CeramTec Holding GmbH

Supplemental Bondholder Report

Dated November 24, 2017

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FORWARD-LOOKING STATEMENTS

This Supplemental Bondholder Report contains forward-looking statements, including statements about market consolidation and our strategy, investment program, future operations, industry forecasts, expected acquisitions, transactions and investments, and target levels of leverage and indebtedness. Forward-looking statements provide our current expectations, intentions or forecasts of future events. Forward-looking statements include statements about expectations, beliefs, plans, objectives, intentions, assumptions and other statements that are not statements of historical fact. Words or phrases such as "anticipate," "believe," "continue," "estimate," "expect," "intend," "may," "ongoing," "plan," "potential," "predict," "project," "seek," "target" or similar words or phrases, or the negatives of those words or phrases, may identify forward-looking statements, but the absence of these words does not necessarily mean that a statement is not forward-looking.

Forward-looking statements are subject to known and unknown risks and uncertainties and are based on potentially inaccurate assumptions that could cause actual results to differ materially from those expected or implied by the forward-looking statements. Our actual results could differ materially from those expected in our forward-looking statements for many reasons, including the factors described in "*Risk Factors*." In addition, even if our actual results are consistent with the forward-looking statements contained in this Supplemental Bondholder Report, those results or developments may not be indicative of results or developments in subsequent periods. For example, factors that could cause our actual results to vary from projected future results include, but are not limited to:

- new entrants in the hip joint implant market;
- reliance on a number of large customers;
- the inability to retain existing customers or attract new ones;
- the requirements of the U.S. Food and Drug Administration ("FDA"), the European Medicines Agency or other foreign agencies;
- failure to obtain and maintain necessary governmental approvals;
- adverse medical events caused by our products;
- changes in health care reimbursement systems in the U.S. and elsewhere;
- product liability claims;
- global economic conditions, specifically in Europe and Germany, and the conditions in the end market we serve;
- failure to continue our technological innovation and failure to successfully introduce new products to the market;
- intense competitive pressures in several of our end markets;
- local business risk in different countries;
- price increases or interruptions in the supply of raw materials;
- fluctuations in energy costs;
- production curtailment or shutdowns from accidents, equipment malfunctions or other unexpected failures and from our complex manufacturing process;
- inadequate insurance that may not fully cover all potential exposures;
- maintaining operational efficiency and manufacturing quality;
- compliance with extensive environmental, health and safety laws;
- repayment of public subsidies;

- limited protection for our intellectual property and know-how;
- law suits alleging infringements of intellectual property rights of third parties;
- failure to renew agreements with material suppliers;
- losing key personnel or our inability to hire additional personnel;
- defects resulting from outsourcing processes;
- labor disputes;
- failure to comply with anti-corruption laws of the United States and of various international jurisdictions;
- compliance with anti-terrorism laws and regulations and applicable trade embargoes and export controls;
- the United Kingdom's withdrawal from the European Union;
- the break-up of the eurozone;
- security threats, security breaches and breakdowns in information technology systems;
- difficulties integrating acquired businesses with, or disposing of divested businesses from, our current operations;
- an economic downturn, a recession or market disruption in the capital and credit markets;
- unexpected payments to any pension plans;
- tax risks, including risks associated with transfer pricing;
- problems in suppliers' manufacturing processes;
- handling of personal data and patient health data;
- counterparty risks;
- exchange rate risks; and
- other factors discussed under "*Risk Factors*."

These risks and others described under "*Risk Factors*" are not exhaustive. Other sections of this Supplemental Bondholder Report describe additional factors that could adversely affect our financial position, results of operations and liquidity. New risks can emerge from time to time, and it is not possible for us to predict all such risks, nor can we assess the impact of all such risks on our business or the extent to which any risks, or combination of risks and other factors, may cause actual results to differ materially from those contained in any forward-looking statements.

Given these risks and uncertainties, you should not rely on forward-looking statements as a prediction of actual results.

Any forward-looking statements are only made as at the date of this Supplemental Bondholder Report, and we do not intend, and do not assume any obligation, to update forward-looking statements set out in this Supplemental Bondholder Report. You should interpret all subsequent written or oral forward-looking statements attributable to us or to persons acting on our behalf as being qualified by the cautionary statements in this Supplemental Bondholder Report. As a result, you should not place undue reliance on these forward-looking statements.

CERTAIN DEFINITIONS

"CAGR"	means compound annual growth rate;
"Cash Conversion Rate"	means Management Adjusted EBITDA minus Capital Expenditures (net), divided by Management Adjusted EBITDA;
"ceramic-on-ceramic"	refers to the combination of ceramic ball heads and ceramic cup inserts in a hip prosthesis;
"ceramic-on-polyethylene"	refers to the combination of ceramic ball heads and a polyethylene cup insert in a hip prosthesis;
"CeramTec"	means CeramTec Holding GmbH;
"CeramTec Group" or "Group"	means CeramTec Holding GmbH together with its subsidiaries from time to time;
"Existing Debt"	means the financial liabilities of CeramTec Group outstanding under the Existing Senior Facilities Agreement;
"Existing Hedging Agreements"	means, collectively, (i) a letter agreement between CeramTec Service GmbH and Deutsche Bank AG, London Branch, dated August 8, 2013 and (ii) certain ISDA agreements and further hedging documents between CeramTec Service GmbH and each of Deutsche Bank AG London Branch, Royal Bank of Canada, UBS AG and Goldman Sachs International, dated on or about September 16, 2013, in relation to certain tranches made available to CeramTec Service GmbH under the Existing Senior Facilities Agreement;
"Existing Notes"	means the €306,700,000 8.25% Senior Notes due 2021 issued by CeramTec Group GmbH pursuant to an indenture dated August 8, 2013;
"Existing Senior Facilities Agreement"	means the senior secured credit facilities agreement, dated August 30, 2013, consisting of (i) a senior secured term loan facility in the aggregate principal amount of up to $472,500,000 and €291,300,000 and (ii) a senior secured revolving credit facility in an aggregate principal amount of up to €100,000,000 with, *inter alios*, Deutsche Bank Securities Inc., RBC Capital Markets and UBS Securities LLC as joint lead arrangers and joint bookrunners, Deutsche Bank AG New York Branch as administrative agent, swingline lender, collateral agent and L/C issuer and certain financial institutions as lenders;
"Existing Shareholder Loan"	means the shareholder loan by the Seller to CeramTec, pursuant to a loan agreement dated August 29, 2013;
"FTE"	means full time equivalent;
"HGB"	means the German Commercial Code (*Handelsgesetzbuch*);

"HPC"	means high performance ceramics;
"IFRS"	means International Financial Reporting Standards, as adopted by the EU;
"Industrial"	refers to all of our clusters except medical products;
"LTM Period"	means the last twelve-month period;
"Medical Products"	refers to our medical products business;
"Member State"	means a member state of the European Economic Area;
"OEM"	means original equipment manufacturer;
"R&D"	means research and development;
"THR"	means total hip replacement;
"United Kingdom" or "UK"	means the United Kingdom and its territories and possessions;
"United States" or "U.S."	means the United States of America and its territories and possessions;
"we," "us," "our" and other similar terms	means CeramTec Group, except where the context otherwise requires.

PRESENTATION OF FINANCIAL INFORMATION

Financial Information

All historical financial information presented in this Supplemental Bondholder Report is that of CeramTec and its consolidated subsidiaries. Accordingly, unless otherwise stated, all references to "we," "us," "our" or the "CeramTec Group" in respect of historical financial information in this Supplemental Bondholder Report are to CeramTec and its subsidiaries on a consolidated basis.

The financial information included in this Supplemental Bondholder Report was not prepared in accordance with generally accepted accounting principles in the United States ("U.S. GAAP"). There could be significant differences between IFRS, as applied by us, and U.S. GAAP. We neither describe the differences between IFRS and U.S. GAAP nor reconcile our IFRS financial statements to U.S. GAAP. The financial information included in this Supplemental Bondholder Report is not intended to comply with SEC reporting requirements. Compliance with such requirements would require the modification, reformulation or exclusion of certain financial measures. In addition, changes would be required in the presentation of certain other information.

Non-IFRS Financial Measures

In this Supplemental Bondholder Report, we present certain financial measures that are not recognized by IFRS or any other generally accepted accounting principles and that may not be permitted to appear on the face of the financial statements or footnotes thereto. The primary non-IFRS financial measures used in this Supplemental Bondholder Report include Capital Expenditures (net), Cash Conversion Ratio, EBITDA, Management Adjusted EBITDA, Adjusted Cost of sales, Adjusted Gross profit, Adjusted Selling costs, Adjusted Research and development costs, Adjusted General administrative costs and Adjusted Other income and expenses, net and certain leverage and coverage ratios (our "Non-IFRS Measures"). These non-IFRS Measures are not audited and constitute alternative performance measures under the European Securities and Markets Authority Guidelines on Alternative Performance Measures.

Our primary Non-IFRS Measures are defined as follows:

- "Capital Expenditures (net)" is defined as the sum of additions to intangible assets and additions to property, plant & equipment, net of government grants;
- "Cash Conversion Ratio" is defined as (i) Management Adjusted EBITDA minus Capital Expenditures (net), divided by (ii) Management Adjusted EBITDA;
- "EBITDA" is defined as net profit for the period before taxes on income, financial result and depreciation and amortization;
- "Management Adjusted EBITDA" is defined as EBITDA before certain costs and expenses which our management considers exceptional or non-recurring, such as restructuring costs, foreign exchange conversion effects that are accounted for in our operating income, additional contributions to pensions, certain acquisition costs and certain other non-recurring items;
- "Adjusted Cost of sales", "Adjusted Gross profit", "Adjusted Selling costs", "Adjusted Research and development costs", "Adjusted General administrative costs" and "Adjusted Other income and expenses, net" are defined as Cost of sales, Gross profit, Selling costs, Research and development costs, General administrative costs and Other income and expenses, net, respectively, adjusted for depreciation and amortization and certain costs and expenses which our management considers exceptional or non-recurring.

By eliminating potential differences in results of operations between periods or companies caused by factors such as depreciation and amortization methods, historical cost and age of assets, financing and capital structures and taxation positions or regimes, we believe EBITDA, Management Adjusted EBITDA, Adjusted Cost of sales, Adjusted Gross profit, Adjusted Selling costs, Adjusted Research and development costs, Adjusted General administrative costs and Adjusted Other income and expenses, net can provide a useful additional basis for comparing the current performance of the underlying operations being evaluated. We believe a presentation of Capital Expenditures (net) and Cash Conversion Ratio is useful to assess our liquidity.

For these reasons, we believe that our Non-IFRS Measures and similar measures are widely used by certain interested parties as supplemental measures of performance and liquidity.

