



**APPLIED
GRAPHENE
MATERIALS**

**Leading innovation
with graphene
dispersions**

**Interim Presentation
April 2022**

appliedgraphenematerials.com

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WE ARE GRAPHENE.

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Proud to be a leading innovator

Graphene nanoplatelet dispersion and application technology for long-term commercial success



OUR PURPOSE

AGM aims to create value for all of its stakeholders, contribute to global knowledge on graphene application technology and play a leading role in the development of innovative graphene-enhanced new products that **stand out** in their respective markets.



OUR MISSION

AGM aims to continue to **innovate** and be a technical leader in the application of graphene dispersions and to create commercially successful outcomes for our customers and our Company.



OUR VISION

AGM is focused on strengthening its position as a world leader in the development, production and supply of graphene dispersions, exploring the possibilities and pushing the boundaries of material **performance** to enable our customers to realise the true potential of sustainable graphene solutions.

USP - Unlocking the potential of graphene nanomaterials



How to create long-range value - AGM's dispersion and application expertise

Consistent supply of high quality, repeatable graphene dispersions that are **stable**, **easy to formulate** and **safe to incorporate** is where AGM's expertise lies.

- Range of graphene types
- Standard dispersions
- Custom dispersions
- Range of applicable chemistries
- Application know-how
- Technical support end-to-end



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Operational highlights



Challenging trading with COVID-19 and supply chain issues. Strong progress with our technology platform

Innovate. Perform. Stand out.



Successful partnerships Valuable pipeline of engagements - UK Environment Agency, Alltimes Coatings and Stanvac.



Launch of finished **anti-corrosion primer** products.



Car care sector progressing well.



Composite materials users for **hydrogen storage**



Strong technology development - Anticipated industrial coating applications, IP portfolio growth and technology platform for green innovation.



Chemical resistance product marketing anticipated April '22 opening up new **protective coatings opportunities**.



New customer product launches – 24 products in use validating technology and product roadmap to drive future sales.



Growing distribution network and a deeper engagement with their customers - Rayoung Chemtech joined network post period with more anticipated.



Major effort on **regulatory support** in USA.

Sales and Financial Summary

Challenging trading conditions – COVID-19 and supply chain issues central to industrial coatings



⬡ Revenue	£46,000 (2021: £42,000)
⬡ Operating expenses	£1.7 million (2021: £1.7 million)
⬡ EBITDA*	loss of £1.7 million (2021: loss of £1.6 million)
⬡ Cash at bank	£4.2 million (2021: £2.3 million)
⬡ Basic EPS	loss of 2.6 pence per share (2021: loss of 3.3 pence)

*EBITDA comprises earnings before interest, tax, exceptional costs, depreciation and amortisation.



Sales growth impacted by double effects of COVID-19 drag and Supply chain challenges diverting resources normally working on our materials.



New customer product launches 24 total product launches. 5 in current period.



Strong pipeline of engagements, though pace of evaluation of our products has slowed in the period. Opportunity Value £2.7m for ongoing projects.



Growing distribution network 1 new distributor added post period with more anticipated.

Difficult trading conditions – COVID-19 and supply chain issues



Impacted customer resources for research and innovation

Challenges within the industrial coatings sector have resulted in the perfect storm of global supply issues, leaving the entire industry in fire-fighting mode.

- ⬡ Major plant shutdowns due to storms and multiple **Force Majeure events**.
- ⬡ Lower **oil** production.
- ⬡ **Building block raw material** shortages.
- ⬡ Significant **price increases for basic raw materials** and extreme increases in freight costs.
- ⬡ Swift upswing in the **Chinese economy** post-Covid.
- ⬡ **Logistics challenges** - congestion in seaports.
- ⬡ **Shortages** of sea-going containers, ocean-going vessels, trucks and drivers.

Customer R&D and technical resources have been redirected to solve issues for their existing products.

In the meantime we have managed to continue our technology development well.

Commercial strategy

G enable *dispersions through growing distribution network*



Technical support

- Higher level of AGM technical support for distributors with their customers.
- Key enabler for longer term success.

