EDISON

Spotlight - Update

Applied Graphene Materials

Tech hardware & equipment

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Addressing complementary markets

Supply chain issues affecting the global coatings industry meant that although Applied Graphene Materials' (AGM) H122 revenues were similar to those in H121, they were below management expectations, leading the company to moderate its full year expectations. Nevertheless, the company made progress on multiple projects during the period, strengthening its position by taking it into complementary markets.

Issues in the broader supply chain hit revenues

At £46k, H122 revenues were similar to H121 (£42k) but lower than H221 (£81k) because of supply chain issues within the coatings industry, which took resources away from new product development. EBITDA losses widened by 9% year-on-year to £1,723k as a result of rising utility costs and a small increase in staff numbers. Net cash (excluding IFRS 16 lease liabilities) reduced by £2.1m during H122 to £4.2m at the period end. Management estimates that this gives a cash runway beyond January 2023, potentially enabling AGM to convert the opportunity pipeline into meaningful annual revenues during the intervening period.

Expanding into complementary markets

AGM made meaningful progress on its pipeline during the period, with five customer projects reaching completion. As a result, AGM has potential for growth from multiple sources: it intends to launch a chemical resistant coatings portfolio in April; its anti-corrosive dispersions for use in extremely harsh environments are currently being trialled on a section of the UK's coastal defences; an undisclosed US customer in the car care market is expected to launch a graphene-based product range 'imminently'; it is awaiting formal customer approval for the conductive coating developed to reduce losses from power transmission line connectors; and customer Infinite Composites is increasing its build-rate of tank systems using AGM's dispersions.

Scenario analysis

The scenario analysis in our September note extends to annual revenues of £25m, which is a very small proportion of the total global protective coatings market (2021: US$12,220m). Our analysis shows that the pipeline at end H122 (£3.2m on a probability weighted basis) is not sufficient to take AGM to cash break-even, which would be reached, in our view, at annual revenues of around £10m.

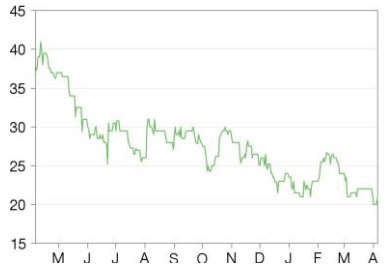
Historical results and consensus estimates

Year end	Revenue (£m)	EBITDA (£m)	PBT* (£m)	EPS* (p)	DPS (p)	P/E (x)
07/19	0.1	(4.6)	(4.8)	(7.9)	0.0	N/A
07/20	0.1	(3.1)	(3.5)	(6.1)	0.0	N/A
07/21	0.1	(3.2)	(3.6)	(5.6)	0.0	N/A
07/22e	0.1	(3.7)	(4.1)	(5.8)	0.0	N/A

Source: Company accounts. Note: *PBT and EPS are normalised, excluding amortisation of acquired intangibles, exceptional items and share-based payments.

Price	20.88p
Market cap	£13m

Share price graph



Share details

Code	AGM
Listings	AIM, OTCQX
Shares in issue	64.3m
Net cash at end January 2022	£4.2m

Business description

Applied Graphene Materials develops graphene dispersions that are used by customers to enhance the properties of coatings, composites and functional materials. It also manufactures high-purity graphene nanoplatelets using readily available raw materials instead of graphite.

Bull

- Understanding of dispersion technology enables AGM to support customers developing commercial applications.
- Standardisation of some graphene dispersion products reduces length of sales cycle.
- Introduction of AGM's own anti-corrosion primers reduces dependence on customers incorporating dispersions in their own coatings and selling the end-products themselves.

Bear

- Revenue development dependent on success of individual customer product launches.
- Extensive testing required prior to customer acceptance.
- Supply chain challenges diverting customer attention from new product formulation.

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Edison profile page

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H122 performance affected by COVID-19 and supply chain issues

At £46k, H122 revenues were similar to H121 (£42k) but lower than H221 (£81k). Although the coronavirus related restrictions that adversely affected H121 eased during H221, in H122 customers in the coatings industry struggled with a combination of COVID-19 related personnel absences and a lack of availability of basic raw materials including resins, solvents and additives such as titanium oxide. This meant that customers were focused on supply chain management, which pulled R&D resources from creating new products incorporating AGM's graphene dispersions to evaluating alternative source materials for established products. As a result, revenues from the supply of dispersions for evaluations were lower. In addition, the revenues relating to customer products launched in FY21 and early H122 were modest, reflecting the relatively small size of these customers.