Our Non-IFRS Measures and ratios are not measurements of our performance or liquidity under IFRS and should not be considered in isolation or as alternatives to performance measures derived in accordance with IFRS or any other generally accepted accounting principles. Each of our Non-IFRS Measures is defined and reconciled to its closest comparable IFRS measure. Our Non-IFRS Measures may not be comparable to other similarly titled measures of other companies, as not all companies calculate these financial measures in the same manner, and have limitations as analytical tools and should not be considered in isolation or as a substitute for analysis of our operating results as reported under IFRS. Some of the limitations of Non-IFRS Measures are that:

- they do not reflect our cash expenditures or future requirements for capital investments or contractual commitments;
- they do not reflect changes in, or cash requirements for, our working capital needs;
- they do not reflect the significant interest expense or cash requirements necessary to service interest or principal payments on our debt;
- they do not reflect any cash income taxes that we may be required to pay;
- they are not adjusted for all non-cash income or expense items that are reflected in our consolidated statement of comprehensive income;
- they do not reflect the impact of earnings or charges resulting from certain matters we consider not to be indicative of our ongoing operations;
- assets are depreciated or amortized over differing estimated useful lives and often have to be replaced in the future, and these measures do not reflect any cash requirements for such replacements; and
- other companies in our industry and analysts may calculate these measures differently than we do, limiting their usefulness as comparative measures.

Because of these limitations, as well as further limitations discussed above, our Non-IFRS Measures should not be considered in isolation or as a substitute for performance measures calculated in accordance with IFRS. You should compensate for these limitations by relying primarily on our consolidated financial statements and using these Non-IFRS Measures only supplementally to evaluate our performance.

The financial information for the last twelve-month period ("LTM Period") to September 30, 2017 is unaudited and has been calculated by adding the unaudited condensed consolidated financial information for the nine months ended September 30, 2017, derived from the interim financial statement or the Group's accounting records or management reporting and the historical financial information for the year ended December 31, 2016, derived from the audited financial statements or the Group's accounting records or management reporting, and subtracting the unaudited condensed consolidated financial information for the nine months ended September 30, 2016, also derived from the interim financial statements or the Group's accounting records or management reporting. The financial information for the LTM Period to September 30, 2017, has not been audited or reviewed by our auditors, is not required by or presented in accordance with IFRS or any other generally accepted accounting principles and has been prepared for illustrative purposes only. This information is not necessarily representative of our results of operations for such a period or any future period or any financial position at any past or future date.

Rounding

Certain numerical figures set out in this Supplemental Bondholder Report, including financial data presented in millions or thousands and percentages, have been subject to rounding adjustments and, as a result, the totals of the data in this Supplemental Bondholder Report may vary slightly from the actual arithmetic totals of such information. In addition, as a result of such rounding, the totals of certain financial information presented in tabular form may differ from the information that would have appeared in such totals using the unrounded financial information. Percentages and amounts reflecting changes over time periods relating to

financial and other data set forth in "*Management's Discussion and Analysis of Financial Condition and Results of Operations*" are calculated using the numerical data in the consolidated financial statements of CeramTec contained in this Supplemental Bondholder Report, as applicable, and not using the numerical data in the narrative description thereof.

TRADEMARKS AND TRADE NAMES

The CeramTec Group owns or has rights to certain trademarks, trade names or service marks that it uses in connection with the operation of its business. The CeramTec Group asserts, to the fullest extent under applicable law, its rights to its trademarks, trade names and service marks. Each trademark, trade name or service mark of any other company appearing in this Supplemental Bondholder Report belongs to its holder. The trademarks which CeramTec Group owns or has the right to use include, among others, BIOLOX®, PERLUCOR®, CeramCool®, SPK®, Ceramdisc®.

Solely for convenience, the trademarks, trade names and copyrights referred to in this Supplemental Bondholder Report are listed without the TM, ® and © symbols.

RISK FACTORS

Any of the following risks, individually or together, could materially adversely affect our business, financial position, results of operations and prospects. This section describes the risks and uncertainties that we believe are material, but these risks and uncertainties may not be the only ones that we face. Additional risks and uncertainties, including those of which we are currently unaware or those which we deem immaterial, may also result in decreased sales, assets and cash inflows, increased expenses, liabilities or cash outflows or other events that could have a material adverse effect on our business, financial position, results of operations and prospects. The order in which the risks are presented does not necessarily reflect the likelihood of their occurrence or the magnitude of their potential impact on our business, financial position, results of operations and prospects.

Risks Relating to Our Business and Industry

If there are new entrants in the hip joint implant market, the level of competition for our key customers and for us may increase in the future and our profitability may be impacted.

The majority of our EBITDA is derived from sales of our ceramic components for hip implant systems. In addition, a significant part of our growth in revenue and EBITDA in recent years has been due to growth in our Medical Products business. Because the market for hip joint implants is expected to grow steadily and due to high profit margins in this market, new competitors may aim to enter this market. For example in 2016, two of our competitors received FDA approval for their ceramic ball head products and these competitors may in the future gain market share in the U.S., Europe, Asia or elsewhere. We are also susceptible to changes in the market dynamics of the industry in which our Medical Products customers operate. For example, there may be further consolidation in the medical implant industry following the merger of Zimmer and Biomet which may impact our revenue. As a consequence, we might be faced with price pressure which could result in lower revenue and could particularly impact our margins in our Medical Products business and for our Group overall. As a result, our results of operations, financial condition and cash flows could be materially and adversely affected.

We rely on a limited number of large customers, in particular in our Medical Products business, for a significant part of our revenues and our business and results of operations may be materially adversely affected if our relationship with any of our key customers deteriorates or ends.

We depend on a limited number of large customers that contribute a significant share of our total revenue, in particular in our Medical Products business. The customer base for our hip joint implants is highly concentrated. In 2016, the top four Medical Products customers made up 56% of the business group's revenue and the top ten customers accounted for 79% of revenue. The four main orthopedic implant OEMs, Zimmer Biomet, DePuy, Smith & Nephew and Stryker together have a market share of more than 60% in the worldwide market for hip joint implant systems and customer concentration has further increased following the merger of Biomet and Zimmer in 2015. As a result, these main OEMs have considerable pricing power. For example, in 2015 and 2016 we faced pricing pressure as a result of the merger of Biomet and Zimmer, which resulted in uniform prices for the merged entity at the low end of previous prices. Any further consolidation in our customer base for hip implant products could result in further pricing pressure which in turn could have a material adverse effect on our results of operations, financial condition and cash flows.

We maintain good and long-standing customer relationships with each of the top four orthopedic hip implant OEMs. If our relationship with one or more of our largest customers deteriorates or if we fail to extend our contractual relationships with any of our key customers at favorable terms, or at all, this could have a material adverse effect on our results of operations, financial condition and cash flows.

We do not have long-term contractual arrangements with some of our customers and depend on continuous technological innovation and successful commercial introduction of new products to retain existing customers or attract new ones.

Although we have decades-long relationships with many of our key customers, they are often commercial relationships and we do not have long-term contracts with them. With some of our customers, we have short-term contracts that will soon expire if not renewed. We believe that our customers are increasingly looking for strong, long-term relationships with a few key suppliers that help them improve product performance, reduce costs, or support new product development. This is largely due to our customers' needs for tailored products that very often require joint development efforts. However, even in cases where we co-develop

a product with a customer, it will be for one application only. If our customer develops or upgrades a product or process, we need to offer a newly tailored product meeting our customer's new specifications. This may require us to invest more in research and development and to increase marketing costs so that we can strengthen existing customer relationships as well as attract new customers. If our key competitors are able to innovate faster, spend more on R&D, or generally develop technology for ceramic products or comparable products from substitute materials more cost effectively or with a higher quality, our customers may opt to work with our competitors instead of us. Inability to keep key customers and failure to attract new customers due to a perceived lack of innovation could materially affect our reputation which would further reduce our ability to compete.

We believe that product quality, product specifications, innovation and customer service are key competitive factors for our business. If we are unable to develop, produce or market our products effectively to our existing or new customers, we may lose key customers or fail to acquire new customers. As a result, our results of operations, financial condition and cash flows could be materially and adversely affected.

Some of our manufacturing processes and facilities and medical customers are subject to extensive regulation under applicable law, by the FDA or by other governmental agencies. Changes in these regulations or failure by us or our customers to comply with them could adversely affect our business.

Regulatory requirements for our medical products as well as components for such medical products are complex, costly and far reaching. Any failure to comply with them could subject us and/or our customers to fines, injunctions, civil penalties, lawsuits, recall or seizure of products, total or partial suspension of production, denial of government approvals, withdrawal of marketing approvals and criminal prosecution. Any of these actions could adversely impact our revenue, undermine goodwill established with our customers, damage commercial prospects for our products and materially and adversely affect our results of operations. Globally, our products are marketed in more than 65 countries and each of these countries may regulate our products and processes differently.

In the United States, the manufacture and supply of our ceramic ball head and cup inserts for hip joint prostheses systems is subject to the FDA's Quality System Regulation, which imposes current Good Manufacturing Practice requirements on the manufacture of medical devices. While we have successfully passed FDA audits and audits by our customers in the past, there can be no assurance that we will continue to do so in the future. In addition, our medical device customers to whom we supply our ceramic ball head and cup inserts are subject to FDA regulation, including premarket approval and post market compliance requirements of their hip joint prostheses systems.

In the EU, our medical products are required to comply with the essential requirements under the EU Medical Devices Directive. Compliance with these requirements entitles our customers to affix a CE mark to their medical devices verifying that the products meet EU safety, health or environmental requirements. As implantable devices for hip joint prostheses, our medical products are considered high risk medical devices falling within Class III. Our customers therefore have to undergo a recurring conformity assessment procedure including stringent audits by a so called "notified body". Unless our customers successfully complete this conformity assessment, they do not have the right to carry the CE mark. Without the CE mark, the customers' medical devices cannot be commercialized in the European Union. Compliance with relevant regulations is monitored by the respective authorities of EU member states.

In addition, the EU legal framework for the commercialization of medical products has recently changed with the Medical Devices Regulation having come into force in April 2017, with transition periods ending in May 2020. This new regulation, inter alia, generally increases standards applicable to conformity assessment procedures and requires more stringent scrutiny by notified bodies when conducting audits. We are still evaluating the impact of the Medical Devices Regulation on our products and may need to incur additional costs and undertake increased efforts in order to continue to comply with this requirements in the future.

The FDA may take three years or longer to grant premarket approval of our customers' new medical devices, if at all. European conformity assessment procedures are equally challenging and time consuming. Further, our competitors may seek pre-market approval for products that compete with our medical products for ceramic hip joint prostheses. At any time, our customers' total hip prostheses systems may be withdrawn from the market either voluntarily by our customers or as a result of the FDA's or a foreign equivalent's withdrawal of marketing approval or removal of such products for a number of reasons including safety, current Good Manufacturing Practice or Quality System Regulation problems with our products or our customers' final products. For example, a customer initiated a voluntary recall in August 2010 of its hip implant system. Any

such regulatory action could significantly impact our revenue and may have a material adverse effect on our financial position and results of operations.

If our customers fail to obtain and maintain necessary governmental approvals or clearance for medical devices which include our products, they may be unable to market and sell our products in certain jurisdictions.

