

9 January 2017

**Ilika plc**  
(‘Ilika,’ the ‘Company,’ or the ‘Group’)

## Half-year Report

Ilika (AIM: IKA), a pioneer in materials innovation and solid-state battery technology, announces its unaudited half-year report for the six months ended 31 October 2016.

### Operational Highlights

- Shipped evaluation volumes of Stereax™ M250 batteries to potential OEM partners
- Refined solid-state battery development roadmap with improved definition of temperature, capacity and miniaturisation requirements
- Granted patents:
  - In China for Ilika’s proprietary process to produce solid-state batteries
  - In Europe for its unique High-Throughput Vapour Deposition synthesis platform
- Awarded £365k grant to develop protected anodes for lithium sulphur batteries

### Financial Summary

- Total revenue for the period £329k (H1 2015: £254k)
- Loss per share 3p (H1 2015: 3p per share)
- Net cash inflow in the period £4.1m (H1 2015: outflow £1.5m)
- Placing in the period raised £5.8m net of expenses
- Cash balance at period end £7.1m (H1 2015: £4.5m)

### Post Period End

- Received notifications of intent to award three new grants, two of which involve solid state battery integration programmes, amounting to an aggregate revenue value to the Company of £1.4m over two years.
- Received a notification of intent to award a commercially-funded materials development programme from an existing customer to a value of around \$1m over 12 months.
- Received Notices of Allowance in the US in respect of two patent applications covering its vapour deposition process for solid state battery materials and also, metal oxide supports for fuel cell catalysts

**Commenting on the results Graeme Purdy, CEO of Ilika, said:** *"In the first half of the year we have intensified commercial discussions with potential solid-state battery licensees, further strengthened our IP portfolio and augmented our materials discovery programmes."*

### Ilika plc

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## **Joint Chairman's and CEO's Statement**

### **Review of Period**

Ilika has continued to pursue its strategy of deploying its high throughput materials development capabilities in the energy, electronics and aerospace sectors. Ilika maintains a portfolio of activities, with its principal focus being its flagship programme for the development of solid-state batteries.

#### ***Solid-state battery technology***

Ilika has been active in the development of solid-state battery technology since 2008, when it commenced a collaboration with Toyota, principally to develop materials suitable for use in batteries for hybrid vehicles. During that collaboration, Ilika and Toyota filed joint patent applications protecting relevant materials and processes. The key advantages of solid-state batteries relative to standard lithium-ion batteries are:

- Non-flammable
- 6x faster charging
- 4x longer charge retention
- 2x increased energy density, making them half the volume for a given charge.

Ilika has identified that these benefits also make the batteries suitable for applications outside of the automotive sector. In particular, Ilika has defined a commercially-oriented, detailed product roadmap for its initial target market, which is micro-batteries for the "Internet of Things" (IoT).

Ilika's battery technology is differentiated from other solid-state batteries through its choice of materials and its use of an efficient evaporation process that is capable of higher deposition rates than other solid-state routes. This results in the following benefits relative to previous solid-state battery designs:

- Ability to stack cells in a continuous process prior to encapsulation, increasing the energy capacity per footprint of battery
- Less encapsulation required
- High temperature resilience

Within the IoT market, there are many segments which are addressable with Ilika's technology. The unique benefits of Stereax™ batteries make them particularly useful for bioelectronics and Industrial IoT applications. Miniature Stereax™ batteries can enable medical devices in a way that is currently not possible with conventional lithium-ion batteries. Their compact, high energy density, high power characteristics make them useful for a range of bioelectronic applications covering ophthalmic to neurostimulation. Industrial IoT, or Industry 4.0 as it is sometimes referred to, requires batteries that can reliably operate at elevated temperatures above those for which standard lithium-ion batteries are rated.

Following the launch of its Stereax™ M250 product in April 2016, Ilika has been producing pre-commercial quantities of battery cells on its pilot line for use in demonstrator devices and for customer evaluation. Feedback on the performance of these cells relative to the specifications required for customer applications has enabled the refinement of Ilika's Stereax™ roadmap. Although the M250 is already a small device, some of Ilika's bioelectronic partners are developing applications required further miniaturisation down to the mm-scale. Ilika has defined a product on that scale towards which it is currently working. Release of its first mm-scale device is expected in 2017. The second trend is the requirement for higher energy densities per footprint. This will require a combination of thicker cathodes (which define the energy capacity of the cell) and cell stacking. This is a central thread of Stereax development and a differentiator of Ilika's technology from other solid-state approaches. The third trend is the drive towards higher operating temperatures for industrial applications. Most industrial standards rise to at least 85 degC, with 125 degC being common in many process environments. The M250 is rated to 100 degC and our roadmap stretches to 150 degC in the next launch.