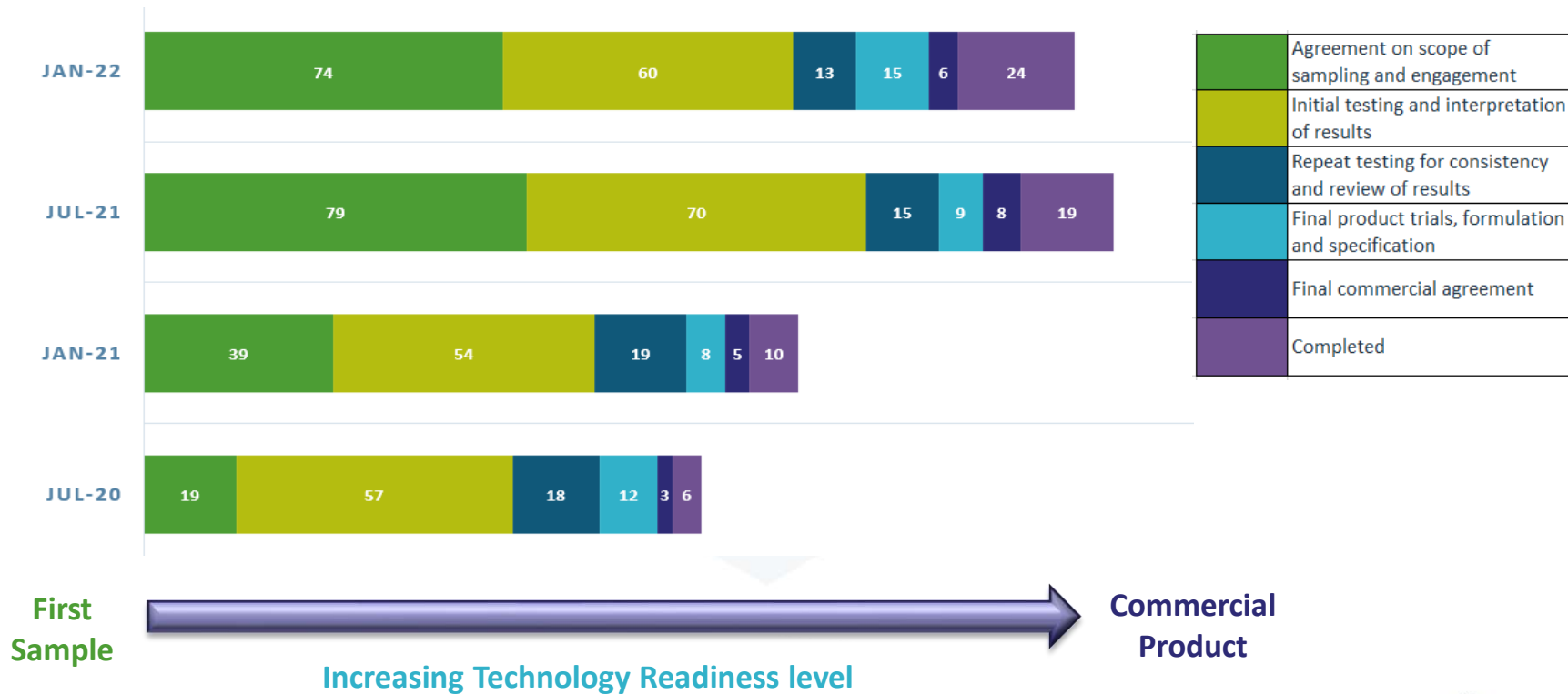
Regulatory support

- USA 33% of opportunity pipeline.
- Engagement with EPA for TSCA listing.
- Rest Of World.



