



# TrimTabs

## PRESS RELEASE

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### **TrimTabs appoints Engsolve to build a pioneering production unit to manufacture carbon nanotubes from waste plastic.**

TrimTabs Limited (“TrimTabs”), the South Wales based process technology company pioneering the low-cost, sustainable production of carbon nanotubes (“CNTs”) is delighted to announce it has appointed Engsolve to build and install its first production train – a Minimum Viable Product (“MVP”) system in TrimTabs’ facility in Bridgend, for the production of carbon nanotubes from hydrocarbons such as waste plastic.

The new state of the art production unit is the first step in commercialising TrimTabs patented production system and will allow continuous production of low-cost, highly differentiated carbon nanotubes at close to commercial scale. The feedstock comprises waste plastic and other hydrocarbons and the new unit will facilitate proving of the process on various of such waste feedstocks along with development of an associated catalogue of CNT production protocols.

Engsolve were selected premised on their expertise in developing pilot scale operations into industrial scale processes.

First class environmental credentials are fundamental to the TrimTabs process which operates on a fully circular economic basis through the upcycling of waste plastic and hydrocarbons into a higher value product, and through an internal re-circulation system our process would produce minimal carbon emissions.

Furthermore, a single MVP unit typically uses only 15 kW of electrical energy in order to heat and catalytically convert feedstock into carbon nanotubes, which approximates to boiling just five kettles of water. With this power it can make enough nanotubes for use in hundreds of batteries.

There are multiple market applications for high quality carbon nanotubes within the battery, supercapacitor, fuel cell, concrete, composites, electricity transmission and superconductor industries.

The most immediate opportunity lies with the battery industry, for which carbon nanotubes, having conductivity orders of magnitude greater than other materials and a very low weight, stand out as a breakthrough material to be incorporated into both present and future batteries. Today, they represent an immediately serviceable addressable market of £2.9 billion. The TrimTabs process also ensures meeting the most stringent global standards for sustainable battery materials.

The installation of the new unit will move the technology readiness level (TRL) through the qualified gate system from TRL 6 to TRL 9.

This MVP production unit will lead towards the construction and implementation of the First Commercial Model (FCM), a modular micro-factory unit placed within two shipping containers. Each micro-factory will be able to produce up to 60 Tonnes per annum of CNTs and be deployed around the globe, monitored and controlled using mobile detection equipment and paid for via licensing model.



On securing this contract Chris Davies, Engsolve Engineering Director, said:

“We are delighted to have been awarded the contract for the development of the TrimTabs MVP – the order reaffirms our clients’ confidence in Engsolve’s ability and flexibility to deliver solutions for new technologies. We are pleased to be working with TrimTabs and extending our experience in the rapidly expanding and high-tech market for carbon nanotubes.”

Commenting on this news, Associate Professor Alvin Orbaek White, CEO of TrimTabs added:

“The appointment of Engsolve to build this pioneering production system is a major strategic advancement in our company's technological capabilities which will serve as a catalyst for expanding our product development capabilities and customer outreach. Utilizing this equipment, our team can accelerate the design iteration process, promptly validate new product R&D, and swiftly collect customer feedback.

“Central to our innovation strategy, the MVP system stands uniquely designed to enhance bespoke carbon nanotubes for mass production. This approach aims for commercial models ready for deployment in modular micro-factory units.”

**ENDS**

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**Notes for editors:**

**About TrimTabs**

- TrimTabs is a Greentech and Deeptech company based in Bridgend, Wales. It uses a patented process to produce high-quality bespoke carbon nanotubes from solvents and plastic waste. This innovative solution reduces the cost per gram of nanotube materials while ensuring high-quality production at scale to meet growing market demand.
- The company was founded in 2019 by Dr Alvin Orbaek White whilst an Associate Professor at Swansea University, where he worked with Professor Andrew Barron, the Sêr Cymru Chair of Low Carbon Energy and Environment at Swansea University. Both Dr Orbaek White and Professor Barron are world-leading experts in the field of carbon nanotubes. Dr Orbaek White is CEO and Professor Barron is a non-executive director of TrimTabs.
- Carbon nanotubes have multiple benefits over many alternative materials:
  - Highly conductive – e.g. 1000 x greater current carrying capacity than copper



- Lightweight – e.g. six times lighter than copper
  - One of the strongest materials in the world
  - Very high heat transfer coefficient, 10 to 100 times better than metals
  - Long lifetime as it does not oxidise
  - Non- flammable
  - It is a carbon sink.
- Feedstocks for the TrimTabs process comprise over 200 types of hydrocarbon, including waste plastics, solvents, reagents, and cleaning fluids.
  - Multiple applications include the following markets:
    - Batteries
    - Fuel cells
    - Concrete
    - EMI shielding
    - Composites
    - Steel
    - Semiconductors, superconductors and electronics
    - Power transmission

### **About Engsolve**

- Engsolve is a multi-disciplined engineering consultancy, that helps answers the industry's most arduous of problems. Delivering engineering design and support, cost estimating and control, project management or safety risk assessments. We are dedicated to delivering engineering solutions that cater to our clients, whether they are transitioning from high carbon and waste processes or are pioneers of emerging technologies offering solutions to today's environmental challenges.
  - Engsolve's involvement in renewable energy developments and cutting-edge new technologies aids its clients in their pursuit of a circular economy future. This commitment leads to brighter and more sustainable outcomes for the client's business.
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