The product that Ilika will market to its partners will be a licensing package including the following:

- Battery architecture design
- Detailed definition of the materials composition and properties
- Manufacturing process description
- Sample battery devices
- IP portfolio

### ***Commercial Progress***

Ilika's intention is to license its technology to OEM partners using the model that has become standard in the semiconductor industry, based on license fees and royalties. Using its pilot line, Ilika is also able to provide initial quantities of product to seed the market for OEM's. Licensing may also involve the use of 3<sup>rd</sup> party foundries working under contract to OEM's.

Ilika has continued to pursue a three-phase strategy to the commercialisation of its battery technology:

- Optimisation of the battery architecture for specific applications
- Validation and integration of the batteries into application systems
- Technology transfer and licensing for manufacture

The development of the roadmap is demonstration of the implementation of the first phase of this strategy. This phase will continue to run in parallel with the second phase, which has now commenced. The first two phases are creating a pipeline of commercialisation opportunities underpinning the future revenue growth of the Company.

### ***Intellectual Property Reinforcement***

Ilika has continued to support the filing and prosecution of patents protecting its proprietary intellectual property (IP) in solid-state batteries. In July 2016, Ilika confirmed the Grant in China for its patent application supporting solid-state batteries jointly filed with Toyota Motor Company on 21 July 2011. This notice followed the successful British grant in May 2014 and the European grant in July 2015. This filing resulted from collaborative work undertaken by Ilika and Toyota, which commenced in 2008. This patent family is one of the two earliest filings of a growing portfolio of IP exemplifying Ilika's unique approach to solid-state battery production using evaporation sources. More recent applications in the portfolio contain both jointly-owned and solely-owned IP.

### ***Materials Development Portfolio***

The company's flagship product development programme is for solid-state batteries, but Ilika continues to support an active portfolio of materials development projects.

### ***Aerospace Alloys***

Ilika has continued in its role leading the three-year programme for the development of superalloy compositions for gas turbine engines with better thermal efficiency than current alloys. The alloys are designed to increase gas turbine performance, reducing CO<sub>2</sub> emissions and noise levels at take-off. This collaboration with the University of Cambridge, Diamond Light Source and Rolls Royce, is scheduled to be completed in September 2017. Ilika presented an extract of the project's accomplishments in the field at the twice-yearly Superalloys conference held in the USA in September 2016.

Another Ilika-led, three-year, aerospace alloy project, which got underway in September 2015, is the development of self-healing alloys in collaboration with Reliance Precision Engineering, University of Sheffield, GKN and BAE Systems. This project aims to develop alloys suitable for Additive Manufacturing processes and to develop a metallic manufacturing process that takes advantage of the flexibility of additive manufacturing and the precision of subtractive manufacturing.

***Electronic materials***

The two-year project with Seagate and the University of Southampton commenced in February 2016 with the aim of providing a demonstration of 2D materials for Hard Disk Drive applications. Materials with superior nanophotonic properties are being developed to achieve improved hard drive performance and reliability.

***Battery materials***

In August 2016, Ilika announced that it is taking part in a three-year project to develop protected anodes for lithium sulphur batteries. Led by Johnson Matthey and including Williams Grand Prix Engineering Ltd, the University of Oxford and the University of Warwick, the project is supported by Innovate UK and the Engineering and Physical Sciences Research Council. The aim is to discover new electrolyte composition options which will provide enhanced performance pouch cells that can be made using existing cell fabrication methods. The pouch cells being developed in this project are high capacity, low cost batteries for large scale renewable energy storage and therefore address a distinct market segment to the Internet of Things applications for which Ilika's Stereax™ batteries are designed.

***Outlook***

The Company is progressing its discussions with potential solid-state battery licencees, particularly for applications in the medical and industrial sectors.

The order book and sales pipeline have been reinforced with the notifications of intent to award three new grants and one new commercially-funded materials development programme. All of these programmes will be carried out in partnership with globally-recognised OEMs and are expected to start in this current financial year.

