korea (2021 onwards) ...**

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**May 2017**

NR joined UKTI Japan Korea Mega Tech Trade Mission, met Matt Walker (DIT)

**Jun & Sep 2018**

NR visit followed by Versarien joining Innovate UK Global Business Innovation Programme (GBIP) for advanced materials in SK

**Oct 2018**

Appointment of Korean representative, Rachel Kim

**Nov 2018 - May 2020**

Versarien PLC - multiple visits from SH + MW to build networks and collaborations supported by RK

**June-Nov 2020**

Beginning of Hanwha Techwin opportunity - discussions, IP assessment, due diligence, negotiations

**Dec 2020**

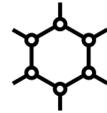
Acquisition of Graphene Business Department (CVD Assets and IP) from Hanwha Aerospace

**>100+ Patents including 29 patent families**

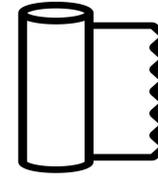
Generally covering:



Process  
Equipment



Graphene  
Growth



Substrate  
Pre-Treatment



Post Treatment



Transfer



Devices



Metal Removal

2021

### **Jan-Mar**

Search for a new facility and strategic partners.

### **Apr**

£1.93 million strategic investment in Versarien by GrapheneLab Co. Ltd.

### **May**

Move into new facility - moving out equipment from Hanwha to VKL.

### **Jun**

Fitting out of labs and equipment installation.

### **Jul**

New staff started at VKL - joined from Hanwha Techwin - technical and business development roles.

### **Aug-Sep**

Continued installation, repairs and commissioning of equipment. YTN News programme filmed in Korea with SH and MW taking part from the UK.