Engagement pipeline

Sales opportunities at 31/1/22



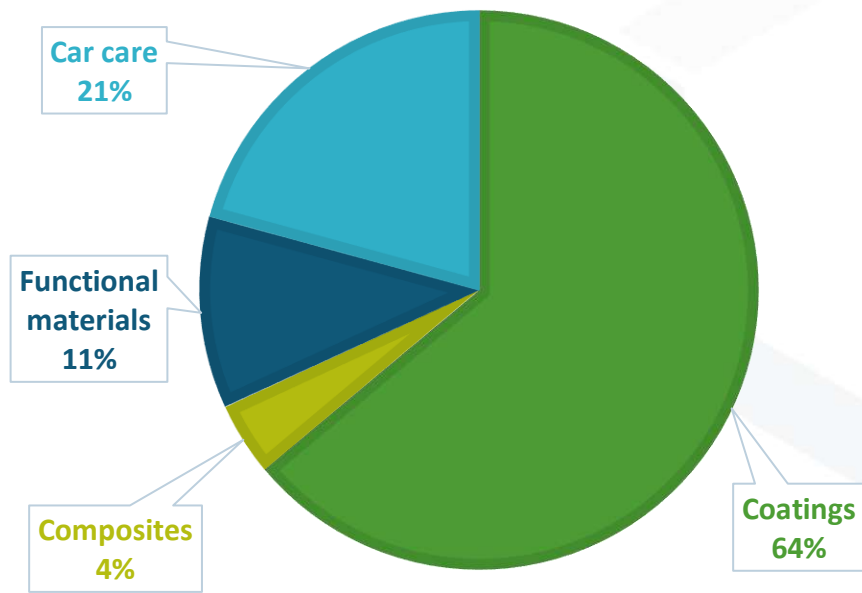
Opportunity pipeline

Sales opportunities at 31/1/22 (excluding completed projects)

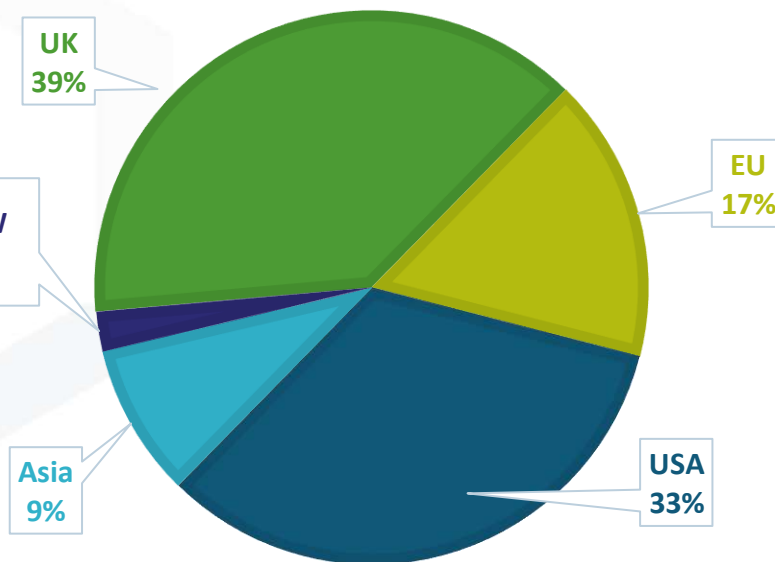
168
Ongoing
projects

£2.7m
Value*

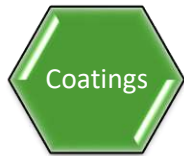
VALUE OF OPPORTUNITIES BY SECTOR £'000



VALUE OF OPPORTUNITIES BY TERRITORY £'000



Commercial use of graphene coatings



G enable *helping customers to use graphenes effectively, easily, safely for industrial coatings*



Using AGM primer

- ⬡ Reduced corrosion repair requirements.
- ⬡ Increased service life of the coating.
- ⬡ Reduced potential lifetime coating costs.
- ⬡ Customer products in use at growing scale.

**ALLTIMES
COATINGS**



Product
in use



Customer Success



G enable *graphene dispersions used to great effect on construction coatings*



Product
in use

ADVANTAGE GRAPHENE coating
successfully used on projects for:

- ⬡ **P&O**
- ⬡ **JDB**
- ⬡ **Severn Bridge Trading Estate**
- ⬡ **Royal Mail**
- ⬡ **Lidl**
- ⬡ **Bensons**



Barrier & Anti-Corrosion
Cost effective solution
Extended life
Roof surfaces, cut edges and gutters

Customer Field Trials



G enable *equipping customers to use graphenes effectively, easily, safely in infrastructure applications*



Stanvac

End
customer
approval

POWER TRANSMISSION COATINGS

- Indian infrastructure market.
- Final stages of customer field trials.
- Technical challenge solved to enable multiple materials attributes to be realized.
- Awaiting final customer approval.



Permeability & Barrier



Conductivity

Customer Testing



Marketing
Plan

CHEMICAL RESISTANT FLOORING

- ⬡ Positive progress in the field of protective barrier floor coatings for concrete.
- ⬡ Well-defined barrier performance attributes of graphene nanoplatelets.
- ⬡ AGM product solution anticipated for broader chemical-resistance application opportunity – floors, storage, pipes, transport.
- ⬡ Anticipate strong uptake of this product once launched to market.