Exhibit 1: H121, H221 and H122 P&L summary

£000s	H121	H221	H122	Notes
Sales revenue	42	81	46	Production orders of graphene and evaluation quantities of graphene to commercial partners
Cost of sales	(146)	(217)	(278)	Including utility costs and some staff costs
Gross loss	(104)	(136)	(232)	Negative gross margin as very low levels of utilisation
Normalised operating expenses	(1,407)	(1,471)	(1,451)	
Share-based payments	(67)	35	(40)	
EBITDA	(1,578)	(1,572)	(1,723)	
Depreciation and amortisation	(214)	(195)	(183)	
Reported operating loss	(1,792)	(1,767)	(1,906)	
Finance costs (net)	(2)	(4)	0	
Reported loss before tax	(1,794)	(1,771)	(1,906)	
Tax	178	213	207	Accrued R&D tax credits.
Reported loss after tax	(1,616)	(1,558)	(1,699)	
Adjusted EPS (p)	(3.3)	-	(2.6)	Dilutive impact of funds raised in January 2021

Source: Applied Graphene Materials accounts

EBITDA losses widened by 9% compared to H121 to £1,723k and by 10% compared to H221. Operating expenses (adjusted for share-based payments) were similar to both H121 and H221. However the cost of sales jumped by £132k compared to H121 to £278k as a result of rising utility costs and a small increase in staffing numbers.

Cash runway extended beyond January 2023

Net cash (there was no debt and excluding £7k IFRS 16 lease liabilities at end H122) reduced by £2,094k during H122 to £4,214k at the period end. Investment in tangible assets including the capital element of lease obligations was similar to H121 and H221 at £106k. £74k was invested in intangibles related to patents as all R&D is expensed. The cash outflow included a £231k increase in working capital, primarily a reduction in payables, which were unusually high at the end of FY21. Management reiterated its view that the company's cash runway extends beyond January 2023, potentially enabling it to convert the opportunity pipeline into meaningful annual revenues during the intervening period.

Commercial progress

An examination of AGM's sales pipeline shows that AGM is continuing to work with its customers to progress graphene enhanced products through to launch. Five projects were completed during H122 compared with nine in H221 and two in H121. The five projects completed in H122 included three car care products, Stanvac-Superon's conductive coating (see below) and a project with Infinite Composites. The rate of customer launches was slower than in H121 because of the wider

problems affecting the coatings market referred to above. The pipeline at the end of H122, including launched products, represented £3.2m in annualised revenues on a probability-weighted basis. This is lower than the value calculated at the end of FY21 because several projects have been discontinued and the sales opportunity relating to completed projects has been revised downwards to reflect recent sales experience and the ongoing difficult trading environment.

Exhibit 2: Pipeline development

Date	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 agreement	Completed (cumulative)	Total	Value*
End H122	74	60	13	15	6	24	192	£3.2m*
End FY21	79	70	15	9	8	19	200	£3.7m
End H121	39	54	19	8	5	10	135	£3.7m
End FY20	19	57	18	12	3	8	115	£3.6m
End H120	12	45	14	13	8	5	92	£2.9m

Source: Applied Graphene Materials data. Note: *Value of projects at development stages 1–5 is probability weighted. Value of completed projects is at full sales opportunity.

Significant customer developments since the start of FY22 include:

- **Development of highly conductive coating**: Stanvac-Superon, which is a large manufacturer and exporter of welding consumables, protective coatings, aerosol sprays and stainless steel wires, has introduced a speciality conductive coating incorporating AGM's Genable dispersed graphene materials, which has been formulated for use on industrial power transmission equipment. The inclusion of AGM's graphene dispersions means that the contact power loss in copper and aluminium electrical cable joints that are coated with Stanvac-Superon's new graphene-enhanced protective coating is 30–50% less. This offers significant energy savings over time. The first customer application is well underway and Stanvac-Superon expects it to be approved shortly. Stanvac-Superon intends to offer the product to customers in the power transmission, electrical distribution and railway industries, as well as other high energy consumers such as steel mills, smelters and refineries. The product will be sold in India and across Stanvac-Superon's export network of 70 countries.
- **Opening a complementary route to market for anti-corrosion coatings**: AGM has incorporated its proprietary graphene nanoplatelets material in two new prototype paint systems: one is a primer suitable for standard applications such as urban and industrial environments, the other a primer for harsh environments such as offshore and marine applications. These product introductions are a significant step for AGM because up to now the company's route to market has been primarily through the sale of dispersions of graphene nanoplatelets to paint and coatings manufacturers. These manufacturers use the dispersions to enhance the properties of their paints and coatings, which they sell to end-users. The two new primers present a complementary route to market that enables end-users considering the adoption of graphene to test and evaluate its potential benefits quickly by applying a ready-made formulation from AGM itself. Management expects that these new Genable primers will accelerate adoption of its products in the protective coatings space. AGM is working closely with the UK Environment Agency (UKEA), which is currently trialling AGM's graphene-based primers on sample structures forming part of an extensive network of coastal defences in the north-east of England. AGM is currently working on a top coat to complement the primer product for the UKEA.
- **Protective floor coatings application represents a bridgehead into the anti-chemical corrosion segment**: AGM is working with a leading floor coatings manufacturer on protective barrier floor coatings for concrete. The customer has completed the test phase and is now planning its marketing campaign for the product. AGM intends to use the data collected during the test phase to address other applications where a chemical resistant coating is required, including pipelines, transportation vessels and storage tanks. Based on this data, it expects to launch a chemical resistant coatings portfolio in April.