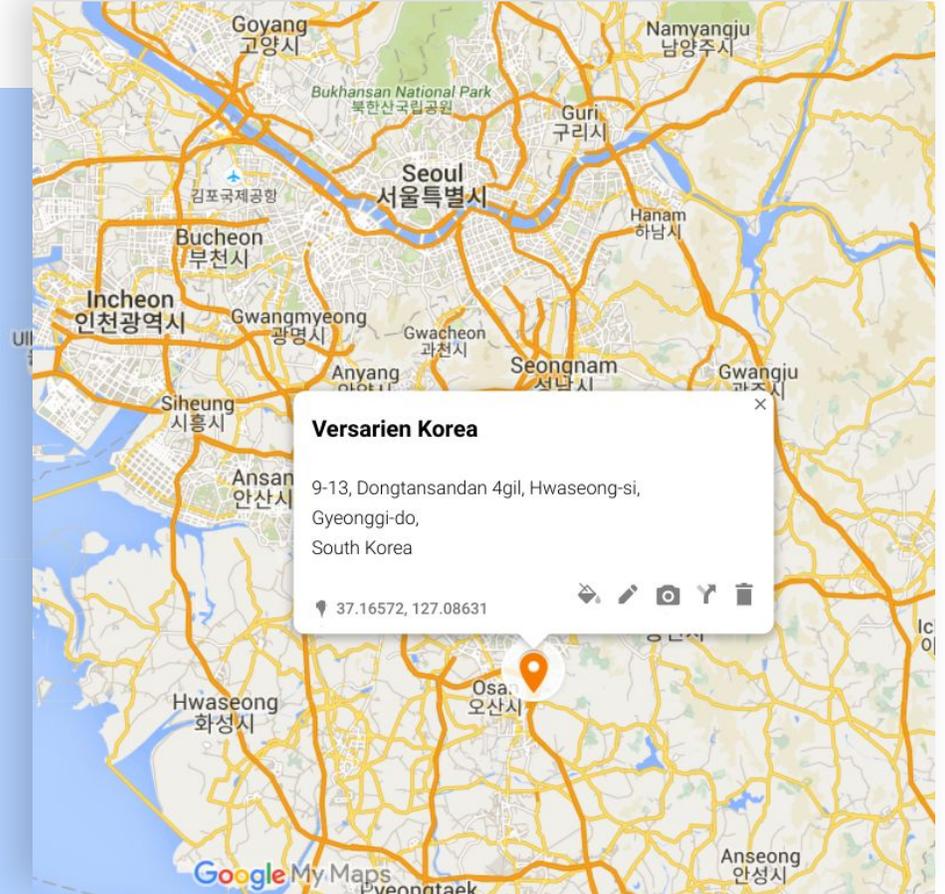
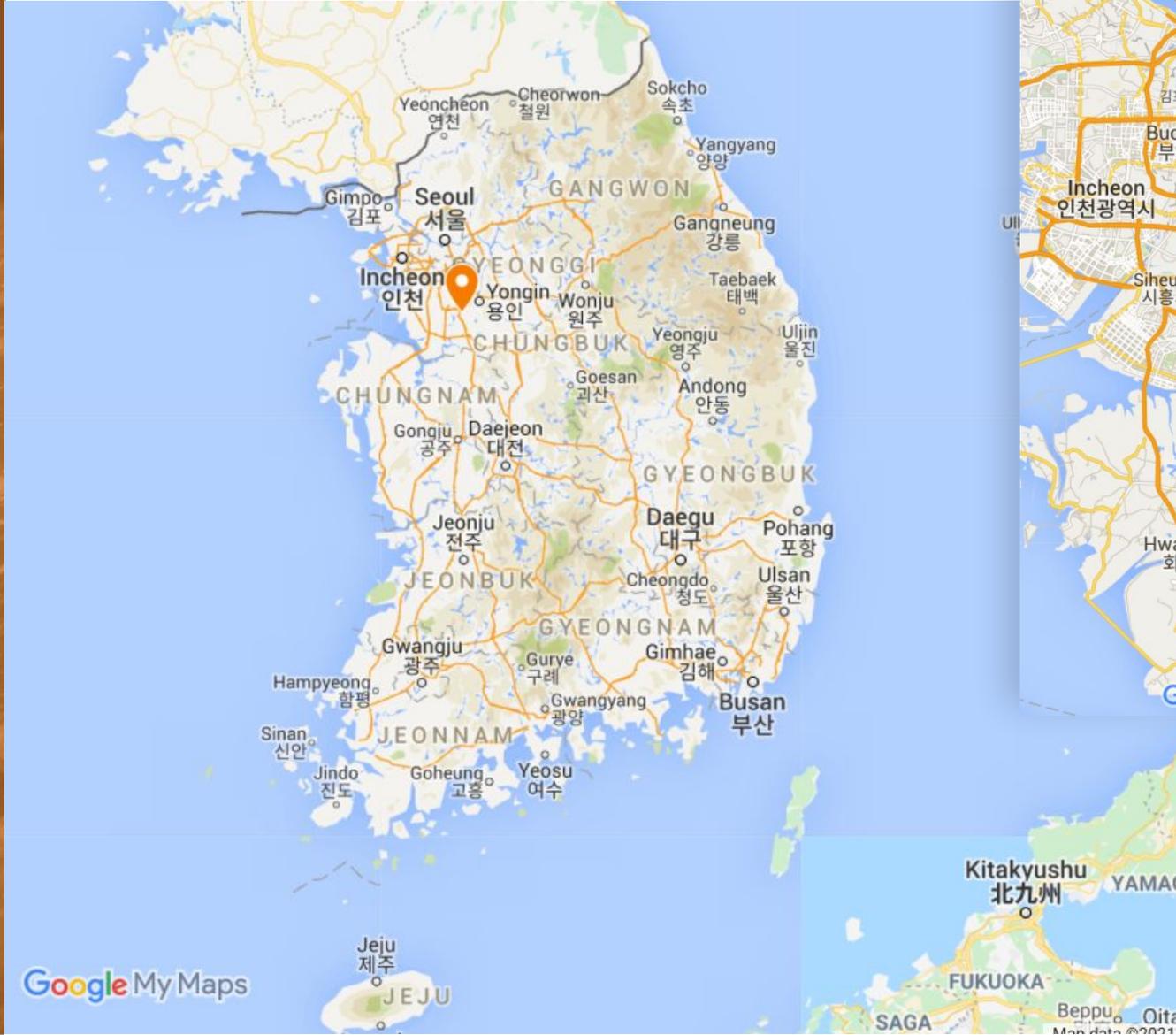
### **Oct**

First CVD graphene samples produced. Continued optimisation of graphene production and transfer processes.

