

News Release

Wednesday 21st November 2018, 7.00 am

Half year results for the six months ended 30th September 2018 Delivering on our strategy and confident in our outlook

Robert MacLeod, Chief Executive, commented:

"We had a good half, delivering double digit sales and operating profit growth. I am pleased with the progress we are making on implementing our strategy and delivering solutions for our customers through the application of our strong science and technology."

Clean Air continues to grow strongly driven by our diesel share gains in light duty Europe which are coming through as planned. Heavy duty is also performing well, supported by strength in the Class 8 truck market in the US. Efficient Natural Resources saw good sales growth and margin improvement, and Health traded in line with our first half expectations. We remain on track with our plans to commercialise eLNO™, our next generation battery material. Customer feedback remains positive and, in July, the board approved the initial investment in our first commercial plant.

The interim dividend was increased by 7% in line with medium term guidance, reflecting our continued confidence in the group's future prospects. We now expect full year operating performance towards the upper end of our guidance of mid to high single digit growth."

Reported results		Half year ended 30 th September		%
		2018	2017	change
Revenue	£ million	7,108	6,478	+10
Operating profit	£ million	264	222	+19
Profit before tax (PBT)	£ million	244	205	+19
Earnings per share (EPS)	pence	106.1	87.9	+21
Interim dividend per share	pence	23.25	21.75	+7

Underlying ¹ performance		Half year ended 30 th September		%	% change,
		2018	2017	change	constant rates ²
Sales excluding precious metals (Sales)	£ million	2,009	1,853	+8	+10
Operating profit	£ million	271	250	+8	+10
Profit before tax	£ million	251	233	+7	+9
Earnings per share	pence	109.0	99.8	+9	

Underlying performance

- Sales grew 10% and underlying operating profit grew 10% at constant rates² driven by continued strong growth in Clean Air
- Underlying EPS was up 9% and grew slightly ahead of operating profit benefiting from a lower underlying tax rate
- As indicated previously, free cash flow was lower due to platinum group metal (pgm) refinery downtime, driving higher precious metal working capital
- Average working capital days excluding precious metals improved by two days to 61 days
- Return on invested capital declined from 16.4% at 31st March 2018 to 16.0% at 30th September 2018 primarily due to an increase in the net pension fund asset
- Strong balance sheet maintained with net debt (including post tax pension deficits) to EBITDA of 1.5 times

By sector

- Continued strength in **Clean Air** with sales up 11%, well ahead of global vehicle production, driven by double digit growth in both light and heavy duty
- Sales growth of 3% in **Efficient Natural Resources** and strong operating profit growth reflecting improved efficiency and higher precious metal prices
- In **Health**, we have made good strategic progress and are trading in line with full year expectations. Sales remained stable but operating profit was lower, in line with our guidance, due to product mix and costs associated with manufacturing footprint optimisation
- We have made progress in commercialisation of our next generation battery material product, eLNO. In **New Markets** overall, we saw strong sales growth but lower operating profit

Reported results

- Reported revenue increased 10% slightly ahead of sales growth
- Reported operating profit was £264 million, up 19%, reflecting an £18 million major impairment and restructuring charge in the prior year
- Reported EPS was up 21%, reflecting higher operating profit and a lower tax rate following a change in US tax legislation
- Cash outflow from operating activities of £88 million due to an increase in precious metal working capital
- Interim dividend up 7% to 23.25 pence reflecting our confidence in the group's future prospects

Outlook for the year ending 31st March 2019

- We now expect growth in operating performance at constant rates towards the upper end of our previous guidance of mid to high single digit growth
- At current foreign exchange rates (£:\$ 1.307, £:€ 1.129, £:RMB 8.85), translational foreign exchange movements for the year ending 31st March 2019 are expected to benefit sales and underlying operating profit by £1 million and £2 million respectively

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Notes:

1. Underlying is before amortisation of acquired intangibles, major impairment and restructuring charges, profit or loss on disposal of businesses, gain or loss on significant legal proceedings together with associated legal costs, significant tax rate changes and, where relevant, related tax effects. For reconciliation see note 5 on page 30
2. Unless otherwise stated, sales and operating profit commentary refers to performance at constant rates. Growth at constant rates excludes the translation impact of foreign exchange movements, with H1 2017/18 results converted at H1 2018/19 average exchange rates

For definitions and reconciliations of other non-GAAP measures see pages 39 and 40

eLNO is a trademark of the Johnson Matthey group of companies

Progress on our strategy

Our strategy will deliver sustained growth and value creation through the application of our science to solve customers' complex problems for a cleaner, healthier world. This is underpinned by:

- Sustained leadership in growing, high margin technology driven markets
- Targeted investment in R&D which accelerates growth
- Relentless focus on operational excellence

This strategy will deliver sustained growth in Clean Air, market leading growth in Efficient Natural Resources and break out growth in Health and Battery Materials. Over the medium term, it will deliver:

- Mid to high single digit EPS CAGR
- Expanding group ROIC to 20%
- Progressive dividend

Sustained growth in Clean Air

Our strategy in Clean Air provides clear visibility of sustained growth over the next decade, as we help solve the challenges of air quality across the world. Share gains in Europe and tighter legislation across the world, particularly in Europe and China, will deliver mid single digit sales CAGR. Our progress against this strategy includes:

- Our share of Light Duty diesel in Europe increased from c.45% in 2017/18 to c.60% at the end of the first half, and we are on track to achieve a c.65% share by March 2019
- Delivering planned efficiencies from optimising our cost base and processes. Expect to maintain a margin of c.14% in the medium term
- Further platform wins in China to help customers meet China 6/VI legislation, with the majority of expected business already secured
- Starting construction of our new manufacturing facilities in Poland and China to increase capacity to meet demand from new legislation

Market leading growth in Efficient Natural Resources

Our strategy for Efficient Natural Resources is to leverage our market leading technologies through focused resource allocation to outperform in selected, higher growth segments. Increased operational efficiency will enhance performance to deliver profit growth ahead of sales growth.

Our progress against this strategy includes:

- Good progress in commercialising newly developed technology such as mono ethylene glycol and waste to aviation fuel, with new licences in relation to these signed in the period
- Simplifying our product and customer portfolio to help deliver profit growth above sales growth through more rigorous resource allocation and deeper relationships with customers to identify opportunities to add greater value
- Started to deliver savings in relation to centralising procurement and also operational excellence with process improvements across a number of sites
- Restructuring programme delivering expected annualised cost savings of £12 million, with around £5 million achieved in the period

Break out growth in Health

Our Health strategy will deliver break out growth as we benefit from the commercialisation of our pipeline of new generic products. This pipeline is expected to deliver incremental operating profit of around £100 million by 2025, driving margin for the sector to the high 20%s. Our progress against this strategy includes:

- R&D investment in our pipeline of new generic API products. This pipeline remains on track, with one product launched in October and other products progressing through the stages of development and commercialisation
- Our pipeline of innovator API products also continued to progress with three products nearing commercialisation
- Progress on optimising our manufacturing footprint to build the platform for break out growth:
 - Previously announced closure of manufacturing plant in Riverside, US now complete
 - First commercial sales made from our plant in Annan, UK and this will be fully operational by the end of 2019/20

Break out growth in Battery Materials

Our strategy in Battery Materials will deliver break out growth as we commercialise our eLNO battery materials. eLNO is a leading ultra-high energy density next generation material, competing with future materials such as NMC 811. It enables rapid development of long range pure battery electric vehicles. Our progress against this strategy includes:

- Further increase in R&D investment to continue eLNO's technology leadership
- Continued testing of our material by customers with positive feedback as we now develop more tailored solutions to meet their different needs
- Commercialisation progressing with pilot plant operational and on track for design and construction of our first commercial plant with board approval for the initial capital investment. The plant will be located in mainland Europe in line with the development of its supply chain and we continue to expect production in 2021/22

Relentless focus on operational excellence

Growth from our sector strategies is supported by a relentless focus on operational excellence across the whole group. We are continually identifying opportunities to run our business more efficiently. Within this there are a number of key areas which we are focused on, including commercial excellence, procurement, restructuring savings, upgrading our core IT systems and working capital management. We are taking significant actions and investing ahead of the realisation of benefits. Our progress against this strategy includes:

- Commercial excellence programmes progressing. These will drive a better understanding of our customers' needs, enabling us to deliver greater value through our technology-led propositions; improve value based data driven decisions and provide an enhanced customer experience
- Continued build out of global procurement process, which is expected to deliver £60 million of savings over the next three years, with three quarters benefiting the income statement. We expect around £13 million of savings to benefit the income statement in 2018/19, of which £5 million was achieved in H1 2018/19
- Our restructuring programme will deliver annualised cost savings of around £25 million. We delivered £12 million of savings in 2017/18, and expect to deliver the majority of the remaining savings in the current financial year
- We are progressively upgrading our core IT platform moving from over 40 enterprise resource planning (ERP) systems to one global system (SAP) and the first implementation is now successfully complete. This will reduce complexity; help us to better understand our processes to drive future cost savings and make us more agile and responsive to our customers
- Improved average working capital days excluding precious metals by two days to 61 days, despite planned inventory build ahead of the first implementation of SAP. This represents an eight day average reduction over the last 18 months compared to the previous 12 months

Summary of operating results

Unless otherwise stated, commentary refers to performance at constant rates. Percentage changes in the tables are calculated on unrounded numbers

Sales (£ million)	Half year ended 30th September		% change	% change, constant rates
	2018	2017		
Clean Air	1,312	1,194	+10	+11
Efficient Natural Resources	463	458	+1	+3
Health	118	119	-1	-
New Markets	173	143	+21	+23
Eliminations	(57)	(61)		
Sales	2,009	1,853	+8	+10

Underlying operating profit (£ million)	Half year ended 30th September		% change	% change, constant rates
	2018	2017		
Clean Air	191	168	+14	+15
Efficient Natural Resources	85	70	+23	+26
Health	15	21	-33	-31
New Markets	3	9	-69	-67
Corporate	(23)	(18)		
Underlying operating profit	271	250	+8	+10

