



**APPLIED
GRAPHENE
MATERIALS**

Strong progress with market
leading graphene nanoplatelet
dispersion and application
technology

Interim results

Six months ended 31 January 2021

24 March 2021

[appliedgraphenematerials.com](https://www.appliedgraphenematerials.com)

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It should be noted that past performance cannot be relied on as a guide to future performance.

This presentation contains forward-looking statements with respect to AGM’s plans and objectives regarding its financial conditions, results of operations and businesses.

Presenting Management Team



DR ADRIAN POTTS Chief Executive Officer

Joined AGM in January 2015, CEO from August 2018

Various senior roles in composites industry including UMECO

Experienced in strategy development, business turn-arounds and integrating new innovation

Based in Tulsa, Oklahoma, USA



DAVID BLAIN Chief Financial Officer

Joined AGM in October 2018 from Nanoco Group PLC

Substantial experience in PLCs and the nanomaterials industry

Experienced at delivering successful commercialisation of technology startups

Graphene Nanoplatelet (GNP) materials technology



“The art of the possible” - Making materials even better

Transforming materials performance using graphene nanoplatelet dispersions in real applications

AGM's **real value** is our ability to realize the potential of GNPs in real applications and overcome the industry challenge of successful graphene dispersion

Results:-

- Cost of ownership benefits - reduced corrosion
- Longer service life - extended warranty
- Thinner, more efficient coatings.
- Lower VOC levels possible, enhancing sustainability
- In composites – greater durability and opportunity to engineer material for extended performance



Conventional roof coating



High performance Advantage Graphene roof coating

Courtesy Alltimes Coatings

Investment Summary

Unlocking the potential of Graphene nanoplatelet (GNP) materials technology



Commercializing market-leading graphene dispersion and application technology for:

- Protective coatings
- Composites
- Speciality applications



Primarily addressing a **significant protective coatings market opportunity**, **cost of corrosion problem** and **sustainability potential** using graphene



Patent-protected, patent pending, know-how and trade secret IP for high-quality synthetic GNPs and dispersion / application technology



Long-term pipeline of customer collaborations resulting in continued customer product launch momentum



Active technology and product development roadmap



Standardized products for growth through distributor conduit. **Strong global platform of sales opportunity**



Decade of innovation – successful recent fundraise to fund sales growth

Operational highlights for the period



Strong continued progress made, despite COVID-19 challenges.



Sales momentum growing with existing customers as COVID-19 recedes



New customer product launches - EZ Car Care, Infinity Wax, Blocksil primer, anticipated product with Constellation Chemicals Ltd for Car Care



Car Care sector - acceleration of customer engagements – spray and wax based product formats well aligned to AGM dispersion technologies. Good progress with a number of customers in this area



Pipeline - growth in total number of engagements and resulting revenue potential



Distribution – network increased to enhance our regional presence in Turkey and South Korea. AGM now has c. 79 distributor representatives in USA, Belgium, Japan, Italy, South Africa, Greece, Turkey and South Korea including direct team



Sustainable technology - enabling data in water based epoxy coatings technology published - supports wider addressable market for sustainable low VOC coatings

Financial and strategic highlights for the period



Financial overview

- Revenue £42,000 (2020: £35,000).
- Operating expenses reduced by £0.5 million to £1.7 million (2020: £2.2 million)
- EBITDA* loss of £1.6 million (2020: loss of £1.9 million).
- Cash at bank £2.3 million (2020: £4.3 million)
- Basic EPS loss of 3.3 pence per share (2020: loss of 4.0 pence).

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



Successful fundraise of £5.5 million (net) completed in February 2021, extending the Group's cash runway well into 2023. R&D tax credit of £461,000 received in February 2021



In partnership with REACH Graphene Consortium, achieved ECHA accreditation for volume supply of graphene powder (up to 10 tonnes) in the European Union, removing a significant barrier to deployment at scale



Branding update completed to reflect our ambition for global sales development through an enhanced distributor network



Continuing IP development



Cross-trading of shares in USA on OTCQB from August 2020

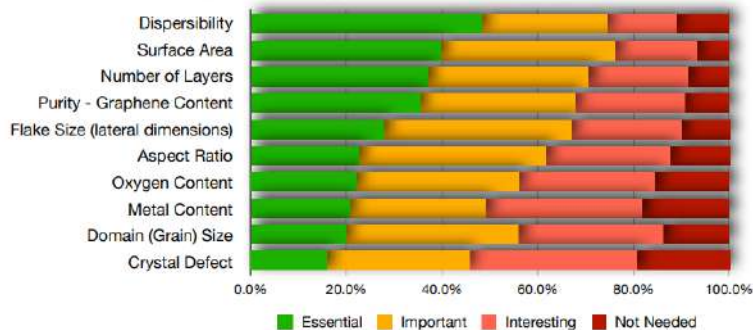
Key benefit - Synthetic Graphene nanoplatelets coupled with dispersion technology



Challenge of deploying Graphene nanoplatelets

Industry need

- Dispersibility
- Quality of platelets



Courtesy The Graphene Council 4 Jan 2021 Survey on attribute importance

Industry Need satisfied by AGM

- ✓ High quality graphene
- ✓ Solid appreciation for selecting viable applications
- ✓ In-depth know-how on use of complex 2D materials in real products
- ✓ Dispersion technology – Standard, easy to use **Genable®** product range



- ✓ Data to demonstrate potential
- ✓ Expertise to share to guide adoption

“The processing and handling of graphene is integral to achieving success in an application (i.e. dispersion techniques). While graphene is widely available, it requires expertise in handling, so working with experts with these skills is critical”