Medical products such as ours and the hip joint prostheses systems of our customers are extensively regulated by the FDA in the United States and by other federal, state, local and foreign authorities. Specifically in the United States, our customers' hip joint prostheses systems have obtained premarket approval ("PMA") or premarket clearance (commonly referred to as the 510(k) process) from the FDA. Governmental regulations relate to the testing, development, manufacturing, labeling, design, sale, promotion, distribution, importing, exporting and shipping of our products. We cannot assure you that any regulatory clearances or approvals, either foreign or domestic, will be granted for our key medical customers' new products that include our products on a timely basis, if at all. If our key medical customers are unable to obtain regulatory approvals or clearances for use of their medical devices, the commercial success of our products could be limited. Regulators may also limit the claims that we or our customers can make about our products.

Approval processes differ in the United States, Europe, Asia and other jurisdictions and the approval in the U.S. or any other single jurisdiction does not guarantee approval in any other jurisdiction. Obtaining foreign approvals for our customers' medical devices could involve significant delays, difficulties and costs for our customers, which could adversely affect the commercial success of our products.

If the FDA or any other regulatory authority does not provide approval or clearance for our customers' medical devices, due to deficiencies of our products or any other component used in our customers' medical devices, our customers may no longer be able to market their medical devices in their markets or may even choose to switch to another supplier. As a result, our results of operations, financial condition and cash flows could be materially and adversely affected.

We and our customers are required to pass inspections and to comply with applicable regulatory requirements in order for our customers to continue to sell their hip joint prostheses systems. Any failure to pass an inspection or to comply with regulatory requirements could adversely impact our operations through a recall or seizure of products, an issuance of warning letters and operating restrictions or the suspension or revocation of the authority necessary for the production or sale of hip joint prostheses systems. In addition, we could incur substantial remediation costs. Any one of these adverse events, even if it does not involve our products directly, could result in a material adverse effect on our results of operations, financial condition and cash flows.

Our medical products may cause or contribute to adverse medical events that our customers are required to report to the FDA. The discovery of serious safety issues with our medical products, or a recall, either voluntarily or at the direction of the FDA or another governmental authority, could have a negative impact on us.

Some of our customers are subject to the FDA's medical device reporting regulations and similar national and international regulations, which require them to report to the FDA when they receive or become aware of information that reasonably suggests that their medical devices may have caused or contributed to a death or serious injury or severely malfunctioned. We also have a contractual obligation to inform our customers if we become aware of any of our products exhibiting adverse medical effects. If any of our customers fail to comply with their reporting obligations, including as a result of our failure to timely report any adverse medical effects of which we become aware, the FDA could take action, which could result in civil penalties or criminal prosecution, revocation of our customers' device clearance or seizure of their products. This in turn could adversely affect our reputation as well as our product sales.

The FDA and other national regulatory bodies have the authority to require the recall of commercialized products in the event of material deficiencies or defects in design or manufacture of a product or in the event that a product poses an unacceptable risk to health. The FDA's authority to require a recall must be based on a finding that there is reasonable probability that the device could cause serious injury or death. We or our medical customers may also choose to voluntarily recall a product if any material deficiency is found. A government-mandated or voluntary recall by us or our customers could occur as a result of an unacceptable risk to health, component failures, malfunctions, manufacturing defects, labeling or design deficiencies, packaging defects or other deficiencies or failures to comply with applicable regulations.

A recall announcement could harm our reputation with customers, potentially lead to product liability claims against us and negatively affect our sales.

The existence of adequate coverage and reimbursement is important for the sales of our products. Inadequate coverage and reimbursement policies and changes in health care reimbursement systems in the U.S. and elsewhere could reduce our revenues and profitability.

Sales of medical devices largely depend on the reimbursement of patients' medical expenses by government health care programs and private health insurers. Without the financial support of government reimbursement or third-party insurers' payments for patient care, the market for our medical customers' hip joint prostheses systems, and in turn, our products, will be limited.

In the United States and in certain other jurisdictions, there have been a number of legislative and regulatory reforms that have changed the regulatory and healthcare systems in ways that could impact our ability to sell our products profitably. For example, in March 2010, the Patient Protection and Affordable Care Act, as amended by the Health Care and Education Reconciliation Act of 2010 (collectively, the "Affordable Care Act" or the "ACA")) was enacted, which significantly impacted the medical device industry in the United States. Among other things, the Affordable Care Act imposed an annual excise tax of 2.3% on any entity that manufactures or imports medical devices offered for sale in the United States, with limited exceptions, beginning in 2013. However, this excise tax was subsequently suspended by the U.S. Congress for medical device sales during calendar years 2016 and 2017. Absent further Congressional action, this excise tax will be reinstated for medical device sales beginning January 1, 2018. In addition, the Centers for Medicare & Medicaid Services, the Federal agency responsible for administering the Medicare program, establishes payment levels for hospitals and physicians on an annual basis, which can increase or decrease payment to such entities. The ACA also established a new Patient-Centered Outcomes Research Institute to oversee and identify priorities in comparative clinical effectiveness research in an effort to coordinate and develop such research, and created an independent payment advisory board to submit recommendations to reduce Medicare spending if projected Medicare spending exceeds a specified growth rate. Other legislative changes have also been proposed and adopted since the Affordable Care Act was enacted, which include, among other things, reductions to Medicare payments to providers, as well as changes made by third-party payors to the reimbursement amounts and/or payment methodologies used to determine such amounts, any of which could have a negative effect on those selling products to hospitals, ambulatory surgery centers and surgeons, including medical device manufacturers. Any reduction in such payment amounts could result in reduced demand for our products or additional pricing pressures. In addition, numerous proposals that would affect the U.S. healthcare system have recently been introduced in Congress, including material modifications to or repeal efforts of the Affordable Care Act. We cannot predict at this time the full impact of the ACA, or any U.S. legislation enacted in the future on our revenues, profit margins, operating cash flows and results of operations. We expect that government regulation and third-party coverage and reimbursement policies will continue to limit the amounts that federal and state governments and other third-party payors will pay for healthcare products, which could adversely impact our business, financial condition, results of operations and prospects.

Internationally, medical reimbursement systems vary significantly from country to country, with some countries limiting medical centers' spending through fixed budgets, regardless of the levels of patient treatment, and other countries requiring application for, and approval of, government or third party reimbursement. Uncertainties regarding future healthcare policy, legislation and regulation, as well as private market practices, could affect our customers' ability to sell their hip implant system in commercially acceptable quantities at profitable prices and therefore could also impact our revenues, profit margins, operating cash flows and results of operations.

Due to the nature of our business and products, we may be liable for damages arising out of product liability claims.

The sale of our products involves the risk of product liability claims. We have been named as defendants in numerous product liability lawsuits in Europe, substantially all of which alleged various claims against our ceramic hip joint components and, in the past, we were named in lawsuits in the United States relating to broken artificial hip joints.

In addition many of our products are integrated into our customers' products, and we may be requested to participate in or share in the costs of a product recall conducted by a customer. For example, we supply products to customers in the automotive industry. In the event one of these customers conducts a product recall that it believes is related to one of our products, we may be asked to participate in or fund in whole or in part

such a recall. Our customers often require us to represent that our products conform to certain product specifications provided by our customers. Any failure to comply with such specifications could result in claims or legal action against us.

We are unable to estimate our exposure, if any, to the above-mentioned lawsuits at this time. While we do not believe we have any material liability associated with our current litigation and that our provisions for the lawsuits will be sufficient, there can be no assurance that we will not be exposed to material liability. We may be subject to future claims with regard to these suits or others like them and we may not be able to avoid significant product liability exposure. In addition, any such claims may be costly to defend. While we maintain insurance against product liability claims, this insurance is limited to €100 million and there can be no assurance that a claim will be covered. A successful product liability claim or series of claims against us for which we are not otherwise indemnified or insured could materially increase our operating costs or prevent us from satisfying our financial obligations. We may not have sufficient cash flow from operations or assets to pay a judgment resulting from a product liability claim or product recall, if any, for which there is inadequate insurance coverage. Any such judgment or product recall could materially increase our operating costs or prevent us from satisfying our financial obligations and materially adversely affect our results of operations, financial condition and cash flows. Additionally, lawsuits relating to alleged deficiencies in our medical products, specifically our ceramic hip replacement components, could materially impact our reputation as a manufacturer of high-quality ceramic components and could lead to the loss of our customers' FDA approval for hip implants that include our ceramic components or the loss of other regulatory approvals in other jurisdictions and could prevent or delay approvals for future products that include our ceramic components. As a result, our results of operations, financial condition and cash flows could be materially and adversely affected.

Our business performance is impacted by global economic conditions, specifically in Europe (including Germany), and, by conditions in the end markets we serve.

With the exception of Medical Products, our business is generally significantly affected by changes in the overall global economy and, in particular, economic conditions in Europe. In 2016, our operations in Europe (Germany, France, Italy, Spain and the UK) together accounted for 69.7% of our total revenue, with Germany accounting for 27.0% of our total revenue. Following the credit crisis in 2008 and 2009 and the European sovereign debt crisis in 2012 and 2013, GDP growth in many of our main markets has remained subdued for an extended period of time and debt levels remain significantly higher than they were before 2008. Future developments are dependent upon a number of political and economic factors, including the effectiveness of measures by the European Commission and EU member states to address debt burdens of certain countries in Europe, the overall stability of the eurozone, the future relationship between the United Kingdom and the European Union and the future situation in Spain with respect to Catalonia's declaration of independence in October 2017.

In addition, the automotive, electronics, construction and other industrial end markets we serve are cyclical, and both general macroeconomic and other factors beyond our control could reduce demand from any one of these markets for our products. Demand for our products is significantly affected by the business success of our OEM customers as well as end users that purchase products from those OEM customers. For example, weak economic conditions could depress new car sales, negatively impacting our automotive customers, thereby reducing demand for our ceramic components in automobiles and engines. Similarly, reduced global economic activity could hinder global industrial output, which could decrease demand for our ceramic cutting tools and textile components. General economic or industry-specific downturns could have a material adverse effect on our results of operations, financial condition and cash flows.

If we are not able to continue our technological innovation and successful commercial introduction of new products, our profitability could be adversely affected.

Some of the industries and end markets into which we sell our products experience rapid technological change and product improvement. Manufacturers in the high performance ceramics business periodically introduce new generations of products or require new technological capacity to develop customized products. Our products could become obsolete sooner than we expect and be replaced by a new solution, product or material. For example, an alternative treatment to hip joint replacement for osteoporosis patients could be developed or new products that we are currently developing for knee and shoulder implants may not reach the market according to our current planned timeline. Furthermore, the penetration of our hip implant insert components might not grow as expected due to technological improvements of PEEK inserts, surgeon preferences, or any other real or perceived issues related to Ceramic-on-Ceramic hip implants, such as audible squeaking. In the past several years a substantial part of our revenue was driven by components which were

newly introduced to the market or modified for new customers. Revenue from products that were either newly developed and introduced, materially modified existing products or products modified for sale to a new customer less than five years before the relevant period represented approximately 25 to 30% of our total revenue in the last five years.