Reconciliation of underlying operating profit to operating profit (£ million)	Half year ended 30th September	
	2018	2017
Underlying operating profit	271	250
Amortisation of acquired intangibles	(7)	(10)
Major impairment and restructuring charges ¹	-	(18)
Operating profit	264	222

¹For further detail on these items please see page 16

Operating results by sector

Clean Air

Strong sales growth driven by double digit growth in both LDV and HDD catalysts

- Light Duty Europe sales up 16% with very strong growth in diesel and modest growth in gasoline. Diesel share gains coming through driving our light duty diesel market share in Europe to c.60% at the end of the half year and on track for a c.65% share by March 2019
- Light Duty Asia sales grew 7%, ahead of market production, with growth across key markets
- Light Duty Americas sales were broadly flat with strong growth in gasoline offset by a decline in diesel following strong growth in the prior year
- Sales of HDD catalysts were up 14% led by very strong growth in the US and good growth in Europe, both ahead of market production
- Operating profit was up 15% and margin improved 0.5 percentage points to 14.6%

	Half year ended 30 th September 2018 £ million	Half year ended 30 th September 2017 £ million	% change	% change, constant rates
Sales				
LDV Europe	479	414	+16	+16
LDV Asia	177	167	+6	+7
LDV Americas	175	183	-4	-1
Total Light Duty Vehicle Catalysts	831	764	+9	+10
HDD Americas	234	195	+20	+24
HDD Europe	165	152	+9	+8
HDD Asia	63	63	-1	-
Total Heavy Duty Diesel Catalysts	462	410	+13	+14
Other – stationary	19	20	-7	-6
Total sales	1,312	1,194	+10	+11
Underlying operating profit	191	168	+14	+15
Margin	14.6%	14.1%		
Return on invested capital (ROIC)	30.9%	30.6%		
Reported operating profit	190	167	+14	

Estimated LDV sales and production (number of light duty vehicles)*

		Half year ended 30 th September 2018 millions	2017 millions	% change
North America	Sales	10.6	10.7	-1
	Production	8.5	8.4	+1
Total Europe	Sales	10.6	10.2	+3
	Production	10.9	10.6	+2
Asia	Sales	21.4	20.8	+3
	Production	23.5	23.0	+2
Global	Sales	47.0	46.0	+2
	Production	46.0	44.9	+2

Estimated HDD truck sales and production (number of trucks)*

		Half year ended 30 th September 2018 thousands	2017 thousands	% change
North America	Sales	300	264	+14
	Production	302	273	+10
Total Europe	Sales	227	223	+2
	Production	293	291	+1
Asia	Sales	990	971	+2
	Production	977	973	-
Global	Sales	1,574	1,504	+5
	Production	1,627	1,584	+3

*Source: LMC Automotive

Light Duty Vehicle (LDV) Catalysts

Our LDV Catalyst business provides catalysts for cars and other light duty vehicles powered by diesel and gasoline. The business grew 10%, well ahead of global vehicle production.

In Europe, where diesel accounts for around 85% of our LDV business, sales grew 16% primarily driven by our diesel market share gains.

Sales of diesel catalysts were up 18% reflecting our market share gains and significantly ahead of diesel market production which saw a 6% decline year on year. With an increased diesel market share of c.60% at the end of our first half, we remain on track to achieve our diesel market share of c.65% by March 2019. As our market share gains come through, we are seeing an increased proportion of sales of higher value, more complex catalyst systems.

In Western Europe, diesel accounted for 36% of new passenger car sales in the first half of 2018/19 compared to 40% in the second half of last year. Light duty commercial vehicles remain largely diesel today. When these are included, the overall share of diesel sales in Western Europe was 44% for the first half of 2018/19, compared with 47% in the second half of 17/18. Overall, these trends do not change our assumption of a diesel share of around 25% of total light duty vehicles and 20% of cars in 2025.

Sales of gasoline catalysts were up 4%, behind market production growth of 8%, due to weaker performance from some of our customers. Growth was supported by an improved sales mix with an increased number of coated gasoline particulate filters (GPFs) sold in the period. We expect the number of vehicles with coated GPFs to continue to increase in the medium term which doubles our sales value per gasoline vehicle.

In gasoline, we have seen a shift in the market with larger engine gasoline vehicles growing faster than those with smaller engines, where we are over indexed. In light of this market dynamic and some uncertainty around platform wins, our previously anticipated five percentage point market share gain may not be achieved by 2020/21. However, the profit impact is not material.

The World Harmonised Light Duty Testing Procedure (WLTP) was introduced from September 2018. This resulted in some disruption to phasing of European automotive production and sales. However, in our first half we did not see a material impact from WLTP on our business.

Our growth in LDV Europe will continue to be driven by both diesel and gasoline through a combination of share gains, primarily in diesel, and increasing value per catalyst over the next few years.

Sales in Asia LDV grew ahead of market production, with sales growth in all our key markets. China sales grew 3%, in line with market production. We saw a slowdown in China towards the end of the first half due to broader macroeconomic weakness and customers reducing inventory levels.

Sales in Americas LDV were down 1%, slightly behind market production. Strong performance in gasoline reflected the ramp up of a new platform. This was offset by weaker performance in diesel following strong growth in the prior year and the ramp down of a platform.

Heavy Duty Diesel (HDD) Catalysts

Our HDD Catalyst business provides catalysts for trucks, buses and non-road equipment. In the first half sales grew 14%, significantly ahead of market production in Europe and the Americas.

The Americas HDD Catalyst business saw sales growth of 24%. Sales of catalysts for Class 8 trucks were well ahead of market production of 17% and we now expect high levels of production to continue until the middle of the 2019 calendar year. Catalyst sales to smaller Class 4 to 7 trucks also outpaced market production.

The European HDD Catalyst business continued to outperform the market with sales growing 8% in the period driven by outperformance by our customers and increased sales of catalysts to non-road vehicles.

Sales in the Asian HDD Catalyst business were flat, in line with market production. In China, sales fell 10% also in line with the market. This followed two years of strong production growth driven by increased demand for trucks as a result of loading limit legislation. Our sales in India grew strongly from a low base.

Underlying operating profit

Operating profit grew 15% and margin improved by 0.5 percentage points, benefiting from volume leverage and tight cost control.

ROIC

ROIC improved 0.3 percentage points to 30.9% reflecting higher operating profit.

Full year 2018/19 outlook

We expect Clean Air to deliver continued strong sales growth in the remainder of 2018/19 as significant share gains in European light duty diesel come through. In the second half, we expect benefits from operational gearing to be offset by price downs, trade tariffs and additional costs related to the ramp up of our share gains. As a result, the 2018/19 margin is expected to be in line with the prior year.

Efficient Natural Resources

Growth in sales with continued margin improvement

- Sales growth across the majority of businesses, driven by strong demand for refill catalysts and higher average pgm prices
- Operating profit grew strongly and margin improved by 3.2 percentage points to 18.5%, benefiting from higher average pgm prices and improvements in efficiency across the Sector

	Half year ended 30 th September 2018 2017 £ million £ million		% change	% change, constant rates
Sales				
Catalyst Technologies	264	260	+1	+3
Pgm Services	128	128	-	+2
Advanced Glass Technologies	39	41	-5	-5
Diagnostic Services	32	29	+12	+17
Total sales	463	458	+1	+3
Underlying operating profit	85	70	+23	+26
Margin	18.5%	15.3%		
Return on invested capital (ROIC)	12.6%	12.3%		
Reported operating profit	82	59	+40	

Catalyst Technologies

Our Catalyst Technologies business licenses technology and manufactures speciality catalysts and additives for the chemicals and oil and gas industries. Sales grew 3% with strong growth in refill catalysts partly offset by lower first fill catalysts.

Refill catalysts and additives make up the majority of sales within our Catalyst Technologies business. These grew double digit, outperforming our markets in aggregate. This was primarily driven by the phasing of orders as more customers changed out their catalysts. We saw particularly strong performance in methanol, and good growth in catalysts for petrochemical and hydrogen plants.

Sales of catalyst first fills were significantly down. These are one-off in nature and driven by the start-up of new plants. While sales of first fills of methanol and ammonia catalysts were broadly stable, first fills to refineries were down following a large order in the first half of 2017/18.

Licensing income was broadly stable following a number of years of decline. We signed a number of licences in the period, although overall activity around new plant builds, especially for the technologies we license, remained at low levels. Our development and commercialisation of new technologies is progressing well and whilst there are some early signs of improved activity in certain markets, we do not expect a material recovery in our licensing income in the near term.

Pgm Services

Our Pgm Services business primarily provides a strategic service to the group, principally supporting Clean Air with security of metal supply in a volatile market. This business is expected to grow at low single digits over the medium term. It comprises our pgm refining and recycling activities, and produces chemical and industrial products containing pgms.

In the period, sales grew 2%. We saw good growth in our Pgm Refining and Recycling business due to higher average pgm prices. Sales of chemical products were steady but sales of industrial products containing pgms were down in the period. Average palladium and rhodium prices were up 12% and 119% respectively, while the platinum price declined 9%, compared to the same period last year.

We had downtime in one of our pgm refineries in the first half, which resulted in a significant increase in precious metal working capital, which we are working hard to reduce. Whilst we will not be at normalised levels by the year end, we expect to have made significant progress. To ensure our refineries operate effectively and reliably we are increasing investment in our plants.

Advanced Glass Technologies

Advanced Glass Technologies mainly provides black obscuration enamels and silver paste for automotive glass applications. Although sales were stable in the automotive part of the business, demand for non-automotive enamels and ceramics was lower, which resulted in a slight decline in overall sales.

Diagnostic Services

Our Diagnostic Services business grew strongly, with the higher oil price driving increased activity in the upstream oil and gas industry. This resulted in improved demand across the majority of our services.

Underlying operating profit

Operating profit was up 26% and margin improved by 3.2 percentage points, benefiting by around £10 million from higher pgm prices, around £5 million of savings from the restructuring programme, and improved efficiency across the Sector (of which around £5 million will not repeat). This was partly offset by higher operating costs in the pgm refineries and investment in their safety and resilience.

ROIC

ROIC increased slightly to 12.6%. Although operating profit grew strongly, we also had significantly higher working capital due to the pgm refinery downtime in the half.