The Graphene Council Survey report 4 Jan 2021

Our GNPs in action

⬡ Pipeline of applications – breadth of opportunity

Anti-corrosion,
erosion, composites
in wind turbines



Satellite – Thermal
management and
low mass



Aerospace performance
advantages for
composites



Anti-corrosion
and Chemical
Resistance for
marine



Aerospace –
Aluminium
corrosion
protection



Offshore harsh
environment
protective
coatings



Battery and Thermal
conductivity for
Electrification of
Vehicles



Enhanced
pipelines
coatings



Heat
management
adjacency



Coatings for
textiles
adjacency



Future development ->



Infrastructure – chemical
resistant floor
coatings



Transportation –
vehicle weight
reduction and anti-
corrosion



Infrastructure –
better coatings for
roof, cladding,
building structure



Anti-corrosion /
Chemical
resistance –
Industrial coatings



Replacement of poor
environmental agents

<- Current opportunity pipeline or technology development activity

Progress in protective coatings

Core focus for near-term commercial traction – strong progress despite pandemic



Continuing to develop a **platform of demonstrable performance gains** with our GNPs specific to anti-corrosion benefits in steel and aluminium coatings



Momentum with established customers

James Briggs Ltd - Repeat sales developing - aerosol-based products sector

- Products under the **Hycote** and **Halfords** retail brands gaining commercial traction
- Continuing development with JBL for additional products



Blocksil - Further product development resulted in approval of a primer product to complement their high-performance **TopCoat MT** coating.



Progress in protective coatings



Core focus for near-term commercial traction – strong progress despite pandemic

Customers using graphene-enhanced products on large-scale commercial projects – greater real life use and visibility for our technology



- **RTE** - antennae towers successfully coated
- **Network Rail** – corrosion refurbishment of trackside enclosures



- Commercial roofing projects – **Wickes and Wilton industrial site**

Growth in activity in the car care sub-sector of protective coatings technology

- Early product launches with **Infinity Wax** and **EZ Car Care** in UK reflect broader opportunity
- Anticipated product launch with Constellation Chemicals end March 2021

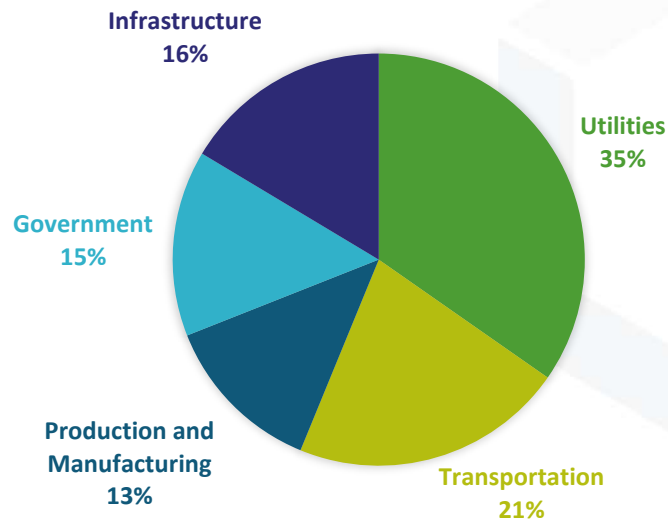


Performance coatings opportunity

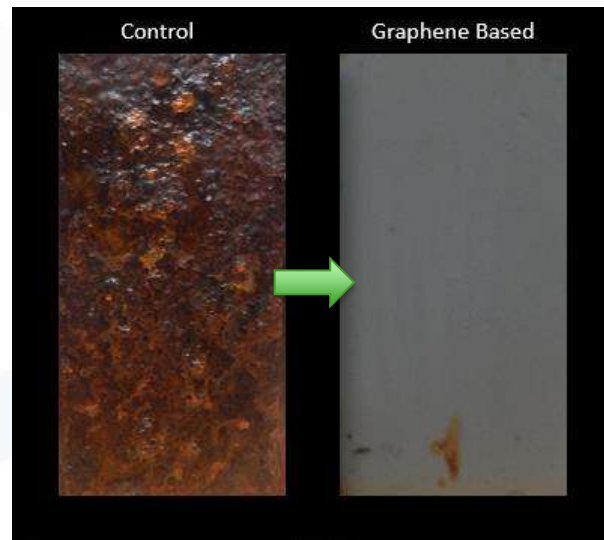
Using graphene to address corrosion cost mitigation



COST OF CORROSION IN INDUSTRY CATEGORIES (\$137.9BN/YR)



Graphene in Coatings – Making materials even better



Graphene potential in life cycle and sustainability dialogue

“Corrosion Costs and Preventive Strategies in the United States” PUBLICATION NO. FHWA-RD-01-156

Progress in composites and functional materials



Ongoing progress, some delays due to COVID-19

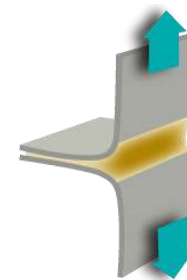
Composites

- Sector activity customer-led, R&D development within this sector is slower and more complex
- Continued success with Infinite Composites Technologies - repeat materials requirements for ultra-cold temperature brittle matrix enhancements
- Sector customers completing iterative testing of our products directly or with their customers
- Some delays in testing due to COVID have been apparent, specifically in the areas of composite tooling and mass transit interior applications.



Functional materials

- Long range nature of product approvals in aerospace continues for TP300 thermal adhesive product - we continue to make good progress with the use of this heat-dissipation material
- Developing further applications for bearings and friction products

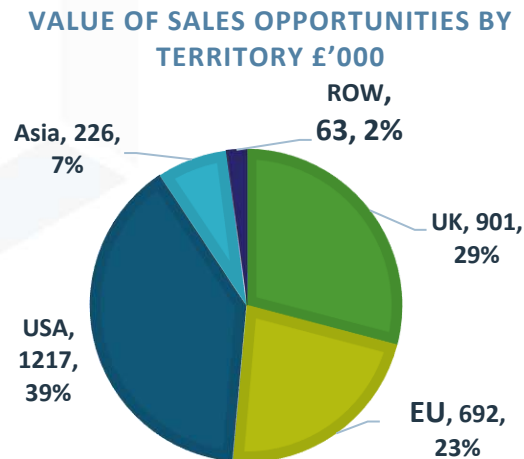
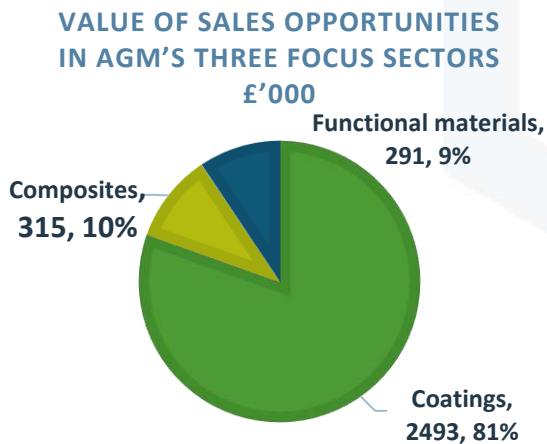