Chemical Barrier & Anti-Static

Customer Success



G enable *equipping customers to use graphenes effectively, easily, safely in protective car care*



DRIVING INNOVATION IN THE AUTOMOTIVE PROTECTIVES MARKET

- Customer products with AGM dispersions.
- Waxes and detailers.
- Anti-corrosion coatings.
- Formats for aerosolised materials.
- Retail sales predominantly.
- More sizeable companies now evaluating – greater potential volume medium term.



Barrier & Anti-Corrosion



Water Shedding

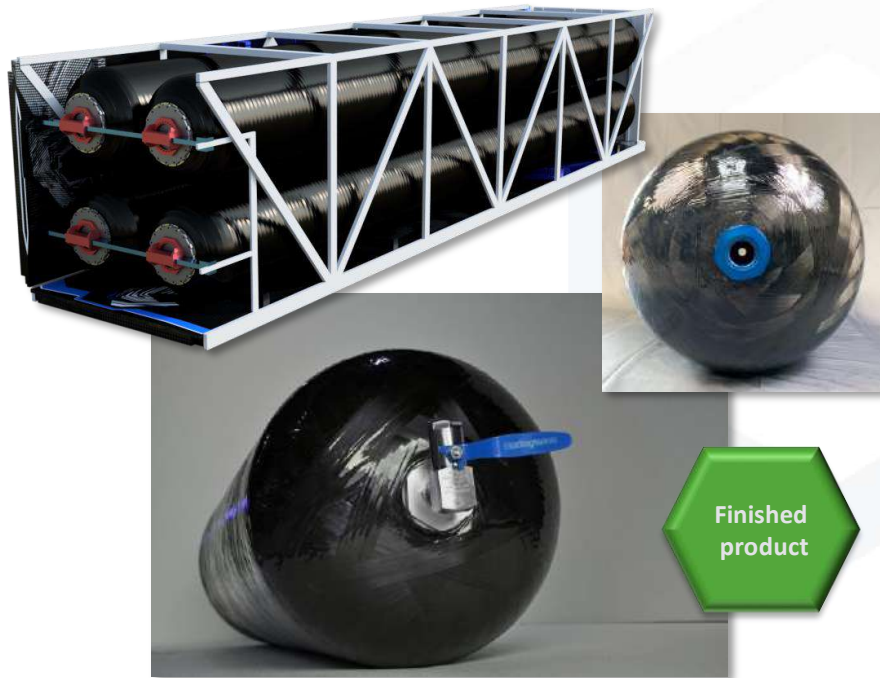


UV Protection

Customer Innovation

G enable *equipping customers to use graphenes in emerging gas storage sector*

Composite



COMPOSITES PRESSURE VESSELS

- Essential technology for hydrogen storage.
- Potential for technology application for the broader hydrogen agenda.
- Longer life solutions, greater pressure rating, lower weight.
- Engagements with a number of composites manufacturers in the hydrogen space.