Full year 2018/19 outlook

Our outlook for Efficient Natural Resources is unchanged. We expect slight sales growth and operating profit growth ahead of sales, although there is scope to outperform if current momentum continues. In addition, we will also benefit from around £7 million of cost savings in relation to the restructuring programme started in 2017/18.

Health

Sales stable with operating profit down as expected; trading in line with full year expectations

- Sales declined slightly in Generics whilst Innovators continued to grow well
- Operating profit declined 31% and margin was 5.8 percentage points lower as expected. This was mainly due to a weaker product mix because of a decline in high margin products as they moved through their natural life cycle and net costs associated with footprint optimisation
- Good strategic progress in line with our plans as we build our platform for break out growth. We continue to invest in the pipeline of generic APIs and optimise our manufacturing footprint

	Half year ended 30 th September		% change	% change, constant rates
	2018	2017		
	£ million	£ million		
Sales				
Generics	80	82	-3	-2
Innovators	38	37	+3	+6
Total sales	118	119	-1	-
Underlying operating profit	15	21	-33	-31
Margin	12.4%	18.2%		
Return on invested capital (ROIC)	7.4%	10.0%		
Reported operating profit	15	19	-27	

Generics

Our Generics business develops and manufactures generic APIs for a variety of treatments. Sales were broadly stable, although with a mixed performance across the business.

As expected, sales of controlled APIs were down. There was a reduction in both pricing and volumes of certain particularly high margin ADHD APIs as they move through their natural lifecycle. This was partly offset by growth in speciality opiates, with higher volumes supported by increased capacity from the continued ramp up of our manufacturing site in Annan, UK. Sales of bulk opiates remained stable.

Our non-controlled APIs continued to grow. We saw growth across a number of products, although there was a decline in sales in relation to dofetilide as new competitors for our customer entered the market in September.

Innovators

Our Innovators business continued to grow well. We saw growth from sales of APIs where our customers are increasing volumes as they move into late stage testing ahead of commercialisation. This was partly offset by a decline in sales of another API for a branded drug already in commercial production. Income in relation to clinical development work remained broadly stable.

API product pipeline

We continued to invest in our new product pipeline across both our Generics and Innovators businesses and this is developing in line with our plans. We now have 46 products in our pipeline of generic APIs (31st March 2018: 39 products). In October, two products were submitted for regulatory approval and one product was launched. Within our pipeline of innovator APIs, three products are nearing commercial launch with new drug approvals (NDAs) filed with the US Food and Drug Administration (FDA) by our customers.

Underlying operating profit

Operating profit was down 31% and margin decreased by 5.8 percentage points. This mainly reflected a significant decline in high margin products as they moved through their natural life cycle. Operating profit was also impacted by net costs associated with the optimisation of our manufacturing footprint due to the closure of Riverside, US and ramp up of Annan, UK. Whilst this optimisation will deliver significant benefits over the medium term, associated costs in the period outweighed early savings.

ROIC

Return on invested capital declined 2.6 percentage points to 7.4% driven by lower operating profit.

Full year 2018/19 outlook

We are trading in line with full year expectations and our outlook for Health is unchanged. For the full year, we continue to expect sales in Health to be broadly stable and for operating profit to be down.

New Markets

Strong sales growth but operating profit lower; continued progress in commercialising eLNO

- Sales growth driven by strong demand for our non-automotive battery systems and fuel cells
- Operating profit declined 67% mainly due to higher costs within our Battery Materials business as we build strategic customer relationships to support commercialisation of eLNO
- Continued progress in commercialising eLNO with Board approval for the initial capital investment in our first commercial plant

	Half year ended 30th September		% change	% change, constant rates
	2018	2017		
	£ million	£ million		
Sales				
Alternative Powertrain	98	65	+52	+52
Medical Device Components	36	39	-8	-6
Life Science Technologies	23	23	+2	+5
Other	16	16	-2	-
Total sales	173	143	+21	+23
Underlying operating profit	3	9	-69	-67
Margin	1.6%	6.1%		
Return on invested capital (ROIC)	5.1%	7.9%		
Reported operating profit/(loss)	-	(5)	+102	

Alternative Powertrain

Our Alternative Powertrain business provides battery materials for automotive applications, battery systems for a range of applications and fuel cell technologies. Sales grew over 50% driven by significant growth in battery systems for e-bikes and continued momentum in fuel cells for non-automotive applications.

We continue to make good progress in the development and commercialisation of our ultra-high energy density battery material, eLNO, as discussed on page 4. Sales of LFP battery materials were flat and remain at a low level, with electric vehicle tax incentives in China continuing to favour high energy materials over LFP.

Medical Device Components

Our Medical Device Components business leverages our science and technology to develop products found in devices used in medical procedures. Sales declined 6% due to quality issues which have now been resolved.

Life Science Technologies

Our Life Science Technologies business provides advanced catalysts to the pharmaceutical and agricultural chemicals markets. Sales grew 5% in the period, supported by sales to two large customers.

Underlying operating profit

Operating profit declined 67% and margin reduced by 4.5 percentage points to 1.6%. This was mainly impacted by higher costs in our Battery Materials business as we build strategic customer relationships to support commercialisation of eLNO. The margin was further affected by the strong increase in lower margin Battery Systems sales.

ROIC

ROIC declined to 5.1% reflecting lower operating profit.

Full year 2018/19 outlook

New Markets is expected to deliver sales growth in 2018/19. Operating profit is now expected to be down for the full year, although second half operating profit will be ahead of the same period last year.

Corporate

Corporate costs in the period were £23 million, an increase of £5 million from the first half of last year. This was due to higher legal costs and building further capability in group functions.

Full year 2018/19 outlook

As previously guided, corporate costs will be higher for the full year 2018/19 compared to 2017/18.

Financial review

Research and development (R&D)

We invested £91 million on R&D in the period, including £8 million of capitalised R&D. This continues to represent around 5% of sales, although spend was down 8% partly due to phasing of investment. Key areas of spend included next generation technologies in Clean Air, our Health API product pipeline and investment in our eLNO battery material.

Foreign exchange

The calculation of growth at constant rates excludes the impact of foreign exchange movements arising from the translation of overseas subsidiaries' profit into sterling. The group does not hedge the impact of translation effects on the income statement.

The principal overseas currencies, which represented 84% of non-sterling denominated underlying operating profit in the half year ended 30th September 2018, were:

	Share of H1 2018/19 non-sterling denominated underlying operating profit	Average exchange rate Half year ended 30 th September		
		2018	2017	% change
US dollar	36%	1.329	1.295	+3
Euro	38%	1.131	1.138	-1
Chinese renminbi	10%	8.77	8.76	-

In the six months ended 30th September 2018 there were limited changes in exchange rates compared to the same period last year. Overall, the impact of exchange rates decreased sales and underlying operating profit for the period by £27 million and £4 million respectively.

If current exchange rates (£:\$ 1.307, £:€ 1.129, £:RMB 8.85) are maintained throughout the year ending 31st March 2019, foreign currency translation will have a positive impact of approximately £2 million on underlying operating profit. A one cent change in the average US dollar and euro exchange rates each has an impact of approximately £2 million and £2 million respectively on full year underlying operating profit and a ten fen change in the average rate of the Chinese renminbi has an impact of approximately £1 million.

Pgm prices

Higher average pgm prices benefited operating profit by around £10 million in the period in Efficient Natural Resources.

Major impairment and restructuring costs

We had no major impairment and restructuring costs in the six months ended 30th September 2018. Cash spend in relation to ongoing restructuring in H1 2018/19 was £4 million.

Our group restructuring programme is expected to deliver annualised cost savings of around £25 million. We delivered £12 million of savings in 2017/18, and expect to deliver the majority of the remaining savings in the current financial year. In our first half we realised an incremental benefit of £7 million compared to H1 2017/18. See below for a breakdown showing the cost, cash costs and cost savings achieved to date:

Group restructuring programme (£ million)	Impairment and restructuring charge	Cash costs	Cost savings in the period
H1 2017/18	18	4	4
H2 2017/18	25	9	8
FY 2017/18	43	13	12
H1 2018/19	-	2	11

As expected, we have completed the closure of our Health Sector Riverside, US facility. This is a key part of our plan to optimise our Health manufacturing footprint and will deliver significant benefits over the medium term.

Finance charges

Net finance charges in the period amounted to £20 million, up from £16 million in the first half of 2017/18. This was primarily driven by higher precious metal funding costs following downtime during the half in one of our pgm refineries.

For the full year ending 31st March 2019 we expect net finance charges to be higher than in 2017/18 due to rising US interest rates, higher borrowing costs as we expand in China and higher precious metal funding costs.

Taxation

The tax charge for the half year ended 30th September 2018 was £40 million, an effective tax rate of 16.4% (H1 2017/18: 17.7%). The tax charge on underlying profit before tax was £41 million, an effective tax rate of 16.3%, down from 17.9% in the half year ended 30th September 2017. This decrease was primarily due to changes in the US tax legislation.

We currently expect the tax rate on underlying profit for the year ending 31st March 2019 to remain around 16%.

Post-employment benefits

IFRS – accounting basis

At 30th September 2018, the group's net post-employment benefit position, after taking account of the bonds held to fund the UK pension scheme deficit, was a surplus of £270 million.

The cost of providing post-employment benefits in the period was £14 million, down from £22 million, primarily reflecting a decrease in the current service cost due to a higher discount rate. The post-employment benefits cost also included a past service credit of £8 million, which compared to £5 million in the prior period.

Actuarial - funding basis

In order to reduce the company's long-term pension risk exposure a number of changes to the group's UK pension scheme became effective from 1st July 2018:

- Contributions from those employees who remain in the career average defined benefit section of the scheme have been increased and will further rise over the next few years to help fund the increased cost of providing these benefits
- The accrual rate in the career average defined benefit section reduced from 1/80th to 1/100th for each year of future service after this date
- Employees in the career average defined benefit section of the scheme were given the option of switching to the contributory cash balance defined benefit scheme. This resulted in a past service credit of £8 million.