Opportunity pipeline

125 engagements at various stages of cycle of development and 10 developments are complete as at 31 January 2021



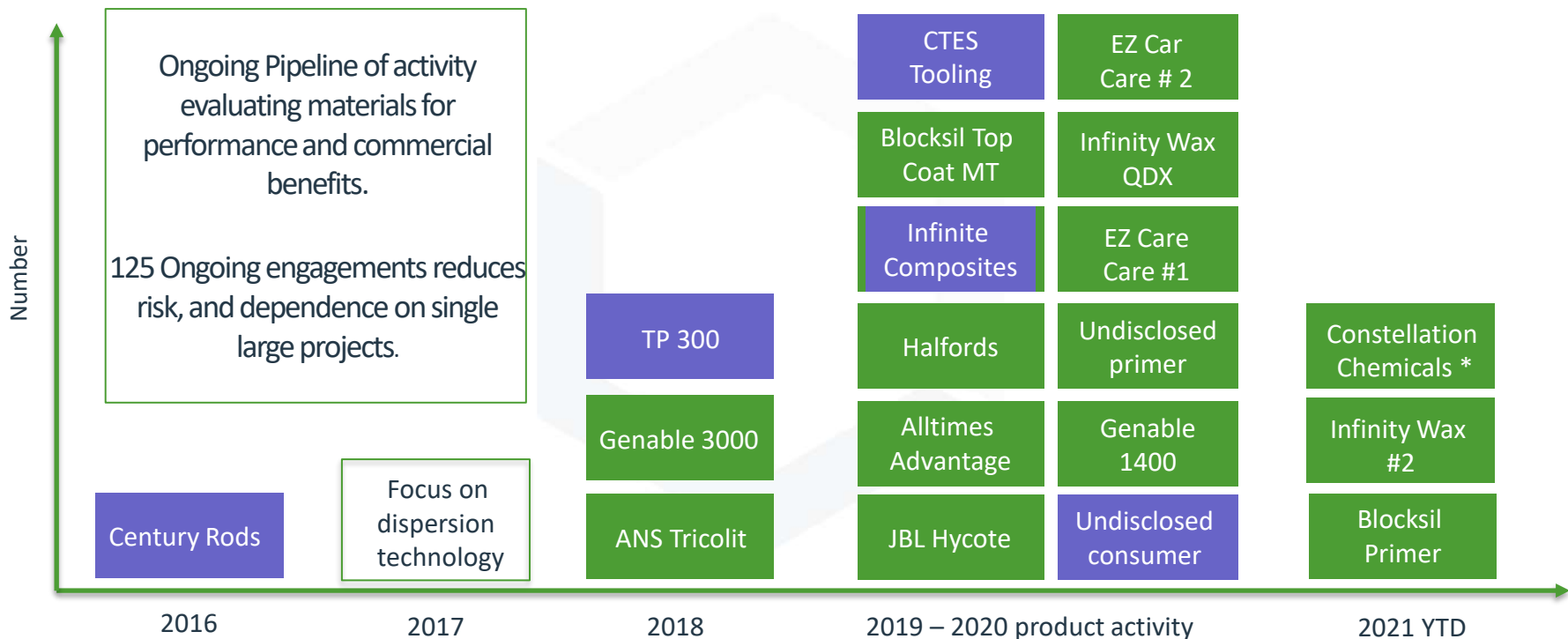
Pipeline Category	Number	£ Value*	Factored £ Value**
Valuation of current opportunity pipeline	125	£7.3m	£3.1m
Completed developments	10	£0.5m	£0.5m



Product pipeline momentum to date



Product and technologies **brought to market**



*Anticipated end March 2021

Standard & Custom Dispersions

Customer product launches resulting from dispersion expertise



AGM Dispersions

Standard Dispersions:



- Distribution conduit with Standard products

Customized Dispersions:

