

February 2022

INTERIMS RESULTS REVIEW

Period Ending December 2021

Keith Broadbent	CEO
Mark Chapman	CFO



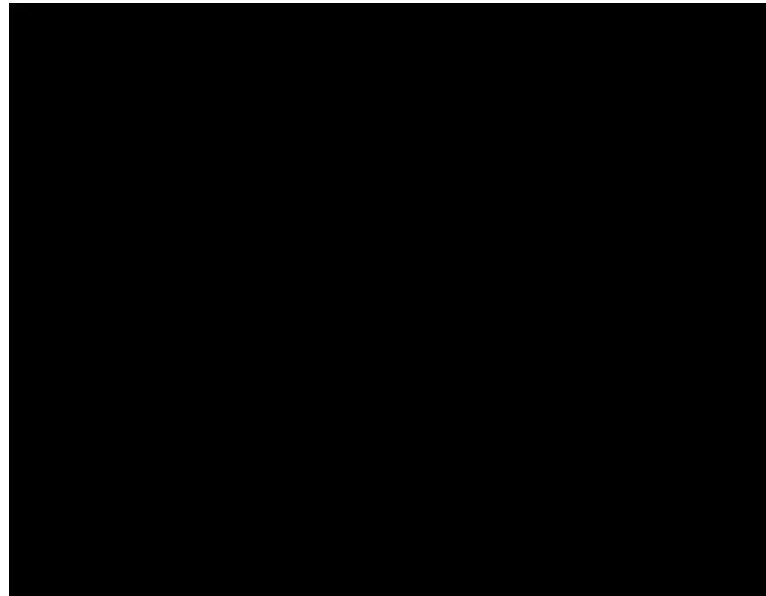
Our Aim



"To be a world leader in the revolutionary development of plasma functionalisation of advanced performance-enhancing materials and nanomaterials across all industry sectors, providing cutting-edge technological solutions to improve people's life experience."

Haydale HDPlas™

What we do and What it looks like



Functionalisation in Action

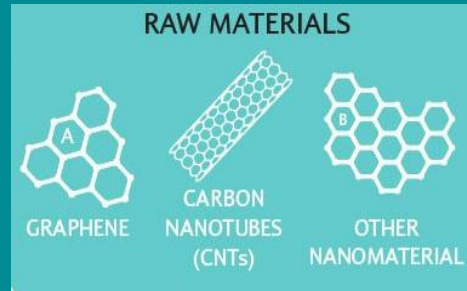
The ability to **chemically change** the surface of materials and nanomaterials through an environmentally friendly powder in / powder out plasma process resulting in a number of **major potential end product benefits including:**

- Increased mechanical strength - improved impact resistance on plastic panels.
- Increased electrical conductivity - inks that test diabetes and uric acid.
- Increased thermal conductivity - graphene/boron nitride films in mobile phones.
- Enhanced dispersibility - Graphene is inert and doesn't mix / disperse well).



Patented Technology

NANOMATERIALS	FUNCTIONALISATION	IMPROVEMENTS	PROD TYPES	INDUSTRIES
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ELECTRICAL
CONDUCTIVITY



MECHANICAL
STRENGTH



THERMAL
CONDUCTIVITY



Composites



Functional
Inks



Composites



Elastomers



Composites



Composites



Coatings



Our Business Model

Nano Materials

- **Sell functionalised nano materials / masterbatches** direct to customers - powders and masterbatches
- **Sell finished goods containing functionalised nano materials** direct to customers such as inks
- **Sell HDPlas™ Plasma Reactors** to customers with major commercial volume applications, **licence** the patented technology and collect **royalty payments**.

Silicon Carbide

- **Sell Silicon Carbide powders** direct to customers – commercial volumes underway (tooling for Aerospace).
- **Sell Silicon Carbide blanks and tools** direct to customers – moving up the value chain.
- **Sell goods containing Silicon Carbide powders** – diversified into CeramycGuard™ and the building / water industry.

Haydale – In a nutshell



5 sites worldwide
Head office - Wales

FY22 Interim Highlights

- **Viritech** - MoU signed in September to assist in the development of hydrogen powertrain technologies, encompassing Haydale's experience in composite design and technology.
- **Promake** - Continuing to support and develop the next generation of smart medical diagnostic devices using graphene enhanced components.
- **Airbus** - Joint patent application announcement in August 2021. Haydale now working to further enhance its electrically conductive pre-preg material for lightning strike protection and other applications.
- **Heater Ink Garments** – now working with commercial parties to bring our heater ink technology used in garments worn by medal winning athletes in Tokyo to a wider market.
- Using Haydale's functionalised GNP's, iCraft have developed a next generation anti-bacterial coated fabric, THERMiT™, which was supplied to South Korean sports apparel brand, Pro-Specs, for use in a new graphene-enhanced jacket.