Fracture Behaviour



Permeability & Barrier



Mechanical Performance

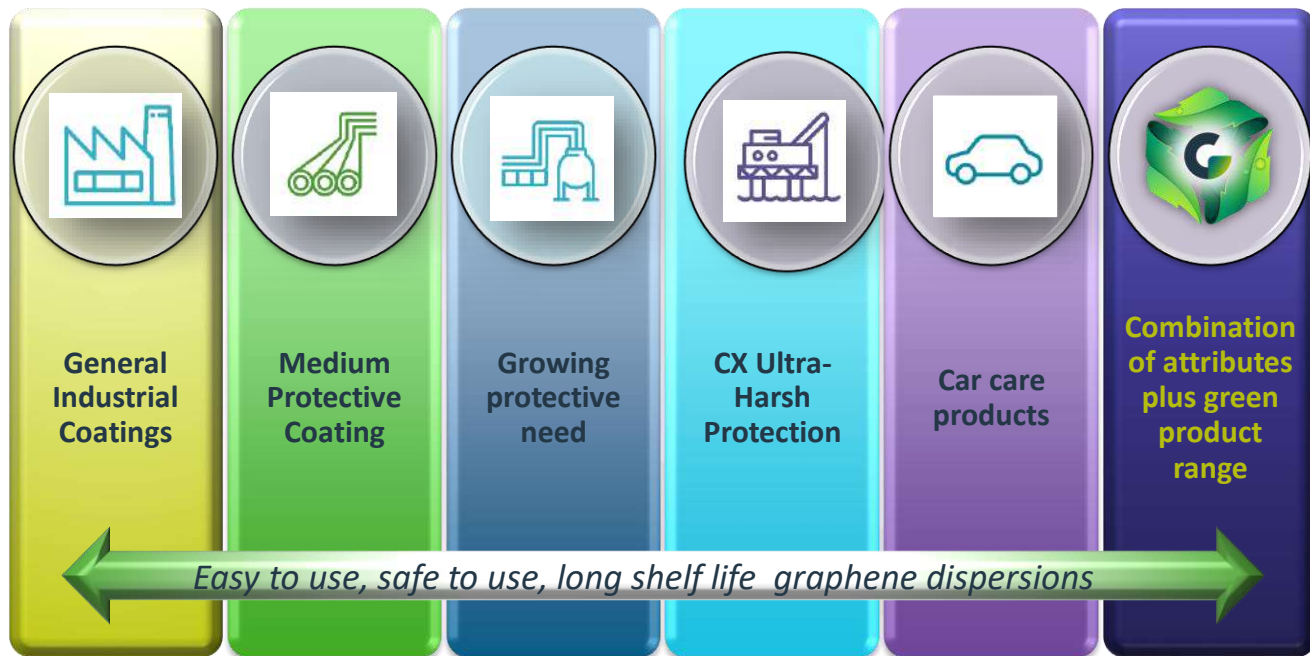


Conductivity

Finished product

Innovation platform

Making it easy for the customer - Exceptional package of materials technology for protective coatings and beyond



- ⬡ Choice of types of Graphene for best technical fit
- ⬡ Dispersion selection for optimum formulation
- ⬡ Practical application guidance
- ⬡ Example coatings to help get started
- ⬡ Test data to back up performance claims

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Chemical Resistance market

Genable *for use in chemical resistant coatings sector*



Chemical Barrier



CHEMICAL RESISTANT COATINGS

- ⬡ Positive demonstration already for floors with customer in final review.
- ⬡ AGM test data to support marketing into broad chemical resistant coatings products sector and use of graphene as an innovative solution.
- ⬡ Offering standard and custom dispersions to suit application opportunities.
- ⬡ Potential for further attributes to suit specific applications – anti-static, thermal.
- ⬡ Potential for read-across into composites used for transport and storage applications.

Technology platform development

Near-term innovation

Innovate. Perform. Stand out.



Data package
for Chemical
Resistance
market

Environment
testing &
validation

Hybrid
technology
& dispersion
chemistry

Top Coats,
wind turbine,
electronics,
concrete

LCA data
modeling to
support
customers

Chemical Resistance for flooring,
storage, pipes, transport

Further proof of performance.
France. EA. Freshwater.