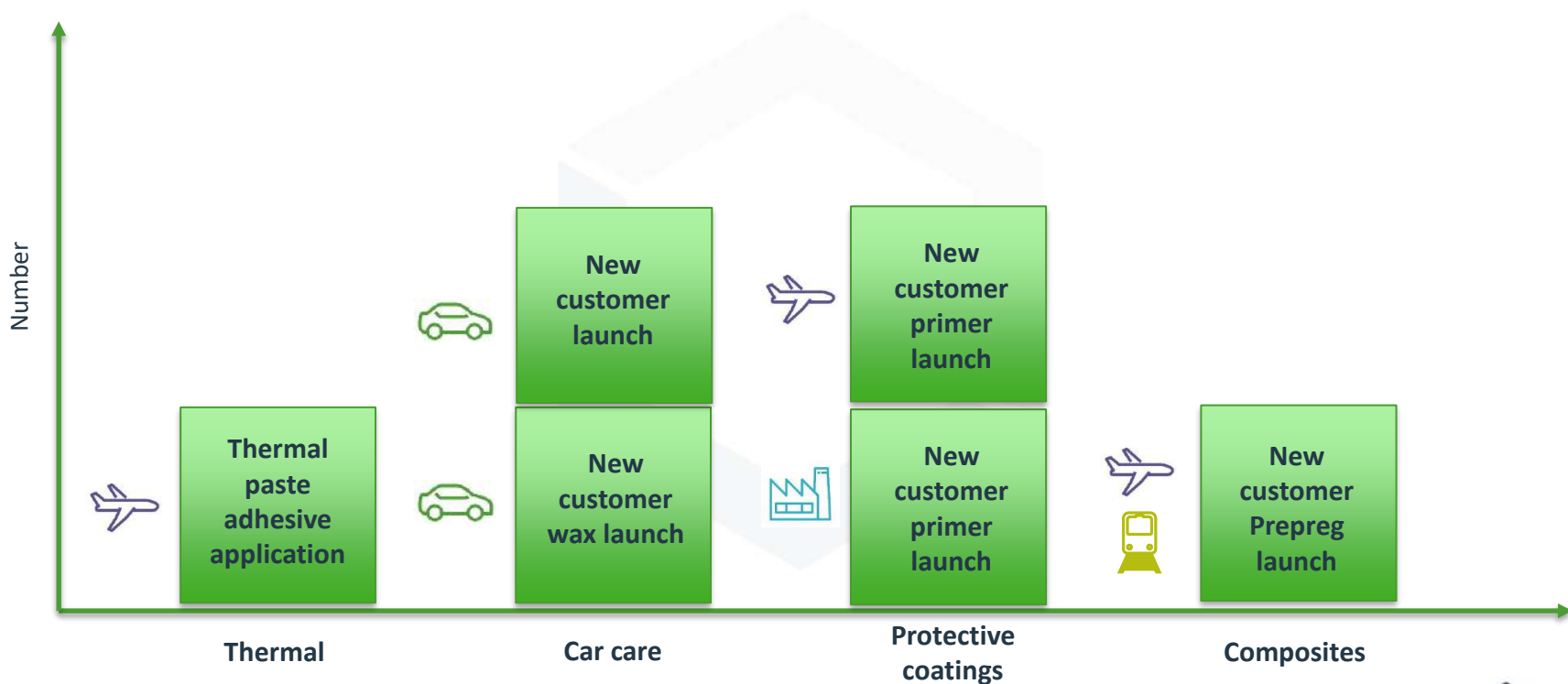
- Customer-specific dispersions to suit application
- Range of host materials which AGM has successfully dispersed GNP into
- Around 200 customized dispersions for customer development trials in the past 2 years

Some of our early customer product and technology applications



Next pipeline product launches

Anticipated nearest term “announceable” project completions



Ongoing IP and Regulatory development



Continued **focus on dispersion** know-how to satisfy a wider range of graphene applications

- Continued progress on **IP protection** through Patent applications and Trademark registration
- A number of patent applications are in process currently at various examination and review stages

Pursuing **regulatory approval** for graphene as a novel materials technology

- ECHA Graphene Consortium approval
- Regional approvals to support distributor sales growth gone well
- Focus on EPA regulatory engagement
- **ISO standards** recently issued will guide the integration of graphene with end users

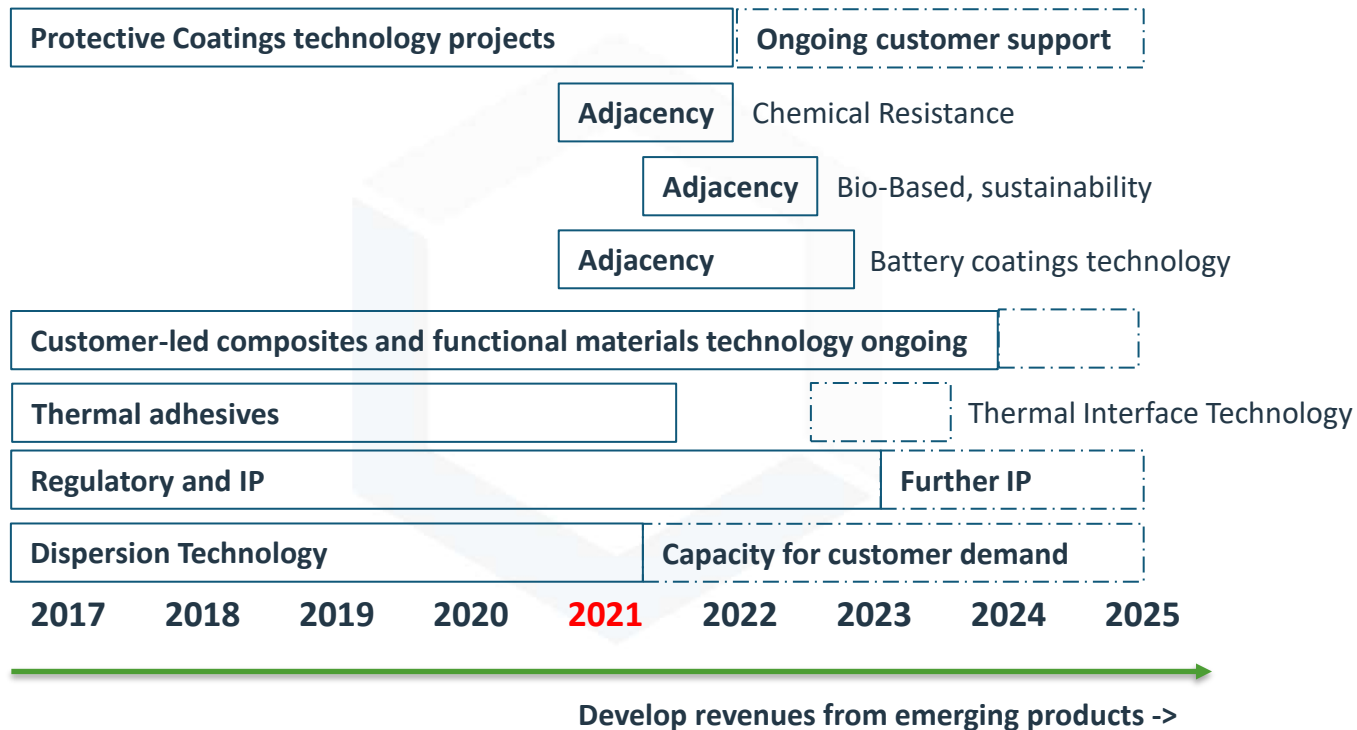
Development of water- based coatings technology