Post Period Highlights

- Agreement with High Tech Systems Ltd to supply functionalised Boron Nitride into a thermally conductive fluid for domestic and industrial heating systems.
- PATit™ and CeramycGuard™ shortlisted for British Engineering Excellence Awards in the Materials Application of the Year category.
- A biomedical ink that is being developed for the rapid diagnosis market has been shortlisted for an innovative Kidney MedTech Competition for transformational technologies organised by Kidney Research UK.
- Award of a Smart Cymru grant of £169,000 by the Welsh Government to support the further development of the PATit™ Anti-counterfeiting solution.
- Progress on commercialisation of elastomers in footwear continues:
 - A large South American customer is to manufacture 1,600 pairs of shoes to test market demand;
 - We remain optimistic that others will move to second stage testing during the calendar year.

Technical Progress Leading to more commercialisation

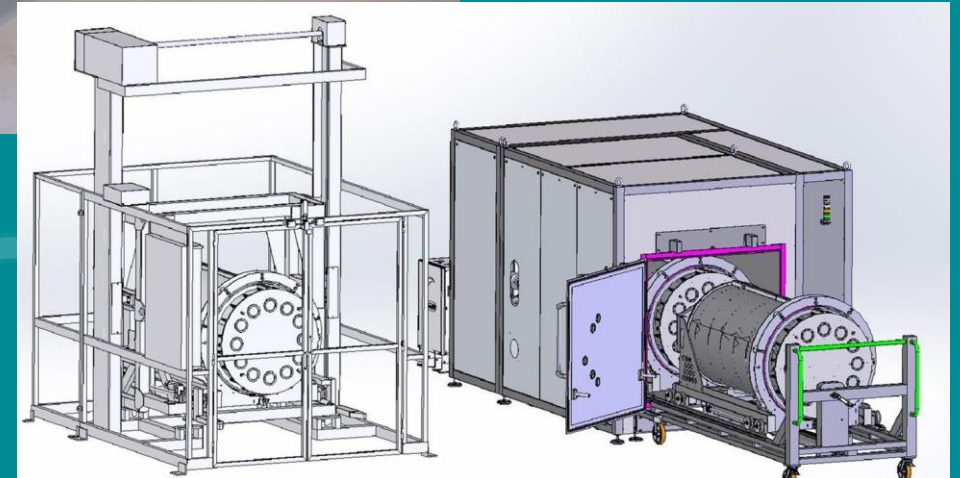
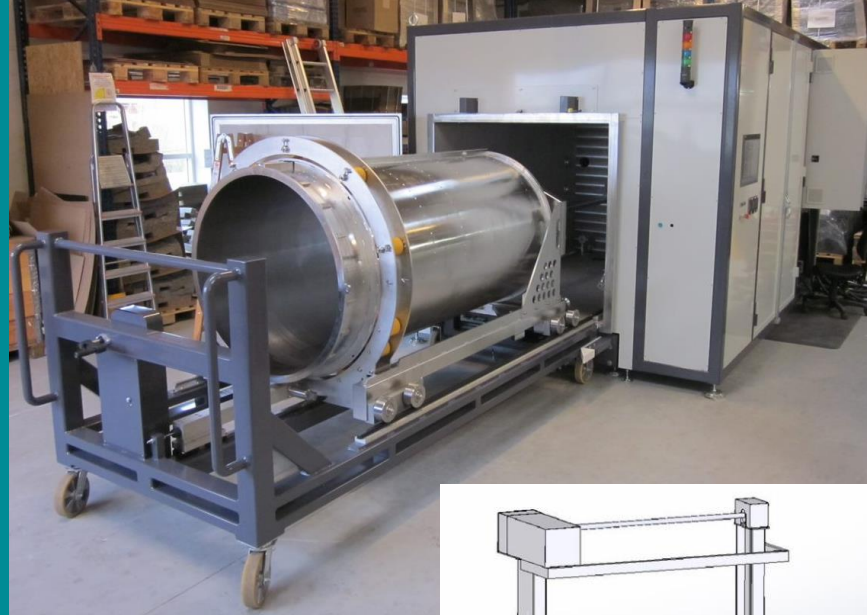
- Further development of Plasma process includes pulse transformer which facilitates additional surface chemistry bonding – **Patent submitted.**
- Recently developed the technology to allow for liquid dosing which will enable many other elements to be added to the surface chemistry of nano particles – **Patent submitted.**
- An extension to the plasma bonding process involves the potential next stage of incorporating a heated/cooled barrel – **Patent submitted.**
- Functionalizing new materials such as Boron Nitride which has a large established market - Hi-Therm.
- The development of Uric Acid measurement potential for the Haydale biomedical ink gives a potential new access into the medical sensor market.