Our future growth will depend on our ability to gauge the direction of the commercial and technological progress in all our key end markets and upon our ability to fund and successfully develop, manufacture and market products for our OEM customers who compete in such changing end markets. We will have to continue to effectively identify, develop, market and in certain cases, secure regulatory approval for, innovative products on a timely basis to replace or enhance existing products. Because of the lengthy and costly development process, technological challenges and intense competition, we cannot assure you that any of the products and/or technology we are currently developing, or could begin to develop in the future, either alone or with third parties, will result in a technically viable product and achieve substantial commercial success.

If we fail to keep pace with the evolving technological innovations in our end markets on a competitive basis or our product pipeline fails to meet expectations, our results of operations, financial condition and cash flows could be materially and adversely affected.

We are subject to intense competitive pressures in several of our Industrial end markets.

Our Industrial business operates in a fragmented and competitive industry with many players in niche applications. We face substantial competition from our primary competitors, but also from many other international, national, regional and local competitors of various sizes. Competition is particularly intense in the automotive and several niche industrial end markets where product-oriented competition is acute. Various competitors such as 3M Company or Kyocera are larger than us and have greater financial resources. Other competitors are smaller and may be able to offer more specialized products.

As such, we face substantial risk that certain events, including new product development by our competitors, changing customer needs, production advances for competing products or the replacement of ceramic products with products made from different materials could result in declining demand for our products and reduce our market shares as our customers switch to our competitors' products or undertake to manufacture such products on their own. In particular, increasing competition from competitors in Asia may lead to lower prices for our products. Our failure to effectively compete or increased use of substitutes for HPC products could result in a material adverse effect on our results of operations, financial condition and cash flows.

As a global business, we are exposed to local business risks in different countries.

We have significant operations in many countries, including manufacturing facilities, research and development facilities, sales personnel and customer support operations. Currently, we operate facilities in countries such as Germany, the United States, Brazil, India, China, Czech Republic, Malaysia, Mexico, Poland, South Korea, and the United Kingdom. Our products are also distributed, directly or indirectly, in more than 65 countries and we believe that underlying demand outside of Europe drives approximately 40% of our revenue. Our operations are affected directly and indirectly by global regulatory, economic and political conditions. Thus, we are exposed to a range of factors that we cannot easily influence and that could have an impact on our business activities in these countries. These factors include the following:

- political, social, economic, financial and market instability and volatility;
- foreign currency controls and foreign currency exchange volatility;
- changes in government policies and regulations or imperfect application of such regulations;
- trade regulations affecting production, pricing and marketing of products;
- inadequately developed and inconsistent legal and administrative systems, which can lead, for example, to the inadequate protection of intellectual property rights or can jeopardize the enforcement of receivables and other claims;
- burdensome taxes and tariffs and other trade barriers;
- managing and obtaining support and distribution for local operations;

- increased costs and availability of raw materials, transportation or shipping;
- credit risk, financial conditions and compliance risk of local customers, distributors and other agents;
- increased risk of fraud and corruption; and
- the risk that regulations will become less favorable to our business.

We may not succeed in developing and implementing policies and strategies to counter the foregoing factors effectively in each location where we do business. Our failure to do so could limit our ability to sell products, compete or receive payments for products sold in such locations. As a result, the foregoing risks could have a material adverse effect on our results of operations, financial condition and cash flows.

Price increases or interruptions in the supply of raw materials could have a significant impact on our ability to sustain and grow earnings.

Our manufacturing processes consume significant amounts of raw materials, the costs of which are subject to worldwide supply and demand as well as other factors beyond our control. All raw material costs constituted approximately one third of our cost of products sold. Because the properties we require from our raw materials are highly specific and the properties of these raw materials reflect their manufacturing processes, as well as the specific properties and distinctive characteristics of their precursors, we typically source each type of raw materials only from a single supplier. We have identified more than one suitable raw material supplier only in the case of a few specific raw materials. We keep additional safety stock for any single-sourced raw material, such as lead oxide and titanium dioxide, and our risk management monitors critical suppliers, but there can be no guarantee that our stock will be sufficient in the case of supply chain disruptions. Supplier capacity constraints, supplier production disruptions or the unavailability of certain raw materials could result in supply imbalances that may have a material adverse effect on our results of operations, financial condition or cash flows.

We generally purchase raw materials based on supply agreements, in which prices are fixed for no longer than 12 months. As a result, we may be subject to fluctuations in raw materials prices. These fluctuations limit our ability to accurately forecast future raw material costs and hence our profitability. Our ability to increase the prices of our products in order to pass-on any increases in raw materials costs to our customers is dependent upon our contractual arrangements and economic conditions. If we are not able to fully offset the effects of higher raw materials costs, our financial results could deteriorate.

Fluctuations in energy costs could have an adverse effect on our results of operations.

Energy purchases in 2016 constituted approximately 5% of our cost of sales. Energy prices have been volatile in the past and may increase in the future. Fluctuations in the price of energy limit our ability to accurately forecast future energy costs and consequently our profitability. Our management expects electricity costs in Germany to increase over the coming years. Rising energy costs may increase our raw material costs and negatively impact our customers and the demand for their products. These risks will be heightened if our customers or production facilities are in locations experiencing severe energy shortages. If energy prices fluctuate significantly, or we experience severe energy shortages, our business or results of operations may be adversely affected.

Our operations may be disrupted by accidents, equipment malfunctioning or other unexpected events and our complex manufacturing process may lead to production curtailment or shutdowns.

If one or more of our production facilities were to suffer a serious accident, breakdown, equipment malfunction or other unexpected events, a part of our production capacity could be jeopardized and our sales would be materially adversely affected until we repaired or found a replacement for any such facility and/or machinery. While we maintain insurance to cover property damages and other material damages, depending on the risk and type of asset or property insured, any losses related to a serious accident, equipment malfunction or other unexpected event could exceed the amount of this coverage. Further, any interruption in our production capabilities, generally, will inevitably increase our production costs and reduce our sales and earnings for the affected period. Moreover, any interruption in production capability may require us to make significant capital expenditures to remedy the problem, which could have a negative effect on our profitability and cash flows. We may sustain a loss in revenue in excess of any recoveries we make under our business interruption insurance

coverage. In addition to such revenue losses, longer-term business disruption could result in a loss of customers, which could have a material adverse effect on our results of operations, financial condition or cash flows.

In addition, the refurbishment or reconstruction of any of our production facilities or the construction of new facilities could be subject to regulatory approval in the jurisdictions in which they are located, which could result in significant delays in the resumption of product manufacturing. If any of the above risks were to materialize, it could have a material adverse effect on our business, financial condition and results of operations.

The insurance we maintain may not fully cover all potential exposures.

While we maintain product liability, property, business interruption and casualty insurance, such insurance may not cover all risks associated with the operation of our business and may not be sufficient to offset the costs of any losses, lost sales or increased costs experienced during business interruptions. For some risks, we may not obtain insurance if we believe the cost of available insurance is excessive related to the risks presented. As a result of market conditions, premiums and deductibles for certain insurance policies can increase substantially and, in some instances, certain insurance policies may become unavailable or available only for reduced amounts of coverage. As a result, we may not be able to renew our insurance policies or procure other desirable insurance on commercially reasonable terms, if at all. Losses and liabilities from uninsured or underinsured events and delay in the payment of insurance proceeds could have a material adverse effect on our financial condition and results of operations.

Unless we maintain operational efficiency and manufacturing quality, our future profitability could be adversely affected.

HPC products involve highly complex processes and require precise, high-quality manufacturing and significant know-how. A significant portion of our products is subject to intense end use conditions and high performance requirements, such as high temperatures, wear and corrosion. Achieving precision and quality control requires skill and diligence by our personnel. We continuously modify operational processes in an effort to improve efficiency, performance and production yields. Defects or other difficulties in the manufacturing process can lower yields. Our operational efficiency will be an important factor in our future profitability, and we may be unable to maintain or increase our efficiency level to the same extent as our competitors or cost-effectively manufacture in accordance with necessary quality standards, which would materially adversely affect our results of operations, financial condition and cash flows.

Compliance with extensive environmental, health and safety laws could require material expenditures or changes in our operations.

Our operations are subject to extensive environmental, health and safety laws and regulations at national, international and local levels in numerous jurisdictions. In addition, our production facilities and a number of our distribution centers require operating permits that are subject to renewal. The nature of our industry exposes us to risks of liability under these laws and regulations due to the production, storage, transportation, disposal and sale of materials that can cause contamination or personal injury if released into the environment. In 2016, our capital expenditures for safety, health and environmental matters were €1.3 million.

Compliance with environmental laws such as air emission or water protection laws generally increases the costs of manufacturing, the cost of registration/approval requirements, the costs of transportation and storage of raw materials and finished products, as well as the costs of the storage and disposal of wastes, and could have a material adverse effect on our results of operations. We may incur substantial costs, including fines, damages, criminal or civil sanctions and remediation costs, or experience interruptions in our operations, for violations arising under these laws or permit requirements as well as in connection with subsequent orders, the withdrawal or revocation of permits and the renewal of permits. Furthermore, environmental laws are subject to change and have tended to become stricter over time. This is particularly the case with regard to changes in connection with the Industry Emissions Directive (Directive 2010/75/EU) and subsequent national legislation by EU member states transforming this directive which imposes additional and stricter obligations such as further specified basic obligations, notification obligations of the installation operator and stricter emission thresholds. Such changes in environmental laws or their interpretation, or the enactment of new environmental laws, could result in materially increased capital expenditures and compliance costs.

In addition, the discovery of contamination arising from historical industrial operations at some of our former and present properties has exposed us, and in the future may continue to expose us, to cleanup obligations and other damages. For example, soil and groundwater contamination is known to exist at two of our

current facilities and one site formerly owned by us. As of December 31, 2016, we have provisions set up for environmental risks in the amount of €0.4 million. There can be no assurance that these provisions will be sufficient to fund our portion of any clean-up costs.

We could be required to repay public subsidies or grants if specified conditions are not met.

We have in the past and may in the future from time to time receive subsidies or grants from public bodies, which are usually subject to our compliance with the conditions set by the relevant body providing such grant or subsidy. For example, we have received subsidies from a public body in Germany in relation to the capacity expansion at our Marktredwitz facility. The subsidy amounted to €7.3 million in total, of which we received €6.1 million in 2014, €1.1 million in 2015 and €0.1 million in 2016, and was calculated by the relevant authority based on the expenditures undertaken by us in relation to the expansion project in Marktredwitz. The subsidy is subject to certain conditions, such as the creation and maintenance of a certain number of permanent jobs until the end of 2020. Prior to expiry of this period, we will be required to confirm in writing, that we have created and maintained the required number of permanent employees. If these and certain other conditions are not met, we could be required to repay the subsidies we have received. If we fail to meet the conditions for this or any other public subsidy or grant, which we may receive from time to time, and are forced to repay amounts received under such subsidy or grant, this could have a material adverse effect on our financial condition, cash flows and results of operations.