- Despite advances in waterborne solutions, high corrosion-resistant coatings remain largely solvent-based
- AGM **Genable**® 1200 and 1250 dispersions for water-based coatings
- Graphene added into water-based epoxy coatings significantly reduces corrosion damage
- Meeting the needs of paints and coatings manufacturers looking to replace solvents in their formulations to **improve the sustainability of their product ranges**

Technology roadmap



Continuity of technology and operational roadmap



Financials & Operations



Cash Flow Summary

	6 months ended 31 January 2021	6 months ended 31 January 2020
	£'000	£'000
Operating activities		
Net cash used in operations	(1,294)	(2,274)
Net finance income	13	2
Tax received	-	623
Net cash used in operating activities	(1,281)	(1,649)
Investing activities		
Purchase of intangible assets	(93)	(56)
Purchase of property, plant and equipment	(13)	(101)
Net cash used in investing activities	(106)	(157)
Financing activities		
Issue of shares (net of costs)	71	-
Capital element of lease obligations	(74)	-
Interest element of lease obligations	(4)	-
Net cash used in financing activities	(7)	-
Net decrease in net cash and cash deposits	(1,394)	(1,806)
Opening net cash and cash deposits	3,685	6,135
Closing net cash and cash deposits	2,291	4,329



Income Statement Summary

	6 months ended 31 January 2021	6 months ended 31 January 2020
	£'000	£'000
Revenue	42	35
Cost of sales	(146)	(135)
Gross loss	(104)	(100)
Operating expenses	(1,688)	(2,196)
EBITDA	(1,578)	(1,900)
Exceptional costs	-	(168)
Depreciation	(214)	(228)
Operating loss	(1,792)	(2,296)
Net finance expense	(2)	18
Loss on ordinary activities before tax	(1,794)	(2,278)
Tax on loss on ordinary activities	178	300
Loss for period attributable to equity shareholders	(1,616)	(1,978)



Operations

Impact of COVID-19:

- **Minimal impact on technology development though revenues delayed**
- No impact on personnel count; did not need to downsize or lay any employees off
- Continued to sign new distributors and launch new products throughout 2020;
- Continued to work in accordance with government restrictions and guidelines



Cash

Cash runway lasts well into 2023:

- **£5.5 million (net) Fundraise announced in January 2021 and completed in February 2021**
- **R&D tax credit of £461,000 received in February 2021**

Near-Term Success Drivers



Sales team expansion - additional distributors, more regions, larger sales force



Standard innovative product range to support distributor sales



Technology development platform bringing **new product adjacencies** to enable broader customer engagements



Customer products launched validating the coatings technology and product roadmap to market



Product sales stage – visibility of sales from pipeline engagements



Exceptional **Knowledge base and supporting data** – to guide customers to successful outcomes



OTCQB listing completed – access to stock for US investors.



Developing **Sustainability** – water based product, bio-based materials to address environmental challenges in the coatings sector

Summary



Strong commercial and product momentum achieved during the period despite COVID-19 challenges



Momentum building for repeat sales with our established customers in the coatings sector



New customer product launches with particular acceleration in the car care market



Growing IP and offer to meet demand from customers looking for sustainable solutions. Addressing regulatory approval



Broad distribution network with 79 representatives



Cash runway extended well into 2023



Well placed to make strong commercial progress



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Appendix

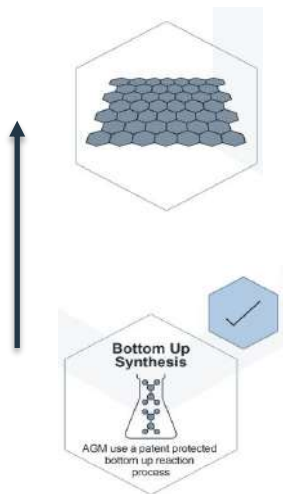
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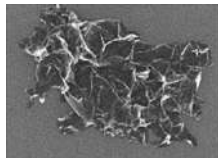
What we do - Synthetic Graphene nanoplatelets



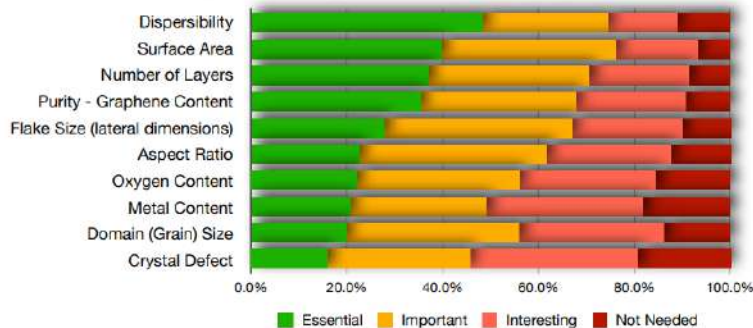
AGM - differentiated synthetic GNP manufacturing.



- GNPs can be produced by molecular growth from small molecular carbon precursors
- Control - Number of layers
- Attributes - Surface area and high C content
- IP - Patented, know how, trade secrets and application experience
- Output - Useful powder additive to a range of applications



Deploying Graphene nanoplatelets



Courtesy The Graphene Council 4 Jan 2021 Survey on attribute importance

Industry need

- Dispersibility – key attribute
- Quality of platelets

What we do – Dispersion and Application



Our USP - Taking graphene nanoplatelet powder and making it useful

AGM Application Technology – Potential to Reality

- ✓ The commercial value of GNPs lies in the ability to **robustly transfer their intrinsic properties into other materials**
- ✓ AGM utilizes differentiated application technology to create both standardized and end-use specific customized solutions for a breadth of applications
- ✓ Our route to revenue – Dispersions into customer products. Ease of use, ease of application.