Building Success

The delivery of the HT1400 reactor will build on Haydale's current manufacturing capabilities.

Increased capacity will support functionalised materials into products such as:

- Elastomers – Footwear & Tyres
- Biomedical Inks – Blood Glucose, Kidney Disease & Uric Acid
- Boron Nitride – Thermal Fluids
- Smart Clothing – Anti-Bacterial Apparel & Heated Garments



CeramycGuard

CeramycGuard surface layer technology using Haydale's Proprietary Silicon Carbide (SiC) material addresses a long-standing issue of concrete erosion.

This unique technology is NOT a coating but a **Ceramic Shield**. It forms a new surface and fills in cracks and voids.

It is reinforced with SI-TUFF™ silicon carbide.

Repair in Place

Ceramic polymer with SI-TUFF® is spray-applied to existing concrete piping and structures.



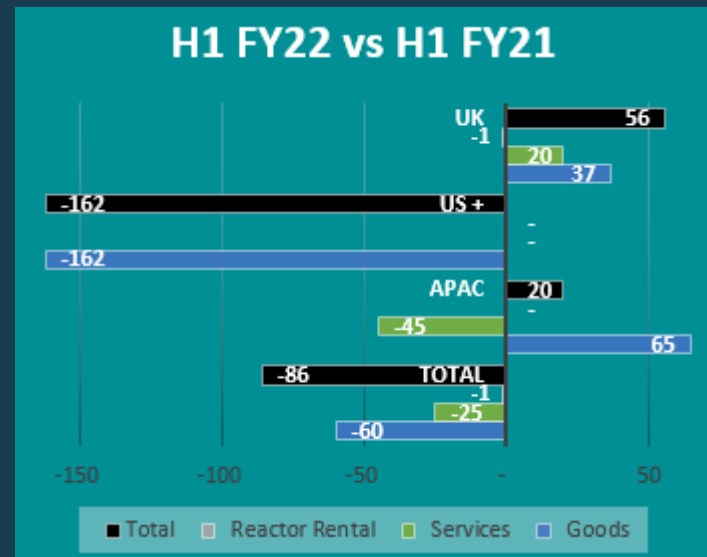
CeramycGuard Work in Progress

	Customer	Key Targets	Summary
1	UK Water Utilities Company	Improvement of water leakage on systems and pollution containment within wastewater piping and treatment plants	Small Trial area now underway, with continued discussions on further sites
2	UK Water Utilities Company	Wastewater treatment plants and clean water applications	Discussions ongoing
3	Multinational Utilities Company	Clean water applications for high mineral content areas	Trials planned for early spring wastewater, further scoping of work in clean water plants
4	UK Water Utilities Company	Wastewater treatment plants, clean water	Site visit to contractors, identifying trial sites
5	Construction Company- Framework contractor for a number of water companies	Water infrastructure	Meetings held with Senior management team, identifying sites.
6	Global civil engineering and construction	Installation of new wastewater treatment plant in the Middle East	Next phase discussions awaited
7	UK Water Company	Wastewater treatment plants	Scoping trial sites
8	Major Concrete Project in UK	Protection of concrete from tides and wastewater	Initial engagement made
9	Sea wall / channels opportunity		Initial engagement made

New Technology Sales Growing

	Dec-21 Unaudited £'000	Dec-20 Unaudited £'000	% Mov
<i>Largest SiC Customer</i>	-	640	(100)%
<i>Other</i>	702	224	213%
US	702	864	(19)%
UK	325	267	22%
APAC	165	147	12%
Revenue	1,191	1,277	(7)%

	% Movement on H1 FY20			
	UK	US+	APAC	Total
Goods	43%	(19)%	89% ⁽¹⁾	(6)%
Services	18%	-	(63)%	(14)%
Reactor Rental	(1)%	-	-	(1)%
Total	21%	(19)%	14%	(7)%



- UK sales increased by 21% with sales of UK Goods up 43% vs prior Period.
- US Revenue shortfall
 - Largest SiC customer forward ordering in the prior year to support the business during the pandemic.
 - Rebound in blanks and other sales at US facility slower than anticipated leading to 'revenue gap'.
 - Sales of SiC/blanks to China expected to grow in H2 FY22.