UK's withdrawal from European Union

Whilst the details of the UK's relationship with the European Union (EU) remain the subject of ongoing negotiation, we continue to monitor the associated risks of the UK's planned exit from the EU across our business. Our well established working group has continued to develop plans for a range of scenarios to ensure Johnson Matthey is well placed to navigate the uncertainty.

The working group has started to implement a number of actions to mitigate risks with a specific focus on trade, regulation and our people. Given the nature of our trading relationship across Europe, we are taking steps to minimise the impact of disruption in our supply chain, for example through building inventory.

We are confident in the plans we have made for possible Brexit scenarios, and we are in a good position to manage the effects on our European operations.

Capital expenditure

Capital expenditure was £104 million in the first half, 1.3 times depreciation and amortisation (excluding amortisation of acquired intangibles). In the period, projects included:

- New Clean Air manufacturing plants in Poland and China to support demand from tightening legislation in Europe and China, and the share gains in European light duty diesel, while also enhancing our efficiency and operating flexibility
- Upgrading our core IT business systems
- Investment in our Health manufacturing and development facilities in Annan, UK and continued investment in our Health API product pipeline
- Investment in development of our eLNO material, as well as spend on our pilot, demonstration and commercial plants as we commercialise our market leading product

Capital expenditure for the full year is expected to be up to £350 million as our investments into the growth projects mentioned above increases.

Free cash flow and working capital

Free cash flow was an outflow of £206 million. This was due to a working capital outflow of £391 million, of which £283 million related to precious metal primarily reflecting downtime at one of our pgm refineries in the half.

Excluding precious metal, working capital days were broadly stable at 65 days compared to 64 days at 30th September 2017. Average working capital days excluding precious metal improved two days compared to the same period last year to 61 days. This was despite increased inventory during the period related to the first site implementation of our single global IT system (SAP). Our target is for year-end working capital days excluding precious metal to be in the 50 to 60 day range.

Interim dividend

The board has increased the interim dividend by 7% to 23.25 pence per share. The interim dividend will be paid to shareholders on 5th February 2019, with an ex dividend date of 29th November 2018.

Return on invested capital (ROIC)

ROIC declined to 16.0% from 16.4% at 31st March 2018, mainly due to an increase in the net pension fund asset. Excluding net pension fund assets, ROIC would have been 16.5% in line with full year 2017/18, on the same basis.

Capital structure

Net debt at 30th September 2018 was £1,036 million. This is an increase of £357 million from 31st March 2018. Net debt increases to £1,086 million when adjusted for the post-tax pension deficits. The group's net debt (including post tax pension deficits) to EBITDA was 1.5 times (31st March 2018: 1.1 times). Our target range is 1.5 to 2.0 times, as this ensures we have flexibility to invest further in the future growth of the business.

Contingent liabilities

The group is involved in various disputes and claims which arise from time to time in the course of its business including, for example, in relation to commercial matters, product liability, employee matters and tax audits. The group is also involved from time to time in the course of its business in legal proceedings and actions, engagement with regulatory authorities and in dispute resolution processes. These are reviewed on a regular basis and, where possible, an estimate is made of the potential financial impact on the group. In appropriate cases a provision is recognised based on advice, best estimates and management judgement. Where it is too early to determine the likely outcome of these matters, no provision is made. Whilst the group cannot predict the outcome of any current or future such matters with any certainty, it currently believes the likelihood of any material liabilities to be low, and that such liabilities, if any, will not have a material adverse effect on its consolidated income, financial position or cash flows.

On a current specific matter, Johnson Matthey has been informed by two customers of failures in certain engine systems for which the group supplied a particular coated substrate as a component for their customers' emissions after-treatment systems. The reported failures have not been demonstrated to be due to the coated substrate supplied by Johnson Matthey. The particular coated substrate has been sold to only these two customers. While Johnson Matthey works with all its customers to ensure appropriate product quality, we have not received similar notification of issues in respect of other emissions after-treatment components from these or any other customers. Johnson Matthey has not been contacted by any regulatory authority about these failures.

Having reviewed its contractual obligations and the information currently available to it, the group believes it has defensible warranty positions in respect of its supplies of coated substrate for the after-treatment systems in the affected engines. If required, it will vigorously assert its available contractual protections and defences. The outcome of any discussions relating to the matters raised is not certain, nor is the group able to make a reliable estimate of the possible financial impact at this stage, if any. Our vision is for a world that's cleaner and healthier; today and for future generations. We are committed to enabling improving air quality and we work constructively with our customers to achieve this.

Going concern

The directors have assessed the future funding requirements of the group and are of the opinion that the group has adequate resources to fund its operations for the foreseeable future. Therefore they believe that it is appropriate to prepare the accounts on a going concern basis.

Risks and Uncertainties

The principal risks and uncertainties to which the group is exposed are unchanged from those identified in our 2018 annual report.

The principal risks and uncertainties, together with the group's strategies to manage them, are set out on pages 76 to 81 of the 2018 annual report and these are unchanged. They are:

- **Existing market outlook** – The risk of a change to the outlook for our key markets is either unplanned or unforeseen and as a result we are poorly planned to respond. Whilst not a principal risk, see our financial review on page 17 for details on how we are monitoring the possible impacts of the UK's planned withdrawal from the EU and related risks.
- **Future growth** – This risk considers the potential failure to deliver growth and create value as communicated in our capital markets day
- **Maintaining our competitive advantage** – Failure to maintain our competitive advantage in existing markets
- **Environment, health and safety** – Operating safely in line with changes to environmental, health and safety legislation standards
- **Sourcing of strategic materials** – Any breakdown in the supply of certain strategic raw materials would lead to an inability to manufacture and satisfy customer demand
- **People** – Ensure we have the breadth and depth of leadership and the appropriate capabilities
- **Security of metal and highly regulated substances**
- **Intellectual capital management**
- **Failure of significant sites**
- **Ethics and compliance** – Doing the right thing
- **Business transition** – Failure to manage major programmes and transition from a big small company to a small big company
- **Product quality**
- **Applications, systems and cyber**

Responsibility Statement of the Directors in respect of the Half-Yearly Report

The Half Yearly Report is the responsibility of the directors. Each of the directors as at the date of this responsibility statement, whose names and functions are set out below, confirms that to the best of their knowledge:

- the condensed consolidated accounts have been prepared in accordance with International Accounting Standard (IAS) 34 – ‘Interim Financial Reporting’; and
- the interim management report included in the Half-Yearly Report includes a fair review of the information required by:
 - a) DTR 4.2.7R of the Financial Conduct Authority’s Disclosure Guidance and Transparency Rules, being an indication of important events that have occurred during the first six months of the financial year and their impact on the condensed consolidated accounts; and a description of the principal risks and uncertainties for the remaining six months of the financial year; and
 - b) DTR 4.2.8R of the Financial Conduct Authority’s Disclosure Guidance and Transparency Rules, being related party transactions that have taken place in the first six months of the current financial year and that have materially affected the financial position or performance of the company during that period; and any changes in the related party transactions described in the last annual report that could do so.

The names and functions of the directors of Johnson Matthey Plc are as follows:

Patrick Thomas	Chairman of the Board and of the Nomination Committee
Odile Desforges	Non-Executive Director
Alan Ferguson	Non-Executive Director, Senior Independent Director and Chairman of the Audit Committee
Jane Griffiths	Non-Executive Director
Robert MacLeod	Chief Executive
Anna Manz	Chief Financial Officer
Chris Mottershead	Non-Executive Director and Chairman of the Remuneration Committee
John O’Higgins	Non-Executive Director
John Walker	Sector Chief Executive, Clean Air

The responsibility statement was approved by the Board of Directors on 20th November 2018 and is signed on its behalf by:

Patrick Thomas

Chairman

Independent Review Report

to Johnson Matthey Plc

Report on the condensed consolidated accounts

Our conclusion

We have reviewed Johnson Matthey Plc's condensed consolidated accounts (the "interim financial statements") in the half year results of Johnson Matthey Plc for the six-month period ended 30th September 2018. Based on our review, nothing has come to our attention that causes us to believe that the interim financial statements are not prepared, in all material respects, in accordance with International Accounting Standard 34, 'Interim Financial Reporting', as adopted by the European Union and the Disclosure Guidance and Transparency Rules sourcebook of the United Kingdom's Financial Conduct Authority.

What we have reviewed

The interim financial statements comprise:

- the Condensed Consolidated Balance Sheet as at 30th September 2018;
- the Condensed Consolidated Income Statement and Condensed Consolidated Statement of Total Comprehensive Income for the period then ended;
- the Condensed Consolidated Cash Flow Statement for the period then ended;
- the Condensed Consolidated Statement of Changes in Equity for the period then ended; and
- the explanatory notes to the interim financial statements.

The interim financial statements included in the half year results have been prepared in accordance with International Accounting Standard 34, 'Interim Financial Reporting', as adopted by the European Union and the Disclosure Guidance and Transparency Rules sourcebook of the United Kingdom's Financial Conduct Authority.

As disclosed in note 1 to the interim financial statements, the financial reporting framework that has been applied in the preparation of the full annual financial statements of the group is applicable law and International Financial Reporting Standards (IFRSs) as adopted by the European Union.

Responsibilities for the interim financial statements and the review

Our responsibilities and those of the directors

The half year results, including the interim financial statements, is the responsibility of, and has been approved by, the directors. The directors are responsible for preparing the half year results in accordance with the Disclosure Guidance and Transparency Rules sourcebook of the United Kingdom's Financial Conduct Authority.

Our responsibility is to express a conclusion on the interim financial statements in the half year results based on our review. This report, including the conclusion, has been prepared for and only for the company for the purpose of complying with the Disclosure Guidance and Transparency Rules sourcebook of the United Kingdom's Financial Conduct Authority and for no other purpose. We do not, in giving this conclusion, accept or assume responsibility for any other purpose or to any other person to whom this report is shown or into whose hands it may come save where expressly agreed by our prior consent in writing.

What a review of interim financial statements involves

We conducted our review in accordance with International Standard on Review Engagements (UK and Ireland) 2410, 'Review of Interim Financial Information Performed by the Independent Auditor of the Entity' issued by the Auditing Practices Board for use in the United Kingdom. A review of interim financial information consists of making enquiries, primarily of persons responsible for financial and accounting matters, and applying analytical and other review procedures.