AGM Dispersions

- AGM - Built on graphene in nanoplatelet form
 - Manufacture of GNPs
 - **Know-how on how to use is critical to success**
- AGM – USP - Know-how to enable GNPs to be:-
 - ✓ Usable in volume
 - ✓ Easier to deploy through dispersion product offering as easy-to-use additives
 - ✓ Commercialisable roadmap for real applications:-
 - Protective & specialty coatings
 - Composites
 - Specialty applications



The processing and handling of graphene is integral to achieving success in an application (i.e. dispersion techniques). While graphene is widely available, it requires expertise in handling, so working with experts with these skills is critical

The Graphene Council Survey report 4 Jan 2021

Continued Geographical Expansion



60+ representatives focused on selling our products worldwide through distributors

Platform of product maturity, demonstrable performance advantages. Business model for distribution of standard dispersions

Maroon LLC (USA), **Arpadis Benelux NV** (Belgium), and **Will & Co** and established agreements with – **Inabata** (Japan), **CAME** (Italy), **Carst and Walker** (South Africa), **Dichem** (Greece), **Gobarr** (Turkey), **ManHo Polymer** (Sth Korea).



M MAROON GROUP

- North America coatings market focus.
- Strengthens AGM's presence in the United States and Canada
- Maroon Group - decades of experience and leading expertise in additive sales and customer service
- Well placed to grow sales at this early stage of the graphene market development
- Exclusive agreement



ARPADIS

- Strengthens supply position across the United Kingdom, Germany, Spain, France, Portugal and Scandinavia
- Exclusive agreement in all regions apart from the United Kingdom
- Work in parallel with AGM's UK sales team to further strengthen existing relationships and develop the sales pipeline



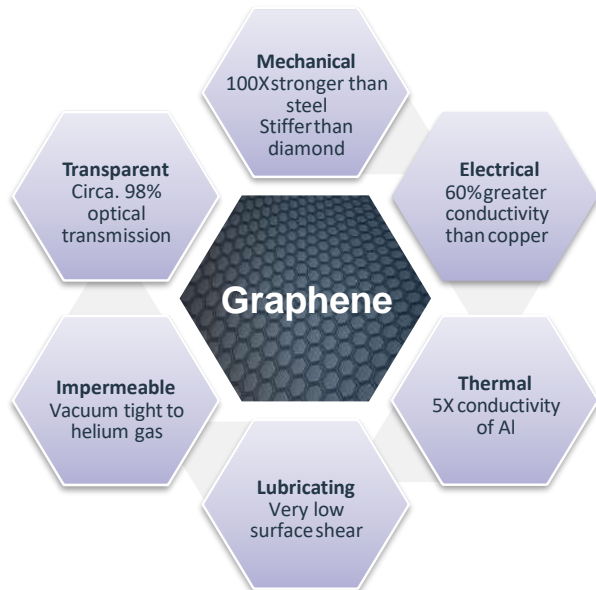
will&co®

- Supply position across The Netherlands, Belgium, and Luxembourg
- Exclusive agreement

Potential of Graphene



Key Properties



Brief history

- First isolated in 2004 by researchers at University of Manchester
- Nobel Prize 2010
- Following initial hype cycle, graphene has now reached a commercial reality, resulting in a sharp increase in customer projects and applications
- AGM AIM IPO 2013



AGM Application Technology – Potential to Reality

- The commercial value of graphene nanoplatelets lies in the ability to **robustly transfer their intrinsic properties into other materials**, thus creating higher value materials and products which possess specifically enhanced characteristics
- AGM utilizes differentiated application technology to create both standardized and end-use specific customized solutions for a range of applications

A decade of innovation



2010 – c. 2017
Powder technology



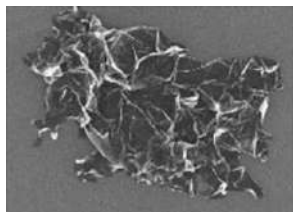
2017 -> Dispersion
Technology



2018 -> Customer product
performance transformation



2019 -> Customer
products



Development of GNP
powder range through
“bottom up” synthesis
process

Scaling of powder

Dispersion Technology
development

Clarity on deployment of
graphene nanoplatelets in
real applications

Strategy for core markets

Development of standard
product range



Graphene-
Based

Application
Technology
development

Development of broad
database on GNP
impact on anti-
corrosion
performance

Customer products
come to market
containing AGM GNP
Dispersions



Customer Case Study -

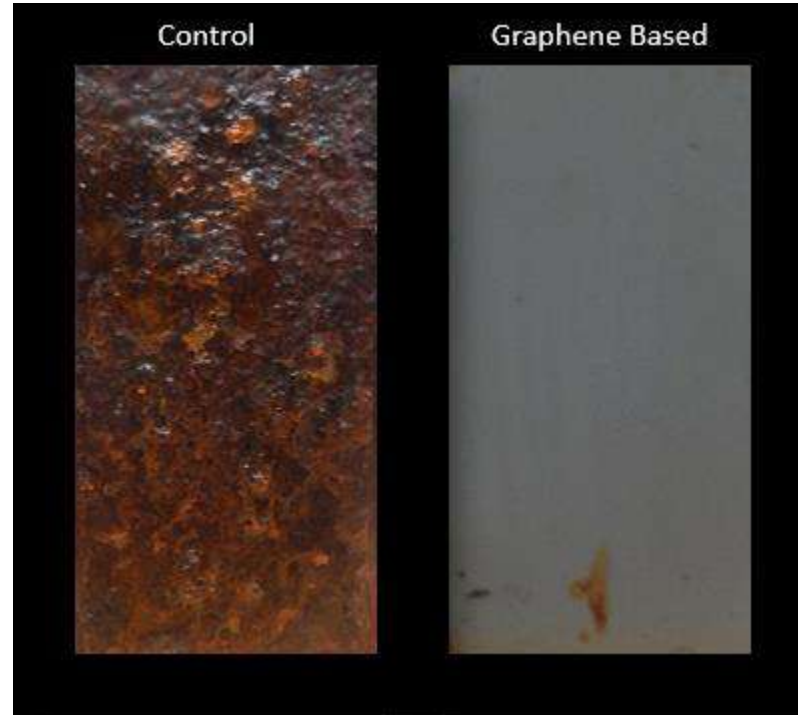


Graphene nanoplatelets for improved anti-corrosion aerosol coatings



CHALLENGE

- Improve anti-corrosion performance of sprayable primer for automotive applications
- Maintain processibility
- Ensure safe application for consumer market