We may have only limited protection for our intellectual property and know-how and if it were copied by competitors, or if they were to develop similar intellectual property independently, our results of operations could be negatively affected.

Our success depends significantly upon our ability to protect and preserve our intellectual property rights and technological know-how and expertise (including, in particular, in our Medical Products business). Though we have a large number of patents, we rely most heavily on our manufacturing expertise as a barrier to entry which is not a legally protected right. We conduct research and development activities with third parties and co-develop certain intellectual property. The confidentiality and patent assignment agreements with our employees and third parties to protect the confidentiality, ownership and use of intellectual property may be breached, may not be enforceable, or may provide for joint ownership or ownership by a third party. In addition, we may not have adequate remedies for a breach by the other party, which could adversely affect our intellectual property rights. The use of our intellectual property rights or intellectual property similar to ours by others or our failure to protect such rights could reduce or eliminate any competitive advantage we have developed, adversely affecting our revenue. The steps we take to protect our intellectual property, including patents, proprietary technology and trademarks, may not be successful and may be challenged by third parties. For example, since 2015 we have been involved in a series of legal proceedings against C5 and Metoxit in Germany, the United States and France in relation to our trademarks for the distinctive pink color of our ceramic hip implant component BIOLOX delta, in respect of which we incurred significant expenses. If we must sue to protect, defend or enforce our intellectual property rights, any suits or proceedings could result in significant costs and diversion of company resources and management attention, and we may not prevail in such action. In addition, a failure to obtain and defend our trademark registrations may impede our marketing and branding efforts and competitive position. Our inability to protect our intellectual property rights could have a material adverse effect on our competitive advantage or our ability to create innovative solutions for our customers, which will adversely affect our revenue and our relationships with our customers. As a result, our results of operations, financial condition and cash flows may be materially adversely affected.

If we are sued for infringing intellectual property rights of third parties, it will be costly and time consuming, and an unfavorable outcome in any litigation would harm our business.

We cannot assure you that our activities will not, unintentionally or otherwise, infringe on the patents or other intellectual property rights owned by others. While intellectual property litigation is not prevalent in most of our end markets presently due to the niche nature of the applications and products, as competition increases, such as in the medical end market, the niche markets in which we operate may become IP-protected markets. We may spend significant time and effort and incur significant litigation costs if we are required to defend ourselves against intellectual property rights claims brought against us, regardless of whether the claims have merit. We may also be required to cease development, use or sale of the relevant products or processes, or we may be required to obtain a license on the disputed rights, which may not be available on commercially reasonable terms, if at all. If we are found to have infringed on the patents or other intellectual property rights of

others, we may be subject to substantial claims for damages, which could materially adversely affect our results of operations, financial condition and cash flows.

Failure to renew agreements with our material suppliers on acceptable terms or the termination of such agreements by material suppliers could harm our business.

Failure to renew contracts with certain material suppliers could negatively impact our business. Whenever a contract expires or is due for renewal, suppliers may seek price adjustment from us. In addition, under the terms of certain contracts, suppliers may seek a price adjustment when their business experiences significant volume changes. Further, certain suppliers may seek to increase prices previously agreed with us due to pricing competition or other economic needs or pressures being experienced by the supplier. If our contracts are terminated by a material supplier, or if we are unsuccessful in retaining high renewal rates and contract terms that are favorable to us, this can cause delays and may have a material adverse effect on our business, financial condition and results of operations.

We may be unable to recruit and retain key personnel, including qualified scientific, technical and sales employees.

We are highly dependent on our senior management and key employees, including our scientific, technical and sales personnel. The loss of any senior manager or key employee may significantly delay or prevent the achievement of our product development or business objectives. Due to the specialized nature of our business, we are highly dependent upon our ability to continue to attract and retain qualified scientific, technical and sales personnel. Loss of the services of, or failure to recruit, key management, scientific, technical or sales personnel could be materially detrimental to our business and financial condition. We face competition for scientific and technical personnel from other companies, academic institutions, government entities and other organization. Such competition is enhanced by changing population demographics, influencing the recruitment of skilled and executive personnel, and the reduction of specialized personnel in certain key functional areas, such as in the case of engineers in Germany. In addition, increasing demand for higher wages may make it difficult for us to retain the necessary personnel.

The loss of any key personnel and/or the inability to attract, recruit and retain highly skilled employees required for our activities could have a material adverse effect on our business, financial condition and results of operations.

Defects resulting from outsourcing processes can adversely affect our production yields and operating results.

We ordinarily outsource certain production steps, often to sole source suppliers or a limited number of suppliers. Several suppliers have manufacturing processes which are very complex and require a long lead-time. Occasional delays may affect our ability to obtain products. Our production of these products will also be materially and adversely affected if the outsourced production is unreliable, late or of inferior quality. In addition, any reduction in the precision of these products will cause delays and interruptions in our production cycle.

Within our manufacturing facilities, minute impurities, difficulties in the production process or other factors can cause a substantial percentage of our products to be rejected or be non-functional. This can result in unexpectedly low production yields and increased scrap rates, which delay product shipments and may materially adversely affect our results of operations, financial condition and cash flows. Because the majority of our manufacturing costs are relatively fixed, production yield and capacity utilization rate are critical to our consolidated results of operations, financial condition and cash flows. For example, we have only two plants that produce components for our Medical Products business and capacity utilization or production yield problems at either plant may significantly impact our results of operation.

We could face labor disputes with our employees, which would disrupt our business.

As of September 30, 2017, we had over 3,400 employees (FTE) worldwide, consisting of sales, technical, manufacturing, operations, supply chain and customer service personnel. This figure is exclusive of contract labor (*Leiharbeiter*) of which there are about 130 workers. Most of our 1,960 employees (FTE) as of September 30, 2017 in Germany are covered by labor agreements, including works agreements and a substantial number of our employees globally are also covered by labor agreements, including works agreements. In the future, we may be subject to potential union campaigns, work stoppages, union negotiations and other potential

labor disputes. Additionally, future negotiations with unions or works councils in connection with existing labor agreements may result in significant increases in our cost of labor, divert management's attention away from operating our business or break down and disrupt operations. Further, we may be subject to work stoppages at our suppliers or customers that are beyond our control. Any of the preceding outcomes could impair our ability to manufacture products and result in increased costs and adversely affect our results or operations, financial condition and cash flow.

Our failure to comply with the anti-corruption laws of the European Union, the United States and various other jurisdictions could negatively impact our reputation and results of operations.

Doing business on a worldwide basis requires us to comply with international, EU, U.S. and other national and local laws, and our failure to successfully comply with these rules and regulations may expose us to liabilities. These laws and regulations apply to companies, individual directors, officers, employees and agents, and may restrict our operations, trade practices, investment decisions and partnering activities. In particular, our international operations are subject to U.S. and foreign anti-corruption laws and regulations, such as the U.S. Foreign Corrupt Practices Act ("FCPA"), as well as anti-corruption laws of the various jurisdictions in which we operate. The FCPA and other laws prohibit us and our officers, directors, employees and agents acting on our behalf from offering, promising, authorizing or providing anything of value to foreign officials for the purposes of influencing official decisions or obtaining or retaining business or otherwise obtaining favorable treatment. As part of our business, we deal with state-owned business enterprises and, to a lesser degree, with governmental authorities, the employees and representatives of which may be considered foreign officials for purposes of the FCPA. We are also subject to the jurisdiction of various governments and regulatory agencies outside of the United States, which may bring our personnel into contact with foreign officials responsible for issuing or renewing permits, licenses or approvals or for enforcing other governmental regulations. In addition, some of the international locations in which we operate lack a developed legal system and have elevated levels of corruption (for example Brazil or China). Our global operations expose us to the risk of violating, or being accused of violating, the foregoing or other anti-corruption laws. Such violations could be punishable by criminal fines, imprisonment, civil penalties, disgorgement of profits, injunctions and debarment from government contracts, as well as other remedial measures. Investigations of alleged violations can be very expensive and disruptive.

In addition, some jurisdictions in which we operate also have anti-corruption laws in place that specifically address interactions with healthcare professionals.

For example, in the U.S., the federal healthcare antikickback statute prohibits persons from knowingly and willfully soliciting, offering, receiving, or providing remuneration, directly or indirectly, in cash or in kind, to induce or reward either the referral of an individual for, or the purchase, order, or recommendation of, any good or service for which payment may be made under federal and state healthcare programs such as Medicare and Medicaid. Violations are subject to potential criminal penalties and exclusion from participation in the programs. Claims for payment in violation of the antikickback statute are also subject to the federal False Claims Act, which imposes civil penalties against individuals or entities for knowingly presenting, or causing to be presented, to the federal government, claims for payment that are false or fraudulent. Many states have analogous state laws applicable to their Medicaid programs and in some cases, private health insurance.

Similarly, Germany recently enacted criminal statutes (Sec. 299a and 299b of the German Criminal Code, *StGB*) specifically addressing corruption in the health care sector. Essentially, the acceptance or grant of a benefit (which does not necessarily have to be a direct payment of money) in exchange for a healthcare professional giving undue preference to the products of a specific producer is criminally sanctioned. Our interactions with healthcare professionals are subject to these restrictions. Any failure to comply with applicable restrictions on interactions with healthcare professionals could subject us to fines and criminal liability and could have a material adverse effect on our results of operations, financial condition and cash flows.

We have developed and in 2016 have started to roll out a group-wide compliance management system, which provides a structure to identify and mitigate potential compliance risks. However, the process of fully implementing this compliance management system is not yet completed. There can be no assurance that we will be successful in implementing our compliance management systems in the expected timeframe or that the policies and procedures, once implemented, will effectively prevent violations by our employees or representatives. Any failure to comply with applicable anti-corruption and similar laws or regulations could have a material adverse effect on our results of operations, financial condition and cash flows.

Our international operations require us to comply with anti-terrorism laws and regulations and applicable trade embargoes and export controls.

We are required to comply with trade and economic sanctions laws and other restrictions on exports and international trade. The United States and other governments and their agencies impose sanctions and embargoes on certain countries, their governments, and designated parties. For example, in the United States the economic and trade sanctions programs are principally administered and enforced by the U.S. Treasury Department's Office of Foreign Assets Control ("OFAC"). Currently, OFAC maintains comprehensive trade and economic sanctions against certain countries and territories such as the Crimea region of the Ukraine, Cuba, North Korea, Iran and Syria. In addition, OFAC has targeted sanctions against North Korea and the U.S. Commerce Department has trade sanctions against North Korea. Furthermore, there are U.S. and EU targeted sanctions against Russia. If we fail to comply with these laws, we could be subject to civil or criminal penalties, other remedial measures and legal expenses, which could adversely affect our business, financial condition and results of operations. We cannot assure you that our compliance policies will effectively prevent violations, particularly as the scope of certain laws may be unclear and may be subject to changing interpretations.