A review is substantially less in scope than an audit conducted in accordance with International Standards on Auditing (UK) and, consequently, does not enable us to obtain assurance that we would become aware of all significant matters that might be identified in an audit. Accordingly, we do not express an audit opinion.

We have read the other information contained in the half year results and considered whether it contains any apparent misstatements or material inconsistencies with the information in the interim financial statements.

PricewaterhouseCoopers LLP
Chartered Accountants
London
20th November 2018

Notes:

- a) The maintenance and integrity of the Johnson Matthey Plc website is the responsibility of the directors; the work carried out by the auditors does not involve consideration of these matters and, accordingly, the auditors accept no responsibility for any changes that may have occurred to the interim financial statements since it was initially presented on the website.
- b) Legislation in the United Kingdom governing the preparation and dissemination of interim financial statements may differ from legislation in other jurisdictions.

Condensed Consolidated Income Statement

for the six months ended 30th September 2018

	Notes	Six months ended	
		30.9.18 £ million	30.9.17 £ million
Revenue			
Cost of sales	2, 3	7,108	6,478
		(6,634)	(6,045)
Gross profit		474	433
Operating expenses		(203)	(183)
Amortisation of acquired intangibles	6	(7)	(10)
Major impairment and restructuring charges	7	-	(18)
Operating profit		264	222
Finance costs		(24)	(20)
Finance income		4	4
Share of loss of joint venture and associate		-	(1)
Profit before tax		244	205
Income tax expense		(40)	(36)
Profit for the period		204	169
		pence	pence
Earnings per ordinary share			
Basic		106.1	87.9
Diluted		105.9	87.8

Condensed Consolidated Statement of Total Comprehensive Income

for the six months ended 30th September 2018

	Notes	Six months ended	
		30.9.18 £ million	30.9.17 £ million
Profit for the period		204	169
Other comprehensive income			
Items that will not be reclassified to the income statement			
Remeasurements of post-employment benefit assets and liabilities	11	65	(1)
Tax on items that will not be reclassified to the income statement		(11)	1
		54	-
Items that may be reclassified to the income statement			
Currency translation differences		42	(59)
Cash flow hedges		(1)	5
Fair value (loss) / gain on net investment hedges		(7)	2
Fair value loss on investments at fair value through other comprehensive income		(2)	-
Tax on items that may be reclassified to the income statement		1	-
		33	(52)
Other comprehensive income / (expense) for the period		87	(52)
Total comprehensive income for the period		291	117

Condensed Consolidated Balance Sheet

as at 30th September 2018

	Notes	30.9.18 £ million	31.3.18 £ million
Assets			
Non-current assets			
Property, plant and equipment		1,173	1,155
Goodwill		582	574
Other intangible assets		320	295
Investments in joint venture and associate		20	20
Deferred income tax assets		39	48
Investments at fair value through other comprehensive income		55	56
Interest rate swaps	9	6	6
Other receivables		41	38
Post-employment benefit net assets	11	324	236
Total non-current assets		2,560	2,428
Current assets			
Inventories		1,035	783
Current income tax assets		29	35
Trade and other receivables		1,281	1,228
Cash and cash equivalents — cash and deposits ¹	9	141	374
Other financial assets		17	15
Total current assets		2,503	2,435
Total assets		5,063	4,863
Liabilities			
Current liabilities			
Trade and other payables		(920)	(1,012)
Current income tax liabilities		(133)	(149)
Cash and cash equivalents — bank overdrafts ¹	9	(21)	(70)
Other borrowings and related swaps ¹	9	(170)	(38)
Other financial liabilities		(13)	(12)
Provisions		(28)	(37)
Total current liabilities		(1,285)	(1,318)
Non-current liabilities			
Borrowings and related swaps	9	(992)	(951)
Deferred income tax liabilities		(97)	(94)
Employee benefit obligations	11	(110)	(103)
Provisions		(13)	(14)
Other payables		(5)	(5)
Total non-current liabilities		(1,217)	(1,167)
Total liabilities		(2,502)	(2,485)
Net assets		2,561	2,378
Equity			
Share capital		221	221
Share premium		148	148
Shares held in employee share ownership trust (ESOT)		(45)	(48)
Other reserves ²		95	62
Retained earnings ²		2,142	1,995
Total equity		2,561	2,378

¹ Re-presented to increase cash and deposits by £45 million, bank overdrafts by £17 million and other current borrowings and related swaps by £28 million at 31st March 2018 to better reflect the group's cash pooling and borrowing arrangements.

² Restated on adoption of IFRS 9 and IFRS 15.

Condensed Consolidated Cash Flow Statement

for the six months ended 30th September 2018

	Notes	Six months ended	
		30.9.18 £ million	30.9.17 £ million
Profit before tax		244	205
Adjustments for:			
Share of loss of joint venture and associate		-	1
Depreciation, amortisation, impairment losses and (profit) / loss on sale of non-current assets and investments		86	95
Share-based payments		3	4
Changes in working capital and provisions		(391)	(264)
Changes in fair value of financial instruments		(2)	(4)
Net finance costs		20	16
Income tax paid		(48)	(45)
Net cash (outflow) / inflow from operating activities		(88)	8
Dividends received from joint venture and associate		-	1
Interest received		4	1
Purchases of non-current assets and investments		(96)	(81)
Proceeds from sale of non-current assets and investments		1	1
Net cash outflow from investing activities		(91)	(78)
Proceeds from borrowings falling due within one year		137	15
Repayment of borrowings falling due within one year		(2)	-
Dividends paid to equity owners of the parent company	8	(112)	(104)
Settlement of currency swaps for net investment hedging		-	(3)
Interest paid		(27)	(20)
Net cash outflow from financing activities		(4)	(112)
Net decrease in cash and cash equivalents		(183)	(182)
Exchange differences on cash and cash equivalents		(1)	(4)
Cash and cash equivalents at 1 April ¹		304	298
Cash and cash equivalents at end of period	9	120	112
Reconciliation to net debt			
Net decrease in cash and cash equivalents		(183)	(182)
Less: Net proceeds from borrowings		(135)	(15)
Increase in net debt from cash flows		(318)	(197)
Exchange differences on net debt		(39)	22
Increase in net debt		(357)	(175)
Net debt at 1 April		(679)	(716)
Net debt at end of period	9	(1,036)	(891)

¹ Re-presented to increase cash and cash equivalents at 1st April 2018 by £28 million to better reflect the group's borrowing arrangements.

Condensed Consolidated Statement of Changes in Equity

for the six months ended 30th September 2018

	Share capital £ million	Share premium account £ million	Shares held in ESOT £ million	Other reserves £ million	Retained earnings £ million	Non- controlling interests £ million	Total equity £ million
At 1 st April 2017	221	148	(55)	147	1,776	(20)	2,217
Total comprehensive income for the period	-	-	-	(52)	169	-	117
Dividends paid (note 8)	-	-	-	-	(104)	-	(104)
Share-based payments	-	-	-	-	7	-	7
Cost of shares transferred to employees	-	-	5	-	(8)	-	(3)
At 30 th September 2017	221	148	(50)	95	1,840	(20)	2,234
Total comprehensive income for the period	-	-	-	(32)	201	-	169
Dividends paid	-	-	-	-	(42)	-	(42)
Share-based payments	-	-	-	-	10	-	10
Cost of shares transferred to employees	-	-	2	-	(6)	-	(4)
Purchase of non-controlling interests	-	-	-	-	(9)	20	11
At 31 st March 2018	221	148	(48)	63	1,994	-	2,378
Impact of adoption of IFRS 9 (note 16)	-	-	-	(1)	-	-	(1)
Impact of adoption of IFRS 15 (note 16)	-	-	-	-	1	-	1
At 31 st March 2018 (restated)	221	148	(48)	62	1,995	-	2,378
Total comprehensive income for the period	-	-	-	33	258	-	291
Dividends paid (note 8)	-	-	-	-	(112)	-	(112)
Share-based payments	-	-	-	-	6	-	6
Cost of shares transferred to employees	-	-	3	-	(6)	-	(3)
Tax on share-based payments	-	-	-	-	1	-	1
At 30th September 2018	221	148	(45)	95	2,142	-	2,561

Notes to the Accounts

for the six months ended 30th September 2018

1 Basis of preparation

These condensed consolidated accounts do not constitute statutory accounts within the meaning of Section 435 of the Companies Act 2006 and should be read in conjunction with the Annual Report 2018. The half-yearly accounts have been prepared in accordance with International Accounting Standard (IAS) 34 'Interim Financial Reporting' and the Disclosure Guidance and Transparency Rules of the UK's Financial Conduct Authority. The accounting policies applied are consistent with the accounting policies applied by the group in its consolidated accounts as at, and for the year ended, 31st March 2018, with the exception of the adoption of two new standards as explained below.

Information in respect of the year ended 31st March 2018 is derived from the company's statutory accounts for that year which have been delivered to the Registrar of Companies. The auditor's report on those statutory accounts was unqualified, did not include a reference to any matters to which the auditor drew attention by way of emphasis without qualifying its report and did not contain any statement under Section 498 (2) or Section 498 (3) of the Companies Act 2006. The 2018 accounts were reported on by KPMG LLP. Following the Annual General Meeting on 26th July 2018, PricewaterhouseCoopers LLP succeeded KPMG LLP as the company's auditor.

Cash and deposits, bank overdrafts and other current borrowings and related swaps in the group's consolidated balance sheet at 31st March 2018 have been re-presented to better reflect the group's cash pooling and borrowing arrangements as follows: increase cash and deposits (£45 million), increase bank overdrafts (£17 million) and increase other current borrowings and related swaps (£28 million).

The half-yearly accounts are unaudited, but have been reviewed by the auditors. They were approved by the board of directors on 20th November 2018.

New standards adopted by the group

IFRS 9 'Financial Instruments' and IFRS 15 'Revenue from Contracts with Customers' became applicable to the group on 1st April 2018 and the group changed its accounting policies as a result of adopting these new standards. The impact of the adoption of these standards and the group's new accounting policies are disclosed in note 16.