Dispersion range to suit
range of potentials

Improved protective
coatings platform

Life cycle analysis

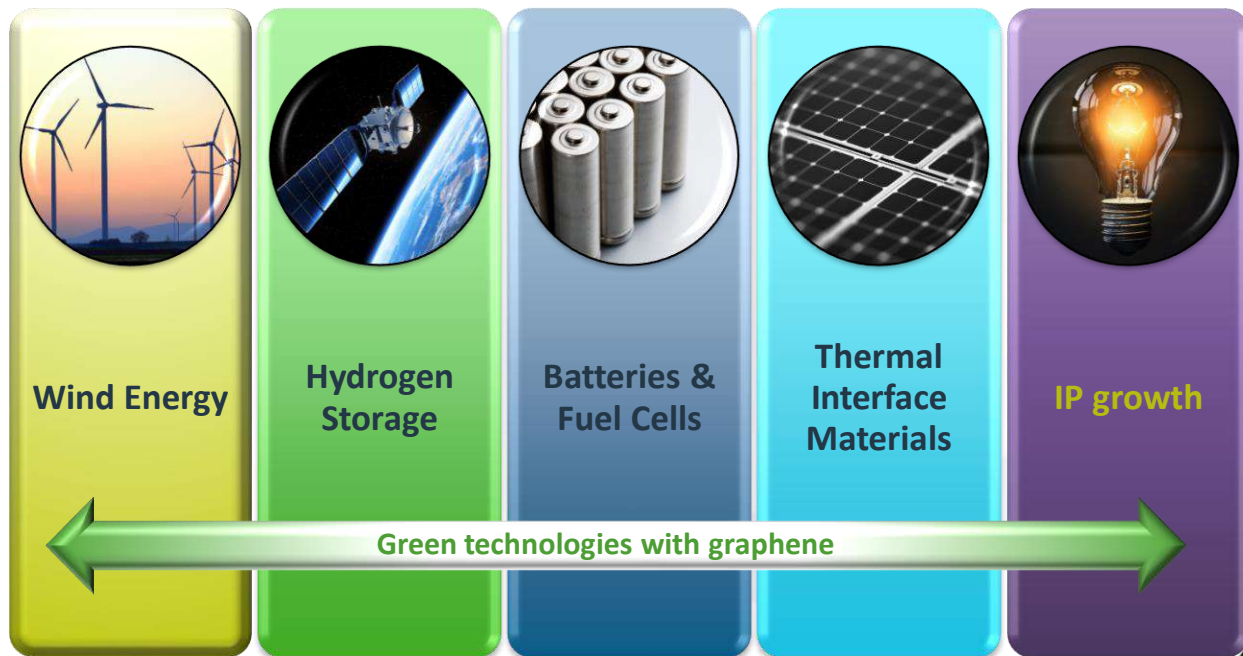
INNOVATION



- ✓ Printable technology
- ✓ Elastomers and textiles
- ✓ Composites testing through The Graphene Council at University of Maine
- ✓ Regulatory action plan to support graphene volumes

Future technology roadmap

Moving towards a "greener" world



Product momentum



Genable in 24 products now launched by customers

- ⬡ **Stanvac** – use of conductive barrier coating for industrial power transmission applications
- ⬡ **Infinite Composites** – Pressure vessel products in commercial use
- ⬡ **US Car care white label supplier** – 3 product formats for US car care sector
- ⬡ **US Car care supplier** for sealant products – Currently being marketed
- ⬡ **Commercial vehicle** coatings application
- ⬡ **2 anti-corrosion primers** launched by AGM
- ⬡ **Current valuation** of these products is around £0.5m of dispersion sales at full use rates

ALLTIMES
COATINGS

Stanvac

JBL
James Briggs Ltd

Blocksil
Coatings Innovation

INFINITY WAX

CONSTELLATION
CHEMICALS LTD

EZ
CAR CARE

TRU-TENSION
PRECISION EVERY TIME

X INFINITE
COMPOSITES TECHNOLOGIES

Sustainability and capacity for growth

Enabling more sustainable solutions

Graphene contributes to **sustainability goals** as an alternative to traditional chemicals.

- ⬡ Product life cycle advantages.
- ⬡ Extended life and improved performance.
- ⬡ Potential toxin reduction – zinc, chromates etc. in coatings.

Expanded product range

- ⬡ Water based dispersions incl. UK patent.
- ⬡ Bio-based materials launched.



Graphene dispersion capacity developing:

- ⬡ High speed dispersion.
- ⬡ Range of dispersion methods.
- ⬡ Suits both exfoliated and synthesized graphenes.
- ⬡ Space adjacent to current facility.
- ⬡ Spray booth commissioning.



Investment Summary

Delivering the potential of Graphene nanoplatelet materials technology



Innovate. Perform. Stand out.



Commercializing market-leading graphene dispersion from a solid technology base. Timing issues with challenging market has temporarily slowed customer activity.



Strong technology position in core protective coatings market and car care sub-sector. Targeted composites usage starting to increase.



Demonstrable performance advantages using graphene dispersions. Green technology platform to meet sustainable objectives with customers. Chemical resistant coatings opportunity. Long range projects in green energy.



AGM product range growing. Launch of finished primers to help customers experience graphene in use.



Commercial strategy - Distributor-based sales platform grown with new addition in Taiwan.



Robust pipeline of customers testing our products.



Growing know-how on how to deploy graphene to support customers. Commitment to training and customer support to enable strong performance in engagement conversion to sales as market returns. Regulatory position developing.



Adding dispersion capacity.



Managing cash position well to support momentum on innovation and commercialization.

Further information

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