In our Industrial business, we also manufacture certain products for the defense industry which are subject to regulation by the U.S. Department of State under its International Traffic in Arms regulations ("ITAR") as well as European and other equivalent arms control regulations. In addition, we also manufacture certain commercial or dual-use products that are subject to export restrictions under the Export Administration Regulations ("EAR") administered by the U.S. Commerce Department. Sanctions, trade restrictions and export controls particularly focus on such defense and dual use related products, which are subject to the ITAR and other arms control regulations. If our defense and dual use related products were found to be directly or indirectly exported to countries which are subject to trade restrictions and sanctions, or exported to any destination without required ITAR or other export licenses, we may be subject to civil or criminal penalties and other costs and measures and could lose key customer relationships in the defense industry.

We cannot predict the nature, scope or effect of future regulatory requirements to which our international sales and manufacturing operations might be subject or the manner in which existing laws might be administered or interpreted. Future regulations could limit the countries in which some of our products may be manufactured or sold, or could restrict our access to, or increase the cost of obtaining, products from foreign sources. The occurrence of any of the foregoing could have a material adverse effect on our results of operations, financial condition and cash flows.

The result of the United Kingdom's withdrawal from the European Union may have a negative effect on our business.

The United Kingdom's initiation of the process to withdraw from the European Union pursuant to Article 50 of the Treaty on European Union following the national referendum in June 2016 ("Brexit"), has created significant uncertainty about the future relationship between the United Kingdom, one of our current markets, the EU and its remaining member states and may constitute an additional risk for the financial markets and the European economy. Brexit could, among other outcomes, significantly disrupt trade between the United Kingdom and the EU, cause political and economic instability in other countries of the EU, in which we operate, including in Germany, France, Italy and Spain, contribute to instability in global financial and foreign exchange markets, including volatility in the value of the euro and pound sterling. Brexit might also affect our ability to maintain the current level of sales in the United Kingdom. In the LTM Period to September 30, 2017, which does not yet fully take into account the effect of the acquisition of the UK electro-ceramics business from Morgan Advanced Materials plc, which we completed in April 2017, revenue from CeramTec UK would have accounted for €27.0 million, or 5% of our revenue. Given the lack of comparable precedent, it is unclear what financial, trade and legal implications Brexit will have and whether, and to what extent, our business might be affected.

We could be adversely affected by changes to the composition of the eurozone.

If one or more countries in the eurozone default on their debt obligations and/or cease using the euro, there may be significant, extended and generalized dislocation in the financial markets and in the wider European economy, which may negatively affect our business, results of operations and financial condition. The departure of one or more countries from the eurozone may lead to the imposition of exchange rate control laws. The departure or risk of departure from the euro by one or more eurozone countries could increase our exposure to changes in exchange rates and have negative effects on our existing relationships with our suppliers or customers, resulting in a negative impact on our business, financial condition and results of operations. In

addition, the possible dissolution of the euro entirely, or the threat of such dissolution, could lead to increased market volatility, which in turn could have an adverse effect on our business. Should the euro dissolve entirely, the legal and contractual consequences for holders of euro-denominated obligations and for parties subject to other contractual provisions referencing the euro would be determined by laws in effect at such time. These potential developments could adversely affect our operations.

Market perceptions concerning the instability of the euro and the potential re-introduction of individual currencies within the eurozone could also have adverse consequences for us. Financial markets and the supply of credit may be negatively impacted by fears surrounding the sovereign debts and/or fiscal deficits of several countries in Europe, the possibility of further downgrading of or defaults on sovereign debt, concerns about a slowdown in growth in certain economies and uncertainties regarding the overall stability and sustainability of the euro given the economic and political circumstances in individual member states.

A deterioration in general economic conditions caused by instability in the eurozone could have a material adverse effect on our business, financial condition, results of operations and prospects.

Security threats, security breaches or breakdowns in our information technology systems could result in a significant disruption of our business.

Like many other internationally operating organizations, our operations, including research, development, manufacturing, accounting, storage and delivery, are highly dependent on our information technology systems. Such systems are vulnerable to a number of threats, such as software or hardware malfunctions, malicious hacking, physical damage to vital data centers and computer virus infection. Although it is impossible to predict the occurrence or consequences of security threats or security breaches, they could result in reduced demand for our products, make it difficult or impossible for us to deliver products to our customers or distributors or to receive raw materials from suppliers, and create delays and inefficiencies in our supply chain. There can be no assurance that the internal controls, which we have designed to restrict access to our information technology systems will prevent unauthorized access through cyber-attacks, theft and other security breaches.

In addition, our information technology system needs regular upgrading to accommodate expansion of our business and maintain the efficiency of our operations. If we face a breakdown in our system, we could experience significant business and operational delays across our businesses. In particular, any breakdown in our information technology systems could result in disruptions of our research, development, manufacturing, accounting and billing processes. To the extent that any disruption or security breach were to result in a loss of or damage to our data, or inappropriate disclosure of confidential or proprietary information, we could incur liability and the development of our products could be delayed. In addition, we could be subject to fines or other penalties by governmental authorities or could suffer reputational damage as a result of such breach, loss or damage. Any of this could have a material adverse effect on our business, financial condition and results of operations.

We may fail to identify all risks and liabilities associated with acquired businesses or we may encounter difficulties integrating acquired businesses with, or disposing of divested businesses from, our current operations; therefore, we may not realize the anticipated benefits of these acquisitions and divestitures.

We may seek to grow through strategic acquisitions such as our acquisition of DAI Ceramics, Inc. in 2015 and Morgan Electro Ceramics in 2017. Our due diligence reviews of our acquisition targets may not identify all of the material issues necessary to accurately estimate the cost or potential loss contingencies with respect to a particular transaction, including potential exposure to regulatory sanctions resulting from an acquisition target's previous activities. We may incur unanticipated costs or expenses, including post-closing asset impairment charges, expenses associated with eliminating duplicate facilities, litigation and other liabilities. We also may encounter difficulties in integrating acquisitions with our operations, applying our internal controls processes to these acquisitions or in managing strategic investments. Additionally, we may not achieve the benefits we anticipate when we first enter into a transaction in the amount or timeframe anticipated. Any of the foregoing could adversely affect our business and results of operations. In addition, accounting requirements relating to business combinations, including the requirement to expense certain acquisition costs as incurred, may cause us to experience greater earnings volatility and generally lower earnings during periods in which we acquire new businesses. Furthermore, we may make strategic divestitures from time to time. These divestitures may result in continued financial involvement in the divested businesses, such as through guarantees or other financial arrangements, following the respective transactions. Under these arrangements, non-

performance by those divested businesses could result in financial obligations imposed upon us and could affect our future financial results.

An economic downturn, a recession or market disruption in the capital and credit markets may adversely impact the value of our pension plan assets.

We have pension plan assets, *inter alia*, located in Germany, the United Kingdom and in the United States. Our funding obligations could change significantly based on the investment performance of the pension plan assets and changes in actuarial assumptions for local statutory funding valuations. Any deterioration of the capital markets or returns available in such markets may negatively impact our pension plan assets and increase our funding obligations for one or more of these plans and negatively impact our liquidity. We cannot predict the impact of this or any further market disruption on our pension funding obligations.

If we are required to make unexpected payments to any pension plans applicable to our employees, our financial condition may be adversely affected.

Many of our current and former employees participate or participated in defined benefit pension plans. A few of these plans are unfunded and the liabilities in relation to these plans will need to be satisfied as they mature from our operating reserves. In jurisdictions where the defined benefit pension plans are intended to be funded with assets in a trust or other funding vehicle, we expect that the liabilities will exceed the corresponding assets in each of the plans. Various factors, such as changes in actuarial estimates and assumptions (including in relation to life expectancy, discount rates and rate of return on assets) as well as actual return on assets, can increase the expenses and liabilities of the defined benefit pension plans. The assets and liabilities of the plans must be valued from time to time under applicable funding rules and as a result we may be required to increase the cash payments we make in relation to these defined benefit pension plans.

We could also be required in some jurisdictions, as a result of the Acquisition or at any time in the future, to make accelerated payments up to the full buy-out deficit in our defined benefit pension plans, which would likely be far higher than the normal ongoing funding cost of the plans. To the extent that we are required to make any additional payments to any relevant defined benefit pension plans in excess of the amounts assumed in our current projections and assumptions or report higher pension plan expenses under relevant accounting rules, our results of operations, financial condition and cash flows may be materially adversely affected.

Furthermore, we could be subject to further payment obligations, if any of our former pension plans (for Germany and the United States) were not terminated properly in the past. In such case, employees could claim that further pension entitlements accrued under these plans. In addition, there could be unknown liabilities for prior periods under such plans, that we are not aware of and thus do not show in our financial statements. Any such additional obligations could materially adversely affect our results of operations, financial condition and cash flows.

We may be exposed to tax risks in connection with our operating activities.

We take advantage of our international network and centralize our strategic functions. In particular, we transfer and provide goods and services among the companies of the Group by adopting a tax-transfer frame model for the billing of intercompany services. There is a risk that tax authorities in individual countries assess the relevant transfer prices differently from our tax-transfer pricing model and address retroactive tax claims against one of our companies. Possible non-recognition of transfer prices could have a material adverse effect on our financial condition and results of operations.

Moreover, we are regularly subject to tax audits by German tax authorities and tax authorities of certain other jurisdictions, which may raise claims against us for failure to comply with applicable tax laws. For example, the German tax authorities are currently conducting a tax audit with respect to the periods from 2013 to 2015. We have recorded a provision in the amount of €2.3 million as of September 30, 2017, to cover the estimated risk related to the ongoing tax audit for the years from 2013 to 2015. In addition, the tax authorities of certain foreign jurisdictions in which we operate might consider activities by an entity of the Group, which is not legally domiciled in such jurisdiction, as a "permanent establishment" in such jurisdiction. This determination could result in potential adverse tax consequences, such as additional tax obligations and liabilities, which could materially adversely affect our financial condition and cash flows.

If our suppliers or we encounter problems manufacturing products or cease to manufacture products, our business could suffer.

The manufacture of our products is highly exacting and complex due in part to strict regulatory requirements governing the manufacture of some of our products. We rely on complex machinery and information technology systems to support our manufacturing processes, as well as internal and external communications with respect to supplies, quality control and distribution. Problems may arise during manufacturing for a variety of reasons, including equipment malfunction, failure to follow specific protocols and procedures, problems with raw materials and environmental factors. If problems are severe, we may be forced to temporarily suspend all or part of our production until the problems are rectified. Any of this is likely to result in increased costs, lost sales, damage to customer relations, failure to perform existing contracts, time spent investigating the cause, remedial costs and, depending on the cause, similar losses with respect to other batches or products. In addition, where problems are not discovered before the product is released to the market, we may be forced to recall the product from the market. In certain cases, we may face product liability claims and incur respective costs.

Any of the risks described above may have a material adverse effect on our business, financial condition and results of operations.

We handle personal data including, to a minor extent, sensitive patient data in the ordinary course of our business, and any failure to maintain the confidentiality of that data could result in legal liability for us and reputational harm to our business.