New standards issued, but not yet adopted by the group

IFRS 16 'Leases', which replaces IAS 17 'Leases', is applicable to the group from 1st April 2019. Whilst lessor accounting is similar to IAS 17, lessee accounting is significantly different. Under IFRS 16, the group will recognise on the balance sheet a right-of-use asset and a lease liability for future lease payments in respect of all leases unless the underlying assets are of low value or the lease term is 12 months or less. In the income statement, rental expense on the impacted leases will be replaced with depreciation on the right-of-use asset and interest expense on the lease liability. As set out in note 39 of the Annual Report 2018, the group had operating lease commitments totalling £93 million at 31st March 2018 and, therefore, IFRS 16 will have a material impact on the group's balance sheet. The implications of the standard are currently under review and the group has not yet determined which transition option will be applied. As the impact of transition is dependent on the option chosen, the group is unable to quantify the effect at this time.

Notes to the Accounts

for the six months ended 30th September 2018

2 Segmental information

Underlying operating profit by segment

	Clean Air £ million	Efficient Natural Resources £ million	Health £ million	New Markets £ million	Eliminations £ million	Total £ million
Six months ended 30th September 2018						
Revenue from external customers	2,305	4,461	120	222	-	7,108
Inter-segment revenue	144	1,203	-	7	(1,354)	-
Total revenue	2,449	5,664	120	229	(1,354)	7,108
External sales excluding precious metals	1,312	408	118	171	-	2,009
Inter-segment sales	-	55	-	2	(57)	-
Sales excluding precious metals	1,312	463	118	173	(57)	2,009
Segmental underlying operating profit	191	85	15	3	-	294
Unallocated corporate expenses						(23)
Underlying operating profit (note 5)						271
Segmental net assets	1,245	1,342	486	231	-	3,304
Six months ended 30th September 2017						
Revenue from external customers	2,006	4,169	122	181	-	6,478
Inter-segment revenue	128	1,034	-	9	(1,171)	-
Total revenue	2,134	5,203	122	190	(1,171)	6,478
External sales excluding precious metals	1,194	403	119	137	-	1,853
Inter-segment sales	-	55	-	6	(61)	-
Sales excluding precious metals	1,194	458	119	143	(61)	1,853
Segmental underlying operating profit	168	70	21	9	-	268
Unallocated corporate expenses						(18)
Underlying operating profit (note 5)						250
Segmental net assets	1,085	1,273	534	218	-	3,110

Reconciliation from underlying operating profit to operating profit by segment

	Clean Air £ million	Efficient Natural Resources £ million	Health £ million	New Markets £ million	Corporate £ million	Total £ million
Six months ended 30th September 2018						
Underlying operating profit (note 5)	191	85	15	3	(23)	271
Amortisation of acquired intangibles (note 6)	(1)	(3)	-	(3)	-	(7)
Operating profit / (loss)	190	82	15	-	(23)	264
Six months ended 30th September 2017						
Underlying operating profit (note 5)	168	70	21	9	(18)	250
Amortisation of acquired intangibles (note 6)	(1)	(4)	-	(5)	-	(10)
Major impairment and restructuring charges (note 7)	-	(7)	(2)	(9)	-	(18)
Operating profit / (loss)	167	59	19	(5)	(18)	222

Notes to the Accounts

for the six months ended 30th September 2018

3 Revenue

	Six months ended 30.9.18 £ million	30.9.17 £ million
Sale of goods	7,051	6,424
Rendering of services	48	44
Royalties and licence income	9	10
Total revenue	7,108	6,478

4 Effect of exchange rate changes on translation of foreign subsidiaries' sales excluding precious metals and underlying operating profits

Average exchange rates used for translation of results of foreign operations	Six months ended 30.9.18	30.9.17
US dollar / £	1.329	1.295
Euro / £	1.131	1.138
Chinese renminbi / £	8.77	8.76

The main impact of exchange rate movements on the group's sales and underlying operating profit comes from the translation of foreign subsidiaries' results into sterling.

	Six months ended 30.9.18 £ million	Six months ended 30.9.17 At last year's rates £ million	At this year's rates £ million	Change at this year's rates %
Sales excluding precious metals				
Clean Air	1,312	1,194	1,178	+11
Efficient Natural Resources	463	458	451	+3
Health	118	119	117	-
New Markets	173	143	140	+23
Elimination of inter-segment sales	(57)	(61)	(60)	
Sales excluding precious metals	2,009	1,853	1,826	+10
Underlying operating profit				
Clean Air	191	168	167	+15
Efficient Natural Resources	85	70	68	+26
Health	15	21	21	-31
New Markets	3	9	8	-67
Unallocated corporate expenses	(23)	(18)	(18)	
Underlying operating profit (note 5)	271	250	246	+10

Notes to the Accounts

for the six months ended 30th September 2018

5 Underlying profit reconciliation

	Six months ended 30.9.18 £ million	30.9.17 £ million
Underlying operating profit	271	250
Amortisation of acquired intangibles (note 6)	(7)	(10)
Major impairment and restructuring charges (note 7)	-	(18)
Operating profit	264	222
Underlying profit before tax	251	233
Amortisation of acquired intangibles (note 6)	(7)	(10)
Major impairment and restructuring charges (note 7)	-	(18)
Profit before tax	244	205
Tax on underlying profit before tax	(41)	(42)
Tax on amortisation of acquired intangibles (note 6)	1	3
Tax on major impairment and restructuring charges (note 7)	-	3
Income tax expense	(40)	(36)
Underlying profit for the period	210	191
Amortisation of acquired intangibles (note 6)	(7)	(10)
Major impairment and restructuring charges (note 7)	-	(18)
Tax thereon	1	6
Profit for the period	204	169
	million	million
Weighted average number of shares in issue	192.1	191.9
	pence	pence
Underlying earnings per share	109.0	99.8

6 Amortisation of acquired intangibles

Amortisation of intangible assets which arises on the acquisition of businesses, together with any subsequent impairment of these intangible assets, is shown separately on the face of the income statement and excluded from underlying operating profit.

7 Major impairment and restructuring charges

Major impairment and restructuring charges are shown separately on the face of the income statement and excluded from underlying operating profit. As part of the group's operational efficiency programme announced on 31st March 2017, a restructuring charge of £18 million was incurred in the six months ended 30th September 2017 primarily related to redundancies and business closures. Of the total, £8 million related to asset write-offs, £6 million to provisions and £4 million to cash costs incurred.

Notes to the Accounts

for the six months ended 30th September 2018

8 Dividends

An interim dividend of 23.25 pence (2017/18 21.75 pence) per ordinary share has been proposed by the board which will be paid on 5th February 2019 to shareholders on the register at the close of business on 30th November 2018. The estimated amount to be paid is £45 million (2017/18 £42 million) and has not been recognised in these accounts.

	Six months ended 30.9.18 £ million	30.9.17 £ million
2016/17 final ordinary dividend paid — 54.5 pence per share	-	104
2017/18 final ordinary dividend paid — 58.25 pence per share	112	-
Total dividends	112	104

9 Net debt

	30.9.18 £ million	31.3.18 £ million
Cash and deposits ¹	141	374
Bank overdrafts ¹	(21)	(70)
Cash and cash equivalents	120	304
Other current borrowings and related swaps ¹	(170)	(38)
Non-current borrowings and related swaps	(992)	(951)
Non-current interest rate swaps	6	6
Net debt	(1,036)	(679)

¹ Re-presented to increase cash and deposits by £45 million, bank overdrafts by £17 million and other current borrowings and related swaps by £28 million at 31st March 2018 to better reflect the group's cash pooling and borrowing arrangements.

The increase in current borrowings primarily reflects the draw-down of short-term loans from committed revolving credit facilities in order to meet the funding requirements of the business.

10 Precious metal operating leases

The group leases, rather than purchases, precious metals to fund temporary peaks in metal requirements provided market conditions allow. These leases are from banks for specified periods (typically a few months) and for which the group pays a fee. These arrangements are classified as operating leases. The group holds sufficient precious metal inventories to meet all the obligations under these lease arrangements as they fall due. At 30th September 2018, precious metal leases were £263 million (31st March 2018 £184 million).

Notes to the Accounts

for the six months ended 30th September 2018

11 Post-employment benefits

The group has updated the accounting valuation of its main post-employment benefit plans, which are its UK and US pension plans, and US post-retirement medical benefits plan, at 30th September 2018.

Movements in the net post-employment benefit assets and liabilities, including reimbursement rights, were:

	UK pension £ million	UK post-retirement medical benefits £ million	US pensions £ million	US post-retirement medical benefits £ million	Other £ million	Total £ million
At 1 st April 2018	226	(9)	(20)	(26)	(34)	137
Current service cost	(14)	-	(4)	-	(2)	(20)
Past service credit	8	-	-	-	-	8
Administrative expenses	(1)	-	(1)	-	-	(2)
Net interest	3	-	-	(1)	(1)	1
Remeasurements	67	-	(3)	1	-	65
Company contributions	26	-	5	1	1	33
Exchange adjustments	-	-	(2)	(3)	1	(4)
At 30th September 2018	315	(9)	(25)	(28)	(35)	218

The £8 million past service credit in the UK pension plans arose as a result of the breaking of the salary linkage on the accrued pensions of employees who elected to switch from the Career Average section to the hybrid cash balance (Elements) section during the period.

The £67 million remeasurement credit in the UK pension plans mainly reflects a reduction in liabilities as a result of a 20 basis-point increase in the real (after inflation) discount rate from 31st March 2018 to 30th September 2018.

The post-employment benefit assets and liabilities are included in the balance sheet as:

	30.9.18 Post-employment benefit net assets £ million	30.9.18 Employee benefit obligations £ million	31.3.18 Post-employment benefit net assets £ million	31.3.18 Employee benefit obligations £ million
UK pension plan	315	-	226	-
UK post-retirement medical benefits plan	-	(9)	-	(9)
US pension plans	-	(25)	-	(20)
US post-retirement medical benefits plan	8	(36)	8	(34)
Other plans	1	(36)	2	(36)
Total post-employment plans	324	(106)	236	(99)
Other long term employee benefits		(4)		(4)
Total long term employee benefit obligations		(110)		(103)

12 Transactions with related parties

There have been no material changes in related party relationships in the six months ended 30th September 2018 and no other related party transactions have taken place which have materially affected the financial position or performance of the group during that period.