SOLUTION THROUGH MATERIALS ENGINEERING

- 300% improvement in corrosion endurance performance
- Ease of manufacture using GNP dispersions
- Sprayable primer coating
- Safe use demonstrated
- Customer products launched into retail sector
- Building commercial traction



Source:- AGM test report, JBL

Customer Case Study -



Graphene nanoplatelets for lighter, stronger, cost effective composites for space

CHALLENGE

- Linerless composite tanks the holy grail of gas storage for space applications
 - Weight
 - Cost
 - Lead time
 - Performance
- Potential - launch vehicles and satellite applications with ultra-lightweight storage tanks
- NASA programs such as Artemis and Lunar Gateway
- Next generation cryogenic pressure tanks a key technology to enable USA to maintain space superiority

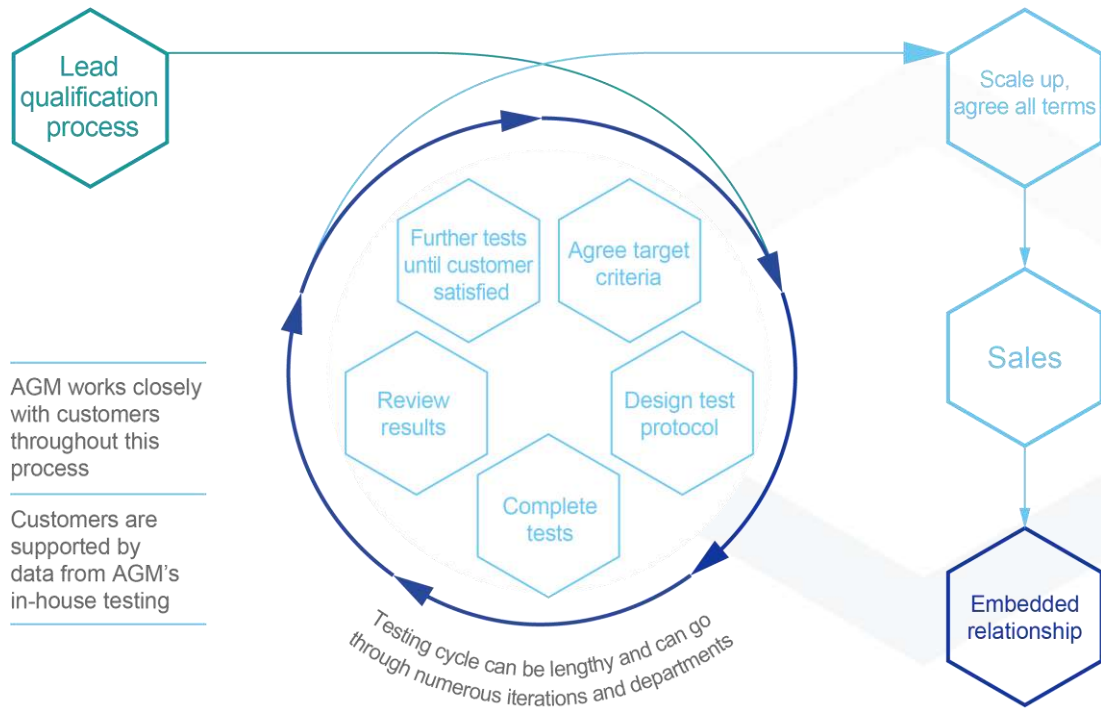


SOLUTION THROUGH MATERIALS ENGINEERING

- Liner removed through a combination of materials engineering with GNP's, manufacturing process design and assembly design.
- AGM GNP custom dispersions integrated into linerless composite matrix of pressurized tanks
 - Mass reduced 40%
 - Cost reduced 50%
 - Lead time reduced 80%
 - Enables tanks to be taken to higher pressures. 5000psi gas storage capable
 - Simulated 20 years life – composite gets stronger over the pressure cycles with GNP addition
 - Potential for Space, Aviation, Transportation and Industrial

Source:-<https://youtu.be/ZIBDyt76PUg>
<https://www.infinitecomposites.com/post/pressure-vessel-composite-materials-market-forecast-2020-2025>

AGM Standard Sales Cycle



AGM works closely with customers throughout this process

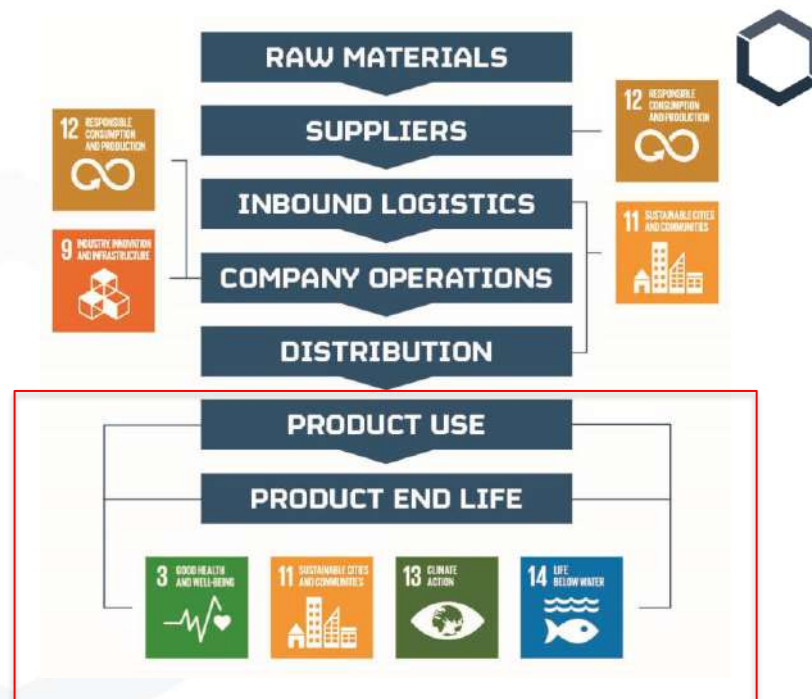
Customers are supported by data from AGM's in-house testing