We process sensitive personal consumer data (including, in certain instances, consumer names, addresses, and to a minor extent, patient health data) as part of our business, and therefore we are subject to and must comply with complex and evolving European, U.S. and other foreign laws and regulations regarding privacy, data protection and other related matters. These laws and rules impose certain standards of protection and safeguarding on our ability to collect and use personal information relating to customers and potential customers, and could make us liable in the event of a loss of control of such data or as a result of unauthorized third-party access. Unauthorized data disclosure could occur through cyber security breaches as a result of human error, external hacking, malware infection, malicious or accidental user activity, internal security breaches, and physical security breaches due to unauthorized personnel gaining physical access.

We and our customers and suppliers who carry out our outsourcing, have been in the past and could be in the future subject to breaches of security by hackers. A future breach of our system or that of one of our customers or outsourcing partners may subject us to material losses or liability, including fines, claims for unauthorized use of personal and sensitive data or other claims. A misuse of such data or a cybersecurity breach could harm our reputation, increase our operating expenses in order to correct the breaches or failures, expose us to uninsured liability, increase our risk of regulatory scrutiny, subject us to lawsuits, result in the imposition of material penalties and fines under any applicable international laws or regulations, and adversely affect our business and results of operations.

If a single material breach or series of less material breaches was to occur, we could face liability under data protection laws, could lose the goodwill of our clients and could have our reputation damaged, all of which could have a material adverse effect on our business, financial condition and results of operations.

We are exposed to default or counterparty risks in connection with our operating business or as a result of contracting parties' failure to meet their contractual obligations.

We are exposed to default and counterparty risks in connection with deliveries of our products and services to customers or as a result of financing or hedging activities if contracting parties fail to meet their obligations. In addition, there is the risk that, in a difficult economic and financial environment, national healthcare systems may delay or fail to make payments to our customers, thus generating or increasing default or counterparty risks. Any of these risks could have a material adverse effect on our financial condition and results of operations.

Fluctuations in exchange rates may adversely affect our business and results of operations.

Our products are marketed in more than 65 countries and we operate 20 production sites in 11 countries. Accordingly, a significant portion of our sales, expenses, assets and liabilities are in currencies other than the euro, our reporting currency, and as such our results are subject to foreign exchange translation and

transaction risks. Our primary foreign exchange rate risks relate to the U.S. dollar, the Chinese yuan, the British pound sterling, the Polish zloty and the Czech koruna.

Transactional risk arises when we and our subsidiaries execute transactions in a currency other than our functional currency. To the extent that we incur expenses in one currency but generate sales in another, any change in the values of those non-euro currencies relative to euro could cause our profits to decrease or our products to be less competitive than those of our competitors. To the extent that cash and receivables that are denominated in currencies other than the euro are greater or less than our liabilities denominated in such non-euro currencies, we will be exposed to the risk of fluctuations and movements in the foreign exchange markets. Where we are unable to match sales and receivables denominated in foreign currencies with expenses and liabilities denominated in the same currency, our results of operations are affected by currency exchange rate fluctuations.

Additionally, currency risk arises in connection with the translation of the financial condition and results of operations of our international subsidiaries with non-euro reporting currencies. Any of these factors could have a material adverse effect on our business, financial condition and results of operations.

To the extent that any derivative financial instruments are not sufficient or not effective or due to a default risk of the relevant counterparty, fluctuations of local currencies could affect our financial condition and results of operations.

MANAGEMENT'S DISCUSSION AND ANALYSIS OF FINANCIAL CONDITION AND RESULTS OF OPERATIONS

The historical financial data for the nine months ended September 30, 2016 and 2017 has been derived from our interim financial statements or is based on our accounting records and management reporting. These interim results are not necessarily indicative of results to be expected for the full year. the interim financial statements have been prepared in accordance with IAS 34. The historical financial information included in this Supplemental Bondholder Report for the years ended December 31, 2014, 2015 and 2016 has been derived from our audited financial statements or is based on our accounting records and management reporting. The audited financial statements are prepared in accordance with IFRS as adopted in the EU. The results of operations for prior years are not necessarily indicative of the results to be expected for any future period.

The statements in the discussion and analysis regarding industry outlook, our expectations regarding the performance of our business and other forward-looking statements are subject to numerous risks and uncertainties, including, but not limited to, the risks and uncertainties described in "Risk Factors," and "Forward-Looking Statements." Our actual results may differ materially from those contained in or implied by any forward-looking statements. You should read the following discussion and analysis together with the section entitled "Presentation of Financial Information".

Overview

We are a leading global developer, manufacturer and supplier of high performance ceramics ("HPC") solutions for various end markets including medical, automotive, industrial, consumer and electronics. Our HPC solutions are made of advanced ceramics, which are highly specialized materials with superior biological/chemical, mechanical, thermal, electric/magnetic or optical properties compared to competing products made from metal or polymers (plastics). We have been engaged in the HPC industry for over 100 years, with operational expertise and experience in creating innovative system solutions for longstanding customers at an industrial scale. We currently offer a wide range of HPC solutions including hip joint prostheses components, actuators in engine valves for fuel injection systems, high speed cutting tools and transparent ceramic components for armor applications. The versatility of HPC products and resulting wide-range of applications provides us with a highly diversified end market and customer base.

Our operations can be divided into two businesses – Medical Products and Industrial.

Medical Products: Our Medical Products business focuses on developing and manufacturing ceramic components for hip joint prostheses, such as ball heads and cup inserts used in total hip replacement ("THR") procedures. In 2016, we generated 37.6% of our revenue and more than half of our Management Adjusted EBITDA from our Medical Products business. Ceramic materials are replacing traditional materials for hip joint prosthetic components such as metal which can trigger negative patient reactions, for example due to allergic reactions resulting from metal sensitivity, and have experienced documented safety concerns. Our HPC medical solutions are biologically inert and have high wear resistance and excellent friction behavior, making them one of the few materials that are durable and stable enough to withstand the corrosive effects of bodily fluids. More than 14 million of our BIOLOX® ceramic components have been implanted in patients globally to date. We estimate that nearly one in two hip joint implant systems sold worldwide in 2016 includes at least one ceramic component, and we estimate our BIOLOX® products represented more than 95% of the ceramic components used for these hip joint implant systems. Our customers are orthopedic implant OEMs including DePuy, Smith & Nephew, Stryker and Zimmer Biomet, the top four orthopedic implant OEMs who together have a market share of more than 60% in the worldwide market for hip joint implant systems. We believe that our BIOLOX® brand has come to symbolize high quality and innovation and is increasingly preferred by surgeons and other medical professionals. We anticipate that our HPC solutions will be used for various other joint replacements, such as knee and shoulder implants in the future.

Industrial: Our Industrial business develops, manufactures and supplies a broad range of highly specialized, performance critical HPC solutions for customers spanning a wide range of industries including automotive, defense, electronics, industrial machinery and medical equipment. In 2016, 62.4% of our revenue was generated by our Industrial business. Our dedicated teams of scientists and engineers collaborate closely with customers to develop tailor made solutions and production processes to fulfill distinct functionality and performance requirements. We believe that we are one of the few advanced ceramics manufacturers with a full-range of HPC materials and manufacturing processes, which when coupled with our state-of-the-art manufacturing facilities, enables us to efficiently produce solutions at scale while still adhering to all relevant industry standards. Due to the superior technological and performance characteristics of advanced ceramics,

such as better wear and heat resistance than alternative materials, our HPC solutions are often performance-critical components. For example, our cutting tools have a longer life and faster cutting speeds compared to non-HPC cutting tools, allowing our customers to save costs and reduce downtime. In automotive engineering, HPC products, including our piezo ceramic components, play a vital role in increasing safety, improving cost-effectiveness and enhancing comfort in vehicles. Our ceramic substrates, which are ceramic plates with electrical, thermal and mechanical properties, are used for a variety of purposes in the electronics and telecommunications sector, including measurement and control technology and entertainment electronics. We believe that the specialized, mission critical nature of our solutions, our long standing customer relationships and our highly diversified portfolio of solutions and customer base, reduces the exposure of our Industrial business to any single industry or product.

At our state-of-the art development centers and laboratory facilities, we continuously research and develop materials as well as manufacturing and coating processes for new solutions in established and new markets. Our R&D is primarily focused on delivering customer-driven innovations and next generation solutions, which we are able to test through market leading digital simulation tools. We also develop new innovations with broader uses such as PERLUCOR®, a wear and chemical resistant transparent ceramic material that is three to four times the hardness and strength of glass and is already used in a wide range of applications.

In 2016, we generated 69.7% of our revenue in Europe (including Germany). However, our customers have a strong export focus as their end-products, such as automotive parts or ceramic hip implant components, are exported world-wide. In addition, we have a global manufacturing footprint with 20 facilities across Europe (including two facilities in the UK that were acquired in 2017 as part of our acquisition of the UK electro-ceramics business of Morgan Advanced Materials plc), North America, Asia and South America.

In the LTM Period to September 30, 2017, we generated revenue of €536.7 million and Management Adjusted EBITDA of €199.9 million, respectively, representing a 37.3% Management Adjusted EBITDA margin. From 2014 to 2016, our revenue and Adjusted EBITDA registered a CAGR of 1.9% and 5.5% respectively, and our Cash Conversion Ratio increased from 70.0% to 91.5%. We believe we have a highly cash generative business supported by modest maintenance capital expenditure requirements, which typically comprise half of our total capital expenditures.