Scenario analysis

The scenario analysis presented in our September note extends to annual revenues of £25m, which is a very small proportion of the total global protective coatings market (US$12,220m in 2021, according to Mordor Intelligence). While higher revenues are possible, we have not presented those because AGM has yet to achieve product approval with any of the larger players in the protective coatings market, which management notes are highly conservative, and the projects in the aerospace sector have not yet reached the commercial stage. Our analysis shows that, even if AGM were able to convert the probability-weighted sales opportunity of £3.2m in annualised revenues within a year, this would not be sufficient to take AGM to cash break-even, which we estimate can be reached at annual revenues of c £10m. We note AGM will require additional capital investment of c £2m to support £10m of revenues.

Exhibit 3: Financial summary

£'000s	2018	2019	2020	2021
Year end 31 July	IFRS	IFRS	IFRS	IFRS
INCOME STATEMENT				
Revenue	77	50	83	123
Cost of Sales	(250)	(472)	(215)	(363)
Gross Profit	(173)	(422)	(132)	(240)
EBITDA	(3,984)	(4,559)	(3,084)	(3,150)
Normalised operating profit	(4,295)	(4,902)	(3,530)	(3,559)
Amortisation of acquired intangibles	0	0	0	0
Exceptionals	(307)	0	(168)	0
Share-based payments	0	0	0	0
Reported operating profit	(4,602)	(4,902)	(3,698)	(3,559)
Net Interest	57	67	33	(6)
Profit Before Tax (norm)	(4,238)	(4,835)	(3,497)	(3,565)
Profit Before Tax (reported)	(4,545)	(4,835)	(3,665)	(3,565)
Reported tax	1,046	908	476	391
Profit After Tax (norm)	(3,192)	(3,927)	(3,021)	(3,174)
Profit After Tax (reported)	(3,499)	(3,927)	(3,189)	(3,174)
Minority interests	0	0	0	0
Net income (normalised)	(3,192)	(3,927)	(3,021)	(3,174)
Net income (reported)	(3,499)	(3,927)	(3,189)	(3,174)
Basic average number of shares outstanding (m)	42.7	49.4	49.4	56.4
EPS - normalised (p)	(7.5)	(7.9)	(6.1)	(5.6)
EPS - normalised fully diluted (p)	(7.5)	(7.9)	(6.1)	(5.6)
EPS - basic reported (p)	(8.2)	(7.9)	(6.4)	(5.6)
Dividend (p)	0.00	0.00	0.00	0.00
Revenue growth (%)	N/A	(35.1)	66.0	48.2
Gross Margin (%)	N/A	N/A	N/A	N/A
EBITDA Margin (%)	N/A	N/A	N/A	N/A
Normalised Operating Margin	N/A	N/A	N/A	N/A
BALANCE SHEET				
Fixed Assets	1,959	1,800	1,696	1,702
Intangible Assets	78	155	276	427
Tangible Assets	1,881	1,645	1,420	1,275
Investments & other	0	0	0	0
Current Assets	11,111	7,681	4,522	7,090
Stocks	56	52	74	93
Debtors	197	171	281	276
Cash & cash equivalents	10,443	6,135	3,685	6,308
Other	415	1,323	482	413
Current Liabilities	(949)	(993)	(929)	(1,097)
Creditors	(949)	(993)	(908)	(1,023)
Short term borrowings	0	0	0	0
Finance leases	0	0	(21)	(74)
Long Term Liabilities	0	0	(4)	0
Long term borrowings	0	0	0	0
Lease liabilities	0	0	(4)	0
Other long term liabilities	0	0	0	0
Net Assets	12,121	8,488	5,285	7,695
Minority interests	0	0	0	0
Shareholders' equity	12,121	8,488	5,285	7,695
CASH FLOW				
Op Cash Flow before WC and tax	(3,984)	(4,559)	(3,084)	(3,150)
Working capital	(12)	68	(199)	99
Exceptional & other	44	376	(182)	32
Tax	631	0	1,316	461
Net operating cash flow	(3,321)	(4,115)	(2,149)	(2,558)
Capex	(319)	(193)	(342)	(218)
Acquisitions/disposals	0	0	0	0
Net interest	0	0	41	(6)
Equity financing	9,375	0	0	5,552
Dividends	0	0	0	0
Net Cash Flow	5,735	(4,308)	(2,450)	2,770
Opening net debt/(cash) - excluding lease liabilities	(4,708)	(10,443)	(6,135)	(3,685)
FX	0	0	0	0
Other non-cash movements	0	0	0	(147)
Closing net debt/(cash) -excluding lease liabilities	(10,443)	(6,135)	(3,685)	(6,308)

Source: Company accounts

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