(1) Includes £83k of non recurring machine sales

Profit & Loss

	Dec-21 Unaudited £'000	Dec-20 Unaudited £'000	% Mov
Revenue	1,191	1,277	(7)%
Gross Profit	608	939	(35)%
<i>Gross Profit Margin</i>	<i>51%</i>	<i>74%</i>	
Other Operating Income	194	212	(8)%
Adjusted Admin Expenses	(2,549)	(2,235)	(14)%
Adjusted Operating Loss	(1,747)	(1,084)	(61)%
Adjusting Administrative Items			
Share Based Payment Exp	25	(75)	
Dep & Amort	(618)	(627)	
Total Trading Admin Expenses	(3,142)	(2,937)	(7)%
Loss from Operations	(2,340)	(1,786)	(31)%
Finance Costs	(118)	(147)	20%
Loss Before Taxation	(2,458)	(1,933)	(27)%
Taxation	182	182	0%
Loss for Year from Cont. Ops	(2,276)	(1,751)	(30)%

- US product mix led to GP margin reduction.
- Other operating income including grants marginally reduced
 - 4 Grants with clear commercial benefit awarded and starting in H2 FY22.
- Focus on cost control, but need to invest in the business
 - Lower overhead absorption;
 - Investment in upskilling wider team– specifically within US and APAC;
 - Investment in operational capacity within UK;
 - Increase in patent protection.
- Loss from Operations of £2.34m (H1 FY21: £1.79m) increased by £0.55m (31%)

Cashflow

	Dec-21 Unaudited £'000	Dec-20 Unaudited £'000	% Mov
Operating cash flow before working capital changes	(1,714)	(1,061)	(62)%
Working Capital Movement	139	106	31%
Cash used in Operations	(1,575)	(955)	(65)%
Net Cash used in investing activities	(173)	(150)	(15)%
Cash Flow used in Financing Act			
Finance Costs	(59)	(91)	35%
Finance Costs - Right of Use Asset	(60)	(56)	(7)%
Payment of Lease Liability	(241)	(310)	22%
Net proceeds from Share Issue	4,803	2,757	74%
New Bank Loans Raised	451	0	
Repayment of Borrowings	(887)	(77)	(1052)%
	4,007	2,223	80%
Effect of XR Changes	(63)	(66)	5%
Net Change in Cash	2,196	1,052	109%
Balance at Start of Year	1,644	823	100%
Balance at End of Year	3,840	1,875	105%

- Cash demand has increased due to investment in operational capacity and subdued trading.
- Small but positive working capital movement:
 - Should continue to unwind through H2 FY22 but thereafter will increase.
- Capex remains muted but:
 - £0.21m of capital equipment deposits included in Other Debtors;
 - Will accelerate in H2 FY22 with the delivery/ commissioning of HT1400.
- Financing
 - Fund raise of £4.80m (Net) (H1 FY20 - £2.76m)
 - Debt movement:
 - Drawdown of final £0.3m on Innovate UK Loan;
 - Accessed £0.14m EIDL in the US;
 - Repaid US Fixed Asset loan on schedule and closed US working capital facility.

Balance Sheet

	Dec-21 Unaudited £'000	Dec-20 Unaudited £'000	% Mov	Jun-21 Audited £'000
Non Current Assets	9,114	9,617	(5)%	9,137
Goodwill	1,341	1,454	(8)%	1,341
Intangible Assets	1,209	1,184	2%	1,174
Property, Plant & Equip	6,564	6,979	(6)%	6,622
Current Assets	6,705	5,067	32%	4,646
Inventories	1,343	1,562	(14)%	1,328
Trade Receivables	347	580	(40)%	715
Other Receivables	629	483	30%	595
Corporation Tax	546	567	(4)%	364
Cash	3,840	1,875	105%	1,644
Total Assets	15,819	14,684	8%	13,783
Non Current Liabilities	(4,809)	(3,888)	(24)%	(4,240)
Bank Loans	(1,311)	(44)	2880%	(844)
Pension Obligation	(1,035)	(1,280)	(19)%	(1,026)
Other Payables *	(2,463)	(2,564)	(4)%	(2,370)
Current Liabilities	(1,706)	(2,551)	(33)%	(2,784)
Bank Loans	(8)	(1,024)	(99)%	(885)
Trade & Other Payables *	(1,622)	(1,391)	17%	(1,719)
Deferred Income	(76)	(136)	(44)%	(180)
Total Liabilities	(6,515)	(6,439)	1%	(7,024)
Total Net Assets	9,304	8,245	13%	6,759

- Intangible Assets - capitalisation of £0.15m (H1 FY21 £0.12m) – reflecting commercial progress
- Reduction in working capital
- Corporation tax (R&D tax credits of £0.37m) will be received in H2 FY22 (H2 FY22- £.37m).
- US Defined Benefit Pension Scheme (Closed) - obligation reduced principally due to FX movement.
- Movement of bank loans from Current to longer term liabilities:
 - Innovate UK - £1.1m – repay 2024 – 2026;
 - US EIDL Loan - £0.14m – repay over 30 years.