### **Nov**

Visit to VKL by SH - meet new staff, meet GrapheneLab and establish further academic and commercial collaborations. Installation of Class 1000 clean room for graphene synthesis. First sales of CVD graphene.

VKL (Hwaseong-si) ~1 hour south of Gangnam, Seoul, ~1.5 hours from Incheon International Airport, ~30 mins south of Hanwha Techwin (Seongnam-si),



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Korea



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# The Big Move May 2021



Moving out



Moving in



Scrubber installation

YTN TV Korea  
August 2021

비즈니스코리아



경기도 화성시

비즈니스코리아



비즈니스코리아

CVD & 플레이크 그래핀  
그래핀의 임대산맥이 만나다



비즈니스코리아

CVD & 플레이크 그래핀  
그래핀의 임대산맥이 만나다



Versarien<sup>®</sup>  
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## **Class 1000 (ISO 6)**

Graphene synthesis and lamination,  
transfer and stacking

## **Class 10000 (ISO 7)**

Wet chemical etching,  
graphene characterisation

1k clean room



10k clean room

## **Class 1000 (ISO 6)**

Graphene synthesis and lamination,  
transfer and stacking

## **Class 10000 (ISO 7)**

Wet chemical etching,  
graphene characterisation



**Wet (Etching) Lab**

## Class 1000 (ISO 6)

Graphene synthesis and lamination,  
transfer and stacking

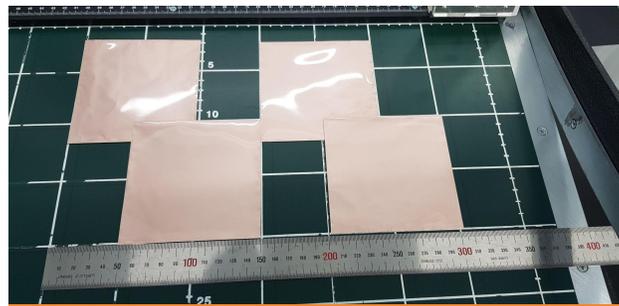
## Class 10000 (ISO 7)

Wet chemical etching,  
graphene characterisation



Characterisation Lab

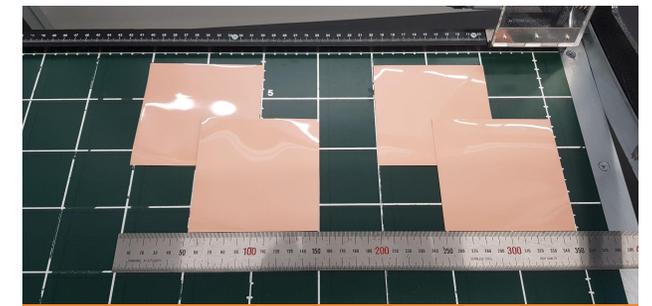
First RT-CVD  
sample sales  
October 2021



Graphene on Cu foil



TRF



Graphene on Cu foil/TRF

100x100mm samples

Multi-layer graphene  
(stacking up to 4 layers)

Graphene on Cu with  
thermal release film (TRF)  
for dry-transfer



SH visit  
November 2021



## **CVD graphene**

**Manufacture of CVD pieces for sale**

**Develop academic and commercial opportunities - in Korea, UK and Europe**

**Forming strong relationship with GrapheneLab**

**Development of commercial sensors and (opto)electronic devices**

## **2d nanoplatelets and products:**

**Commercial traction of currently available products**

Nanene™/GNP-HP/GP500/Hexotene™/Graphinks™/GNA X

Standard materials Cementene™, Polygrene™, Graphene Wear™

**Versarien Plc is in a unique position to deliver positive environmental gains within a number of industry segments.**

Concrete production globally represents upto 10% of global CO<sub>2</sub> emissions. The introduction of graphene could reduce the environmental impact by upto 30%.

Versarien is committed to supporting the development of advanced building materials of the future to deliver smart structures.

Environmental benefits from 'lightweighting' of components for automotive and aerospace applications.

Mission to increase the recyclability of plastics and improving the functionality of bioplastics.

Versarien is well positioned to support and drive new energy technologies allowing for faster charging and durability.