**Graeme Purdy, CEO**  
**Mike Inglis, Chairman**  
**Ilika plc**

**Consolidated statement of comprehensive income for the six months ended 31 October 2016**

	Notes	Unaudited Six months ended 31 Oct 2016 £	Unaudited Six months ended 31 Oct 2015 £	Audited Year ended 30 Apr 2016 £
<b>Revenue</b>		328,639	253,693	605,924
Cost of sales		(220,101)	(166,881)	(336,281)
<b>Gross profit</b>		108,538	86,812	269,643
Administrative expenses		(2,030,138)	(1,886,764)	(3,776,950)
Share-based payment charge		(278,326)	(93,373)	(352,291)
<b>Operating loss</b>		(2,199,926)	(1,893,325)	(3,859,598)
Financial income		5,822	18,162	30,734
<b>Loss before tax</b>		(2,194,104)	(1,875,163)	(3,828,864)
Taxation		215,274	203,423	357,896
<b>Loss for period/total comprehensive income attributable to owners of parent</b>		(1,978,830)	(1,671,740)	(3,470,968)
<b>Loss per share</b>				
Basic and diluted	2	(0.03)	(0.03)	(0.05)

The results from the periods shown above are derived entirely from continuing operations.

Consolidated balance sheet as at 31 October 2016

Notes	Unaudited Six months ended 31 Oct 2016 £	Unaudited Six months ended 31 Oct 2015 £	Audited Year ended 30 Apr 2016 £
<b>ASSETS</b>			
<b>Non current assets</b>			
Intangible assets	9,088	22,102	15,595
Property, plant and equipment	405,573	486,540	399,324
<b>Total non current assets</b>	<b>414,661</b>	<b>508,642</b>	<b>414,919</b>
<b>Current assets</b>			
Trade and other receivables	674,539	525,374	517,695
Current tax receivable	240,274	175,000	375,000
Other financial assets – bank deposits	1,406,305	536,461	-
Cash and cash equivalents	5,665,033	4,005,500	2,997,412
<b>Total current assets</b>	<b>7,986,151</b>	<b>5,242,335</b>	<b>3,890,107</b>
<b>Total assets</b>	<b>8,400,812</b>	<b>5,750,977</b>	<b>4,305,026</b>
<b>Issued capital and reserves attributable to owners of parent</b>			
Issued share capital	676,511	663,779	663,911
Share premium	23,295,150	17,467,077	17,470,417
Capital restructuring reserve	6,486,077	6,486,077	6,486,077
Retained earnings	(22,914,012)	(19,673,197)	(21,213,507)
<b>Total equity</b>	<b>7,543,726</b>	<b>4,943,736</b>	<b>3,406,898</b>
<b>LIABILITIES</b>			
<b>Current liabilities</b>			
Trade and other payables	707,086	657,241	748,128
Provisions	150,000	150,000	150,000
<b>Total liabilities</b>	<b>857,086</b>	<b>807,241</b>	<b>898,128</b>
<b>Total equity and liabilities</b>	<b>8,400,812</b>	<b>5,750,977</b>	<b>4,305,026</b>

**Consolidated cash flow statement for the six months ended 31 October 2016**

	Unaudited Six months ended 31 Oct 2016 £	Unaudited Six months ended 31 Oct 2015 £	Audited Year ended 30 Apr 2016 £
<b>Cash flows from operating activities</b>			
Loss before taxation	(2,194,104)	(1,875,163)	(3,828,864)
<i>Adjustments for:</i>			
Amortisation	6,507	8,017	14,524
Depreciation	99,926	143,154	257,274
Equity settled share based payments	278,326	93,373	352,291
Loss on disposal of plant, property and equipment	(30,129)	-	1,049
Net financial income	(5,822)	(18,162)	(30,734)
<b>Operating cash flow before changes in working capital, interest and taxes</b>	(1,845,296)	(1,648,781)	(3,234,460)
Decrease/(increase) in trade and other receivables	(121,844)	17,138	(26,432)
Increase /(decrease) in trade and other payables	(41,043)	(71,630)	19,257
<b>Cash utilised by operations</b>	(2,008,183)	(1,703,273)	(3,241,635)
Tax received	315,000	287,018	287,018
<b>Net cash flow from operating activities</b>	(1,693,183)	(1,416,255)	(2,954,617)
<b>Cash flows from investing activities</b>			
Interest received	5,822	18,162	36,456
Sale of property plant and equipment	30,129	-	-
Purchase of property, plant and equipment	(106,175)	(68,996)	(96,949)
(Increase)/ Decrease in other financial assets	(1,406,305)	(8,112)	528,349
<b>Net cash used in investing activities</b>	(1,476,529)	(58,946)	467,856
<b>Cash flows from financing activities</b>			
Proceeds from issuance of ordinary share capital	5,837,333	1,666	5,138
<b>Net cash from financing activities</b>	5,837,333	1,666	5,138
<b>Net (decrease)/ increase in cash and cash equivalents</b>	2,667,621	(1,473,535)	(2,481,623)
<b>Cash and cash equivalents at the start of the period</b>	2,997,412	5,479,035	5,479,035
<b>Cash and cash equivalents at the end of the period</b>	5,665,033	4,005,500	2,997,412