Notes to the Accounts

for the six months ended 30th September 2018

13 Financial instruments

Fair values are measured using a hierarchy where the inputs are:

- Level 1 — quoted prices in active markets for identical assets or liabilities.
- Level 2 — not level 1, but are observable for that asset or liability either directly or indirectly. The fair values are estimated by discounting the future contractual cash flows using appropriate market-sourced data at the balance sheet date.
- Level 3 — not based on observable market data (unobservable).

There have been no transfers between levels during the period.

Financial instruments measured at fair value are:

	30.9.18 Level 1 £ million	30.9.18 Level 2 £ million	31.3.18 Level 1 £ million	31.3.18 Level 2 £ million
Quoted bonds purchased to fund pension deficit included in:				
Non-current investments	52	-	53	-
Interest rate swaps included in:				
Non-current assets	-	6	-	6
Current other borrowings and related swaps	-	(1)	-	(2)
Non-current borrowings and related swaps	-	(10)	-	(8)
Forward foreign exchange and precious metal price contracts and currency swaps included in:				
Current other financial assets	-	17	-	15
Current other financial liabilities	-	(13)	-	(12)

The fair value of financial instruments is approximately equal to book value except for:

	30.9.18 Carrying amount £ million	30.9.18 Fair value £ million	31.3.18 Carrying amount £ million	31.3.18 Fair value £ million
US Dollar Bonds 2022, 2023, 2025 and 2028	(478)	(453)	(448)	(420)
Euro Bonds 2021 and 2023	(107)	(118)	(104)	(118)
Euro EIB loan 2019	(110)	(114)	(109)	(113)
Sterling Bonds 2024	(65)	(70)	(65)	(71)
KfW US dollar loan 2024	(38)	(37)	(36)	(35)

Unquoted investments included in non-current investments have a carrying amount of £3 million at 30th September 2018 (31st March 2018 £3 million). There is no active market for these investments and, therefore, they are categorised as level 3.

Notes to the Accounts

for the six months ended 30th September 2018

14 Contingent liabilities

The group is involved in various disputes and claims which arise from time to time in the course of its business including, for example, in relation to commercial matters, product liability, employee matters and tax audits. The group is also involved from time to time in the course of its business in legal proceedings and actions, engagement with regulatory authorities and in dispute resolution processes. These are reviewed on a regular basis and, where possible, an estimate is made of the potential financial impact on the group. In appropriate cases a provision is recognised based on advice, best estimates and management judgement. Where it is too early to determine the likely outcome of these matters, no provision is made. Whilst the group cannot predict the outcome of any current or future such matters with any certainty, it currently believes the likelihood of any material liabilities to be low, and that such liabilities, if any, will not have a material adverse effect on its consolidated income, financial position or cash flows.

On a current specific matter, Johnson Matthey has been informed by two customers of failures in certain engine systems for which the group supplied a particular coated substrate as a component for their customers' emissions after-treatment systems. The reported failures have not been demonstrated to be due to the coated substrate supplied by Johnson Matthey. The particular coated substrate has been sold to only these two customers. While Johnson Matthey works with all its customers to ensure appropriate product quality, we have not received similar notification of issues in respect of other emissions after-treatment components from these or any other customers. Johnson Matthey has not been contacted by any regulatory authority about these failures.

Having reviewed its contractual obligations and the information currently available to it, the group believes it has defensible warranty positions in respect of its supplies of coated substrate for the after-treatment systems in the affected engines. If required, it will vigorously assert its available contractual protections and defences. The outcome of any discussions relating to the matters raised is not certain, nor is the group able to make a reliable estimate of the possible financial impact at this stage, if any. Our vision is for a world that's cleaner and healthier; today and for future generations. We are committed to enabling improving air quality and we work constructively with our customers to achieve this.

15 Events after the balance sheet date

On 26th October, the High Court ruled that UK defined benefit pension schemes should be amended to equalise pension benefits for men and women in relation to guaranteed minimum pensions. The group is working with the trustees of its UK pension plans to understand the extent to which the ruling impacts the liabilities of its plans. Any additional liabilities will be treated as a plan amendment and a past service cost will be reflected in the income statement in the second half of the year. As there are still a number of uncertainties with respect to the period over which the benefits should be equalised, the group cannot provide a definitive estimate of the income statement impact at this date, although the amount may be up to £30 million.

16 Changes in accounting policies

This note explains the impact of the adoption of IFRS 9 'Financial Instruments' and IFRS 15 'Revenue from Contracts with Customers' on the group's financial statements and discloses the new accounting policies that have been applied from 1st April 2018 where they are different from those applied in earlier periods.

IFRS 9

Impact of adoption

IFRS 9 introduces new requirements for recognition, classification and measurement of financial assets and financial liabilities, a new impairment model for financial assets based on expected credit losses and simplified hedge accounting, replacing the requirements of IAS 39 'Financial Instruments: Recognition and Measurement'.

Classification and measurement

The group has classified its financial instruments in the appropriate IFRS 9 categories as at 1st April 2018 and, as a result, certain financial assets were reclassified from being valued at amortised cost to fair value through other comprehensive income. Derivative financial instruments that did not qualify for hedge accounting under IAS 39 were classified in the fair value through profit or loss category and gains and losses have been recognised in the income statement in the period. There is no change in the classification of these financial instruments under IFRS 9 as they fail the contractual cash flow characteristics test.

Impairment of financial assets

Trade and other receivables and contract receivables are subject to IFRS 9's new expected credit loss model and, as they do not contain a significant financing element, expected credit losses are measured using the simplified approach, which requires expected lifetime losses to be recognised from initial recognition. Whilst cash and cash equivalents are also subject to the impairment requirements of IFRS 9, there was no identified impairment loss on these balances.

Hedge accounting

Derivative financial instruments designated as part of cash flow hedges, fair values hedges and net investment hedges under IAS 39 at 31st March 2018 continue to qualify for hedge accounting under IFRS 9 at 1st April 2018 and are, therefore, treated as continuing hedges.

Summary

Changes to the classification and measurement of financial assets are applied retrospectively by adjusting opening retained earnings at 1st April 2018. The group has chosen not to restate comparative information for prior periods. The impact of adopting IFRS 9 on the group's equity as at 1st April 2018 is a decrease of £1 million.

Accounting policies applied since 1st April 2018

Investments and other financial assets

The group classifies its financial assets in the following measurement categories:

- those measured at fair value either through other comprehensive income or through profit or loss; and
- those measured at amortised cost.

At initial recognition, the group measures financial assets at fair value plus, in the case of financial assets not measured at fair value through profit or loss, transaction costs that are directly attributable to their acquisition.

The group subsequently measures equity investments at fair value and has elected to present fair value gains and losses on equity investments in other comprehensive income. There is, therefore, no subsequent reclassification of cumulative fair value gains and losses to profit or loss following disposal of the investments.

The group subsequently measures trade and other receivables and contract receivables at amortised cost, with the exception of trade receivables designated as at fair value through other comprehensive income where the group has entered into debt factoring arrangements. All other financial assets, including short-term receivables, are measured at amortised cost less any impairment provision.

Notes to the Accounts

for the six months ended 30th September 2018

For trade and other receivables and contract receivables, the group applies the simplified approach permitted by IFRS 9, which requires expected lifetime losses to be recognised from initial recognition.

Derivative financial instruments

The group uses derivative financial instruments, in particular forward currency contracts and currency swaps, to manage the financial risks associated with its underlying business activities and the financing of those activities. The group does not undertake any speculative trading activity in derivative financial instruments.

Derivative financial instruments are measured at their fair value. Derivative financial instruments may be designated at inception as fair value hedges, cash flow hedges or net investment hedges if appropriate. Derivative financial instruments which are not designated as hedging instruments are classified as at fair value through profit or loss, but are used to manage financial risk. Changes in the fair value of any derivative financial instruments that are not designated as, or are not determined to be, effective hedges are recognised immediately in the income statement. The vast majority of forward precious metal price contracts are entered into and held for the receipt or delivery of precious metal and, therefore, are not recorded at fair value.

Cash flow hedges

Changes in the fair value of derivative financial instruments designated as cash flow hedges are recognised in other comprehensive income to the extent that the hedges are effective. Ineffective portions are recognised in the income statement immediately. If the hedged item results in the recognition of a non-financial asset or liability, the amount previously recognised in other comprehensive income is transferred out of equity and included in the initial carrying amount of the asset or liability. Otherwise, the amount previously recognised in other comprehensive income is transferred to the income statement in the same period that the hedged item is recognised in the income statement. If the hedging instrument expires or is sold, terminated or exercised, the hedge no longer meets the criteria for hedge accounting or the designation is revoked, amounts previously recognised in other comprehensive income remain in equity until the forecast transaction occurs. If a forecast transaction is no longer expected to occur, the amounts previously recognised in other comprehensive income are transferred to the income statement. If a forward precious metal price contract will be settled net in cash, it is designated and accounted for as a cash flow hedge.

Fair value hedges

Changes in the fair value of derivative financial instruments designated as fair value hedges are recognised in the income statement, together with the related changes in the fair value of the hedged asset or liability. Fair value hedge accounting is discontinued if the hedging instrument expires or is sold, terminated or exercised, the hedge no longer meets the criteria for hedge accounting or the designation is revoked.

Net investment hedges

For hedges of net investments in foreign operations, the effective portion of the gain or loss on the hedging instrument is recognised in other comprehensive income, while the ineffective portion is recognised in the income statement. Amounts taken to other comprehensive income are reclassified from equity to the income statement when the foreign operations are sold or liquidated.

Financial liabilities

Borrowings are measured at amortised cost unless they are designated as being fair value hedged, in which case they are remeasured for the fair value changes in respect of the hedged risk with these changes recognised in the income statement. All other financial liabilities, including short-term payables, are measured at amortised cost.

IFRS 15

Impact of adoption

IFRS 15 supersedes all revenue standards and interpretations in IFRS. It provides a principles-based approach for revenue recognition and requires that revenue is recognised as the distinct performance obligations promised within a contract are satisfied either at a point in time or over time.