*Included within PPE is a right of use asset of £2.7m and included within Other Payables is Right of Use liability of £2.9m of which £0.4m relates to Current Liabilities.

Summary Outlook



- Haydale's technology goes from strength to strength with 3 new industry leading patents submitted.
- The HT1400 allows Haydale to produce consistent quality, cost effectively and on an industrial scale in an environmentally friendly way.
- Investment in our team to ensure we have the resource to effectively commercialise our technology.
- Haydale's plasma and nano industry knowledge makes us the 'go to people' in the industry.
- Alignment of Directors, employees and shareholders via the share option scheme which goes across all Haydale sites.

Appendix

I. Board of Directors

II. Capitalisation Table





Keith Broadbent, CEO

Keith has a track record of strategically implementing increased efficiency and significant bottom line improvement in the most challenging of manufacturing and field installation environments whilst managing the most challenging of customers. Keith's experience includes having worked as operations director at Princess Yachts International and at Sunseeker where he was part of the senior management team. Keith has an MBA in Strategic Management; a Postgraduate Diploma in Management Studies and a 2(i) BA (Hons) Degree in English.



Mark Chapman, CFO

For the last 19 years, Mark held a number of CFO and COO roles within international companies operating in the med-tech, beverages and consumer sectors, where he has helped deliver strong improvements in business sustainability and EBITDA growth. Prior to moving into industry, Mark spent 8 years in professional services firms, including 5 years as a corporate financier with Deloitte. Before embarking on his career in finance, Mark was a commissioned officer in the British Army and served in Northern Ireland. Mark qualified as a chartered accountant in 1995 and holds a degree in Economics from the University of Birmingham.



David Banks, Non-Executive Chairman

David Banks started in Stock Broking in Birmingham in 1979 with Harris, Allday, Lea and Brooks before moving to London and becoming an institutional salesman at Panmure Gordon where he was acclaimed in the Automotive, Engineering, Aerospace and Motor Distributors sectors. He subsequently became a corporate broker advising many companies on their corporate structure, strategy, messaging and presentations. He also raised the capital for many of these companies both at IPO and in secondary fund raises.



Graham Eves MA, Non-Executive Director

Graham Eves joined GKN plc in 1967 where he spent 13 years operating across multiple overseas jurisdictions including, for the last 5 years, setting up and running a special operation for GKN plc's head office in Switzerland. He returned to the UK in 1980 to work in venture capital and establish his own international business consultancy. His main activities covered advising a range of German, North American and Japanese automotive component/technology suppliers and he co-founded and was chairman of an automotive technology company, Mechadyne (now part of Rheinmetall Automotiv AG). Graham was a Non-Executive Director of AB Dynamics plc from flotation until September, 2020. He was on the AIM advisory committee of the London Stock Exchange for 6 years and has a Master of Arts degree in Modern and Medieval Languages from the University of Cambridge.



Theresa Wallis, Non-Executive Director & Chair of Audit Committee

Theresa Wallis worked most of her executive career in financial services, moving into technology commercialisation in 2001. She was with the London Stock Exchange for 13 years, where from 1995 to 2001 she was chief operating officer of AIM, the market for smaller growing companies, having managed the market's development and launch. From 2001 to end 2006 she was a principal executive of ANGLE plc, a venture management and consulting business focusing on the commercialisation of technology.

Since 2001 she has held a number of non-executive directorships, including LiDCO Group plc where she was non-executive chairman, Veriton Pharma Ltd and the Quoted Companies Alliance. Prior to joining the London Stock Exchange she worked for Hambros Bank and then Canadian Imperial Bank of Commerce in London. Theresa has a degree in Zoology from the University of Oxford and a Diploma in Company Direction from the Institute of Directors. Theresa brings a range of corporate governance, business development, financial and commercial skills and experience.

Capitalisation Table

Shareholder	No of Shares	% of Total
Holdings > 3%		
Quilter plc	52,616,047	10.31%
Anthony Best	47,778,571	9.36%
Nicholas Audley Money-Kyrle	38,895,130	7.62%
Directors		
Keith Broadbent	952,381	0.19%
Mark Chapman	750,000	0.15%
David Banks	3,250,000	0.64%
Graham Eves	142,857	0.03%
Theresa Wallis	511,904	0.10%
Total Share Capital	510,335,691	100%