## Consolidated statement of changes in equity (unaudited)

	Share capital £	Share premium account £	Capital restructuring reserve £	Retained earnings £	Total £
<b>As at 30 April 2015</b>	<b>663,748</b>	<b>17,465,442</b>	<b>6,486,077</b>	<b>(18,094,830)</b>	<b>6,520,437</b>
Issue of shares	31	1,635	-	-	1,666
Share based payment	-	-	-	93,373	93,373
Loss and total comprehensive income	-	-	-	(1,671,740)	(1,671,740)
<b>As at 31 October 2015</b>	<b>663,779</b>	<b>17,467,077</b>	<b>6,486,077</b>	<b>(19,673,197)</b>	<b>4,943,736</b>
Issue of shares	132	3,340	-	-	3,472
Share based payment	-	-	-	258,918	258,918
Loss and total comprehensive income	-	-	-	(1,799,228)	(1,799,228)
<b>As at 30 April 2016</b>	<b>663,911</b>	<b>17,470,418</b>	<b>6,486,077</b>	<b>(21,213,508)</b>	<b>3,406,898</b>
Issue of shares	12,600	6,287,400	-	-	6,300,000
Expenses of share issue	-	(462,668)	-	-	(462,668)
Share based payment	-	-	-	278,326	278,326
Loss and total comprehensive income	-	-	-	(1,978,830)	(1,978,830)
<b>As at 31 October 2016</b>	<b>676,511</b>	<b>23,295,150</b>	<b>6,486,077</b>	<b>(22,914,012)</b>	<b>7,543,726</b>

### Share capital

The share capital represents the nominal value of the equity shares in issue.

### Share premium account

When shares are issued, any premium paid above the nominal value is credited to the share premium reserve.

### Retained earnings

The retained earnings reserve records the accumulated profits and losses of the Group since inception of the business.

### Capital restructuring reserve

The capital restructuring reserve arises on the accounting for the share for share exchange. It represents the difference between the value of the issued equity instruments of Ilika Technologies Limited immediately before the share for share exchange and the equity instruments of Ilika plc along with the shares issued to effect the share for share exchange.

## **Notes to the consolidated financial statements**

### *1. Accounting policies*

#### **Basis of preparation**

The interim financial statements, which are unaudited, have been prepared on the basis of accounting policies consistent with International Financial Reporting Standards ("IFRSs") adopted by the European Union. The accounting policies are the same as applied in the Group's latest financial statements.

The interim financial statements do not include all of the information required for full annual financial statements and do not comply with all the disclosures in IAS 34 'Interim Financial Reporting'. Accordingly, whilst the interim financial statements have been prepared in accordance with IFRS they cannot be construed as being in full compliance with IFRS

The financial information for the year ended 30 April 2016 does not constitute the full statutory accounts for that period. The Annual Report and Accounts for 30 April 2016 have been filed with the Registrar of Companies. The Independent Auditors' Report on the Annual Report and Accounts for 2016 was unqualified and did not include references to any matters which the auditors drew attention by way of emphasis without qualifying their report and did not contain statements under Section 498(2) or 498(3) of the Companies Act 2006.

#### **Going concern**

The financial statements are prepared on a going concern basis which the directors believe continues to be appropriate. The Group meets its day to day working capital requirements through existing cash resources which, at 31 October 2016, amounted to £7.1m. The directors have prepared projected cash flow information for the period ending twelve months from the date of their approval of these financial statements. On the basis of this cash flow information the directors believe that the Group will be able to continue to trade for the foreseeable future.

## 2. Loss per share

Loss per ordinary share have been calculated using the weighted average number of shares in issue during the relevant financial periods. The weighted average number of equity shares in issue and the earnings, being loss after tax, are as follows:

	<b>Unaudited Six months ended 31 Oct 2016</b>	<b>Unaudited Six months ended 31 Oct 2015</b>	<b>Audited Year ended 30 Apr 2016</b>
	<b>Number</b>	<b>Number</b>	<b>Number</b>
Weighted average number of equity shares	67,144,371	66,375,158	66,378,114
	<b>£</b>	<b>£</b>	<b>£</b>
Loss, being loss after tax	<u>(1,978,830)</u>	<u>(1,671,740)</u>	<u>(3,470,968)</u>

The loss attributable to ordinary shareholders and weighted average number of ordinary shares for the purpose of calculating the diluted earnings per ordinary share are identical to those used for basic earnings per share. This is because the exercise of share options and warrants would have the effect of reducing the loss per ordinary share and is therefore not dilutive under the terms of IAS 33.

– Ends –