Case Study

- Engagement - potential of GNPs as a product enhancer for construction coatings
- Targets agreed; Testing work and formulation carried out at AGM using extensive facilities
- Results - **exceed expectations** for anti-corrosion performance for infrastructure applications; Warranty extension increased by Alltimes from **20 to 30 years**
- Approval - Blocksil materials approved for use by Avanti and RTE for communications network refurbishment. Alltimes CPD leading to customer approvals
- Revenue - applications expected to start with coronavirus lockdown easing
- Partnership - further product development

Sustainability possibilities



AGM's dispersions can enable protective coatings companies to reduce the environmental impact and improve the safety of their products through replacing harmful additives

Coatings Market info

Paints and Coatings Industry



2017 2018 2019 2020 2021 2022 2023 2024 2025 2026

\$38.7Bn



Coatings resins market

\$48.8Bn

CAGR 4.7%



Graphene nanoplatelets added to coatings to add or enhance their specific properties such as corrosion resistance, wear resistance and conductivity



Addressable market for Industrial Coatings c. 34% of Global Paint and Coatings Demand in Q3 2020***

Global Paints and Coatings Market anticipated to reach **\$220Bn** by 2027**

Top 40 coatings manufacturers represent **approx. £90Bn** Revenues*

Near term access with innovative coatings companies to demonstrate successful adoption of graphene nanoplatelets

* Source: Coatings World July 2020

** Source: https://www.coatingsworld.com/contents/view_market-research/2020-10-12/coherent-market-insights-paint-and-coatings-market-to-surpass-220-billion-by-2027/

*** Source: https://www.coatingsworld.com/contents/view_market-research/2020-11-09/growth-for-the-global-paints-and-coatings-market-in-q3-2020/

Dispersion

Commercial Pipeline



Stage of Development

Approval Time

Total

Pipeline of activity evaluating materials for performance and commercial benefits



Aerospace corrosion,
Industrial protective coatings,
Aerospace and mass transit
composites



Aerospace thermal
adhesives, Car care paint
protection project

Agreement on scope
of sampling and
engagement

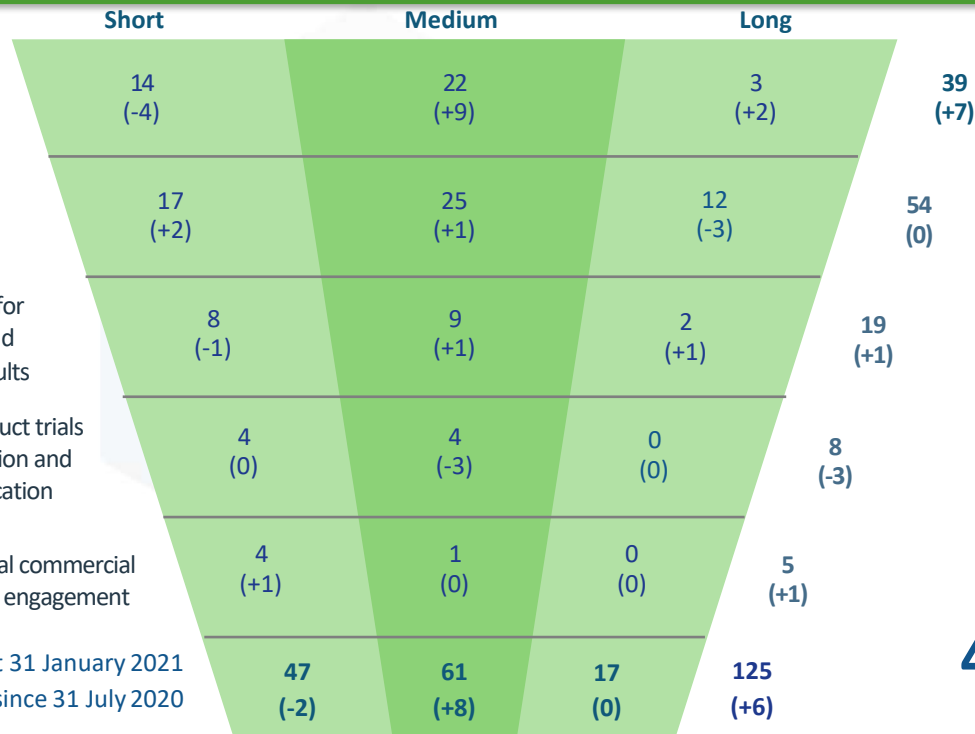
Initial testing and
interpretation
of results

Repeat testing for
consistency and
review of results

Final product trials
formulation and
specification

Final commercial
engagement

Total at 31 January 2021
Movement since 31 July 2020



4 Customer projects completed since 31 July 2020 and transitioned from pipeline

Major Shareholders



As of 30 January 2021, Applied Graphene Materials had in issue 49,704,292 Ordinary Shares of 2 pence each; No shares are held in treasury

Shareholder	% Holding
IP Group	14.83
Hargreaves Lansdown Stockbrokers	12.86
Herald Investment Management	9.35
Interactive Investor	5.69
HSDL Stockbrokers	4.66
North East Finance	4.16
Eden Tree Investment	3.00
University of Durham	2.48

Shareholder - Directors	% Holding
Professor Karl Coleman	3.58
Dr Bryan Dobson	0.27
Adrian Potts	0.14
Sean Christie	0.07
David Blain	0.07
Mike Townend	0.05

A further 14.6m ordinary shares of 2 pence each were issued in February 2021 at a price of 41p each raising £5.5 m (net). Directors invested £71,000 in the fundraise.

Patents granted and pending



	Number	No. of countries in which granted	Patents pending
Total granted	3	15	
Pending	9		Various stages throughout various territories



CONTACT INFORMATION

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