Whilst some timing differences have been identified as a result of allocating revenue to distinct performance obligations or where the criteria set out in IFRS 15 for recognising revenue over time are met, applying IFRS 15 has not had a significant impact on the timing and recognition of revenue.

Notes to the Accounts

for the six months ended 30th September 2018

IFRS 15 provides new guidance in respect of principal versus agent considerations which is relevant to the sale of metal and substrate in Clean Air and to the sale of metal in Efficient Natural Resources. Revenue in respect of the sale of the company's metal and substrate continues to be recognised on a gross basis reflecting the fact that the group is the principal. Where the group refines metal owned by customers and control of the metal remains with the customer during the process, the revenue recognised does not include the value of the metal controlled by the customer.

Revenue from refining metal owned by customers in Efficient Natural Resources continues to be recognised over time on the basis that the group is enhancing an asset controlled by the customer.

Summary

The group has applied IFRS 15 on a modified retrospective basis, recognising the cumulative effect of initial application as an adjustment to opening retained earnings for contracts which were not completed at the adoption date. This means that the comparative information continues to be recognised under previous revenue accounting requirements. The impact of adopting IFRS 15 on the group's equity as at 1st April 2018 is an increase of £1 million. The impact of adoption on the half year financial results is also not significant.

Accounting policies applied since 1st April 2018

Revenue represents income derived from contracts for the provision of goods and services by the company and its subsidiary undertakings to customers in exchange for consideration in the ordinary course of the group's activities.

Performance obligations

Upon approval by the parties to a contract, the contract is assessed to identify each promise to transfer either a distinct good or service or a series of distinct goods or services that are substantially the same and have the same pattern of transfer to the customer. Goods and services are distinct and accounted for as separate performance obligations in the contract if the customer can benefit from them either on their own or together with other resources that are readily available to the customer and they are separately identifiable in the contract.

The group typically sells licences to its intellectual property together with other goods and services and, since these licences are not generally distinct in the context of the contract, revenue recognition is considered at the level of the performance obligation of which the licence forms part. Revenue in respect of performance obligations containing bundles of goods and services in which a licence with a sales or usage-based royalty is the predominant item is recognised when sales or usage occur.

Transaction price

At the start of the contract, the total transaction price is estimated as the amount of consideration to which the group expects to be entitled in exchange for transferring the promised goods and services to the customer, excluding sales taxes. Variable consideration, such as trade discounts, is included based on the expected value or most likely amount only to the extent that it is highly probable that there will not be a reversal in the amount of cumulative revenue recognised. The transaction price does not include estimates of consideration resulting from contract modifications until they have been approved by the parties to the contract. The total transaction price is allocated to the performance obligations identified in the contract in proportion to their relative stand-alone selling prices. Many of the group's products and services are bespoke in nature and, therefore, stand-alone selling prices are estimated based on cost plus margin or by reference to market data for similar products and services.

Revenue recognition

Revenue is recognised as performance obligations are satisfied as control of the goods and services is transferred to the customer.

For each performance obligation within a contract, the group determines whether it is satisfied over time or at a point in time. Performance obligations are satisfied over time if one of the following criteria is satisfied:

- the customer simultaneously receives and consumes the benefits provided by the group's performance as it performs;
- the group's performance creates or enhances an asset that the customer controls as the asset is created or enhanced; or
- the group's performance does not create an asset with an alternative use to the group and it has an enforceable right to payment for performance completed to date.

Notes to the Accounts

for the six months ended 30th September 2018

If the over time criteria are met, revenue is recognised using an input method based on costs incurred to date as a proportion of estimated total contract costs. When it is probable that total contract costs will exceed total contract revenue, the expected loss is recognised immediately as an expense.

The majority of the metal processed by the group's refining businesses is owned by customers and, therefore, revenue is recognised over time on the basis that the group is enhancing an asset controlled by the customer.

If the over time criteria for revenue recognition are not met, revenue is recognised at the point in time that control is transferred to the customer, which is usually when legal title passes to the customer and the business has the right to payment, for example, when the goods are despatched or delivered in line with the International Chamber of Commerce's International Commercial Terms (Incoterms®) as detailed in the relevant contract or on notification that the goods have been used when they are consignment products located at customers' premises. Most of the group's contracts satisfy the point in time criteria.

Contract modifications

A contract modification exists when the parties to the contract approve a modification that either changes existing or creates new enforceable rights and obligations. The effect of a contract modification on the transaction price and the group's measure of progress towards the satisfaction of the performance obligation to which it relates is recognised in one of the following ways:

- prospectively as an additional, separate contract;
- prospectively as a termination of the existing contract and creation of a new contract; or
- as part of the original contract using a cumulative catch up.

Costs to obtain a contract

Pre-contract bidding costs which are incurred regardless of whether a contract is awarded are expensed as incurred. Costs to obtain contracts that would not have been incurred had the contract not been awarded, such as sales incentives, are capitalised and recognised in line with the revenue to which they relate.

Costs to fulfil a contract

Contract fulfilment costs in respect of over time contracts are expensed as incurred. Contract fulfilment costs in respect of point in time contracts are accounted for under IAS 2 'Inventories'.

Contract receivables

Contract receivables represent amounts for which the group has an unconditional right to consideration in respect of unbilled revenue recognised at the balance sheet date.

Contract liabilities

Contract liabilities represent the obligation to transfer goods or services to a customer for which consideration has been received, or consideration is due, from the customer.

Definition and reconciliation of non-GAAP measures to GAAP measures

for the six months ended 30th September 2018

The group uses various measures to manage its business which are not defined by generally accepted accounting principles (GAAP). The group's management believes these measures provide valuable additional information to users of the accounts in understanding the group's performance.

Sales excluding precious metals (sales)

The group believes that sales excluding precious metals is a better measure of the underlying performance of the group than revenue. Total revenue can be heavily distorted by year-on-year fluctuations in the market prices of precious metals. In addition, in the majority of cases, the value of precious metals is passed directly on to our customers.

Underlying profit and earnings

These are the equivalent GAAP measures adjusted to exclude amortisation of acquired intangibles (note 6), major impairment and restructuring charges (note 7), profit or loss on disposal of businesses, gain or loss on significant legal proceedings together with associated legal costs, significant tax rate changes and, where relevant, related tax effects. The group believes that these measures provide a better guide to the underlying performance of the group. These are reconciled in note 5.

Margin

Underlying operating profit divided by sales excluding precious metals.

Working capital days

Non-precious metal related inventories, trade and other receivables and trade and other payables (including any classified as held for sale) divided by sales excluding precious metals for the last three months multiplied by 90 days.

Average working capital days

The sum of monthly working capital days for the period divided by the number of months in the period.

Free cash flow

Net cash flow from operating activities, after net interest paid, net purchases of non-current assets and investments, and dividends received from joint venture and associate.

Capex

Additions of property, plant and equipment, plus additions of other intangible assets.

Capex to depreciation ratio

Capex divided by depreciation. Depreciation is the depreciation charge on property, plant and equipment, plus the amortisation charge on other intangible assets, excluding amortisation of acquired intangibles (note 6).

Net debt (including post-tax pension deficits) to EBITDA

Net debt, including post-tax pension deficits and bonds purchased to fund UK pensions (excluded when the UK pension plan is in surplus) divided by profit for the period before net finance costs, tax, share of loss of joint venture and associate, major impairment and restructuring charges (note 7), depreciation and amortisation (EBITDA) for the same period.

Return on invested capital (ROIC)

Annualised underlying operating profit divided by the monthly average of equity, plus net debt for the same period.

	Six months ended	
	30.9.18	30.9.17
	£ million	£ million
Average net debt	1,029	922
Average equity	2,373	2,093
Average capital employed	3,402	3,015
Underlying operating profit for this period (note 5)	271	250
Underlying operating profit for prior year	525	513
Underlying operating profit for prior first half (note 5)	(250)	(236)
Annualised underlying operating profit	546	527
ROIC	16.0%	17.5%

Definition and reconciliation of non-GAAP measures to GAAP measures

for the six months ended 30th September 2018

	30.9.18 £ million	31.3.18 £ million
Inventories	1,035	783
Trade and other receivables	1,281	1,228
Trade and other payables	(920)	(1,012)
Total working capital	1,396	999
Less precious metal working capital	(671)	(404)
Working capital (excluding precious metals)	725	595

	Six months ended	
	30.9.18 £ million	30.9.17 £ million
EBITDA	350	327
Depreciation and amortisation	(86)	(87)
Major impairment and restructuring charges (note 7)	-	(18)
Finance costs	(24)	(20)
Finance income	4	4
Share of loss of joint venture and associate	-	(1)
Income tax expense	(40)	(36)
Profit for the period	204	169
EBITDA for this period	350	327
EBITDA for prior year	681	665
less EBITDA for prior first half	(327)	(311)
Annualised EBITDA	704	681
Net debt	(1,036)	(891)
Pension deficits	(61)	(60)
Related deferred tax	11	15
Net debt (including post tax pension deficits)	(1,086)	(936)
Net debt (including post tax pension deficits) to EBITDA	1.5	1.4
Net cash (outflow) / inflow from operating activities	(88)	8
Dividends received from joint venture and associate	-	1
Interest received	4	1
Interest paid	(27)	(20)
Purchases of non-current assets and investments	(96)	(81)
Proceeds from sale of non-current assets and investments	1	1
Free cash flow	(206)	(90)

Financial Calendar

2018

29th November

Ex dividend date

30th November

Interim dividend record date

2019

5th February

Payment of interim dividend

30th May

Announcement of results for the year ending 31st March 2019

6th June

Ex dividend date

7th June

Final dividend record date

17th July

128th Annual General Meeting (AGM)

6th August

Payment of final dividend subject to declaration at the AGM

Cautionary Statement

This announcement contains forward looking statements that are subject to risk factors associated with, amongst other things, the economic and business circumstances occurring from time to time in the countries and sectors in which the group operates. It is believed that the expectations reflected in this announcement are reasonable but they may be affected by a wide range of variables which could cause actual results to differ materially from those currently anticipated.

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