Key Factors Affecting Our Results of Operations and Financial Condition

Hip Replacement Market Growth and Ceramic Hip Implant Components Penetration

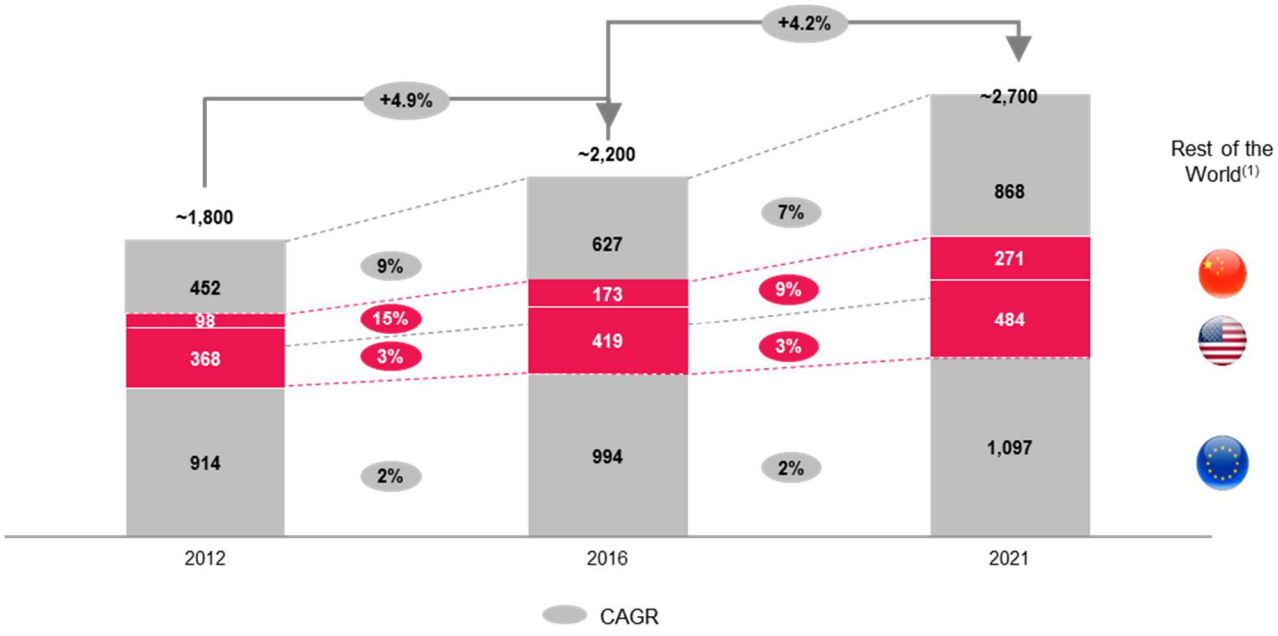
Our total revenues and operating profit are significantly influenced by the development of the market for hip replacements in general and the penetration rate for ceramic hip implants. The ceramic components we manufacture include ball heads and cup inserts. In 2008 we sold approximately 641,000 ball heads and cup inserts. Since then we have significantly increased the total annual number ball heads and cup inserts sold to approximately 1.4 million in 2016. To date, more than 14 million of our BIOLOX® ceramics components have been implanted in patients globally. Our Medical Products business, which represented over half of our Management Adjusted EBITDA for the years ended December 31, 2014, 2015 and 2016, respectively, has relatively high margins compared to our Industrial business and contributed significantly to the growth in our Management Adjusted EBITDA (from €154.1 million for the year ended December 31, 2014 to €199.9 million for the LTM Period to September 30, 2017) and our Management Adjusted EBITDA margin (from 32.4% for the year ended December 31, 2014 to 37.3% for the LTM Period to September 30, 2017).

The following table provides estimates of the growth in number of units sold and the estimated total number of hip procedures for the last five years:

	Year Ended December 31,					
	2012	2013	2014	2015	2016	CAGR 2012-2016 (%)
Number of our units sold (ball-heads and inserts) (in thousands)[1]	1,009	1,152	1,259	1,291	1,368	7.9%

(1) On average, more than 75% of our total ceramic hip implant components sold in the last five years were ball heads. This is principally due to the lower share of the total hip implant market of ceramic-on-ceramic components compared to ceramic-onpolyethylene components.

According to a leading international consultancy firm, there were an estimated 2.2 million total hip replacement (THR) procedures performed worldwide in 2016. In addition, an estimated 0.4 million revisions (of existing hip implants) and 0.5 million partial hip replacements (PHR, treat only the femoral side of the joint) were performed, bringing the total number of hip replacements in 2016 to an estimated 3.2 million. The number of THR procedures globally is expected to increase by 4.2% p.a. from 2016 to 2021 with the numbers of revisions expected to increase by 5.4% and PHR procedures by 4.2% over the same time horizon.



Source: International consulting firm
Notes: ¹ Includes South Korea, Japan, India, LatAm and other

In developed markets such as Europe and the United States, growth in the artificial hip joint market is primarily driven by an aging population as well as by an increase in obesity rates. Both age and obesity are significant contributors to hip joint problems. Additionally, there are indications that the younger population, those who are less than 65 years old, are electing to have primary hip replacements earlier in life so that they can maintain and enjoy an active lifestyle. Such younger patients are taking advantage of improvements in technology leading to better wearability and increased life spans of hip implant prostheses.

Similarly, growth in artificial hip joints in emerging markets also stems from an aging population and, in some countries, increased obesity. However, in developing countries there are additional drivers of growth, such as the proliferation of osteoarthritis and osteonecrosis (reduced blood flow to bones), improved availability of medical care and prosthetic procedures coupled with increased household incomes and broader access to funded healthcare.

CeramTec services the hip replacement market with ball heads, cup inserts and option heads (used for revisions). The total size of the ball heads, inserts and option heads market addressed by CeramTec amounted to

approximately €745 million in 2016 (including metal and polyethylene). The total addressable market is expected to grow with the number of THR procedures, a key driver of demand for ceramic ball heads and inserts. Further, ceramic as a material is increasingly used in revisions and PHR.

Our Position as Supplier of Choice for Ceramic Hip Implant Components

We have a strong market position in ceramic components for hip replacements. We estimate nearly one in two hip joint implant systems sold worldwide in 2016 included at least one ceramic component and we estimate that our BIOLOX® products represented more than 95% of the ceramic components for these hip joint implant systems. The cost of our HPC components (both ball heads and cup inserts) included in a complete hip joint implant system represents a small part of the overall costs of the total system, but are critical to the performance of these products and therefore our customers' are not incentivized to replace our components. While two of our competitors have received FDA approval for their ball head products in 2016, we believe that their production output and market share is currently very small.

The top four orthopedic implant OEMs, DePuy, Smith & Nephew, Stryker and Zimmer Biomet, together have a market share of more than 60% in the worldwide market for hip joint implant systems. We maintain good and long-standing customer relationships each of these OEMs and we believe that we are the only supplier of ceramic components that supplies all top four orthopedic implant OEMs. We believe that our strategic relationship with each of the top four orthopedic implant OEMs is key to our strong position in the ceramic hip replacement components market and demand from each of these customers has historically been, and is expected to continue to be, a major driver of revenue in our Medical Products business and results.

General Macroeconomic and Other Developments in our Key Geographical Target Markets

Our sales to our customers are mostly concentrated in Europe and specifically in Germany. However, although our customers are concentrated in Europe, many of them, especially medical and automotive customers, are export oriented, global companies. Consequently, we view our business as globally diversified. We believe that our business is more exposed to North America, Asia and other regions than indicated by the split of revenues by geography provided below. While we generated 69.7% of our revenue for 2016 from sales to our direct customers in Europe (including Germany), we estimate that the underlying demand outside Europe drives approximately 40% of our revenue.

The following table provides an overview of our revenue by geography in the last three years as a percentage of total revenue in the given period:

	Year Ended December 31,		
	2014	**2015**	**2016**
		(%)	
Europe (excluding Germany)	42.6	41.7	42.7
Germany	28.3	26.0	27.0
North America	14.5	16.7	14.8
Asia	11.7	12.5	12.4
Rest of World	2.9	3.1	3.1
Total revenue	**100.0**	**100.0**	**100.0**

While our Medical Products are not particularly affected by macroeconomic developments in our geographic markets, revenue in our Industrial business is influenced by economic growth in our target markets, particularly in Europe. In the past, Germany has registered a GDP growth of 1.9% in 2016, 1.7% in 2015 and 1.9% in 2014, while GDP in the European Union grew by 1.9% in 2016, 2.3% in 2015 and 1.8% in 2014. As of September 2017, the OECD projects global growth of 3.5% in 2017 (from 3.1% in 2016) which is expected to accelerate to 3.7% in 2018. The United States' GDP is projected to grow by 2.1% in 2017 and 2.4% in 2018 (from 1.5% in 2016), while the eurozone's GDP is projected to grow at around 2.1% in 2017 and 1.9% in 2018.

In addition, due to the large number of niche markets in which we operate, the effect of economic downturns in our target geographic markets has in the past been partially offset by the various different developments in our industrial target markets. Additionally, while 62.4% of our total revenue were attributable to our Industrial business in 2016, our Medical Products business generated more than half of our Adjusted EBITDA in 2016. Historically, our Cash Conversion Ratio in Medical Products has been consistently higher than our overall Cash Conversion Ratio. As a consequence, our profitability and cash generation is more

resilient and less affected by negative developments in the economies of our target markets than our overall revenue.

Demand Cycles in Various End Markets Supplied by our Industrial Business

In addition to the overall GDP growth rate influencing the results of operations of our Industrial business, each of our industrial markets is also influenced by separate and distinct factors and has a different economic cycle. In particular, the automotive, electronics, construction and other industrial end markets we serve are cyclical, and both general macroeconomic and other factors beyond our control could reduce demand from any one of these markets for our products. Demand for our products is significantly affected by the business success of our OEM customers as well as end users that purchase products from those OEM customers. For example, overall economic conditions can affect new car sales, impacting our automotive customers and thereby also influencing demand for our ceramic components in automobiles and engines.

By revenue, the automotive market was the largest single end market for our Industrial business, followed by the electronics market, textile, construction and various other industrial niche markets. Particularly for the automotive end market, but also various other industrial end markets such as construction, the economic developments in Germany and Europe have a significant effect on our revenue. For example, effects such as government subsidies for new car sales have materially affected the automobile sector in the past, specifically in Germany and other European countries. In addition, we have in the past been affected by political and fiscal decisions, for example by decisions of the Chinese government that had an impact on the textile industry in China.

Development of New Products, Materials and Processing Technologies

As a manufacturer of HPC products we believe that our continued emphasis on research and development is key to our future profitability and our reputation as a technology leader in HPC. To ensure the sustainability of our business, we continuously research and develop materials as well as manufacturing and coating processes for new products in established and new markets. Our product development is mainly focused on delivering customer driven innovations and next generation solutions. We also invest in the development of new materials and processes, new medical solutions and selected own product innovations such as PERLUCOR®, a wear and chemical resistant transparent ceramic material that is three to four times the hardness and strength of glass and is already used in a wide range of applications. We believe that such growth investments are crucial to continued success in our target markets.

We have a strong, centralized R&D infrastructure with more than 200 scientists and engineers who work in modern laboratory facilities and collaborate with leading research institutions globally (including the Fraunhofer Institute and Imperial College London). Approximately 2,000 new products were newly introduced in the past five years. In 2016, our R&D expenses were €22.8 million, equal to 4.6% of revenue, which we fully expensed in our income statement in line with IFRS.

In the last few years, our innovations have played a fundamental role in our ability to maintain and grow our global market share in the different markets in which we operate. Revenue from products that were either newly developed and introduced, materially modified existing products or products modified for sale to a new customer within five years before the relevant period represented approximately 25% to 30% of our total revenue in the last five years. We expect that modification, innovation and new product design will continue to be a key driver of our revenue and Management Adjusted EBITDA in the future.

Expansion through Acquisitions and Growth Investment

We have over the past years engaged in M&A activity to strategically grow our business. In June 2015, we acquired DAI Ceramics, Inc., a producer of ceramic cores for precision casting applications. In April 2017, we acquired the UK electro-ceramics business from Morgan Advanced Materials plc, which produces integrated piezo components.

In addition to growth through strategic acquisitions, we have in the past invested substantially in our infrastructure and machinery in order to maintain and expand our production capabilities. In particular, we have invested in the expansion of our manufacturing plant in Marktredwitz, Germany in 2013 and 2014 at a cost of approximately €38 million. Our expanded medical production facility increased our annual production capacity to approximately 2.0 million units as at September 30, 2017.

We believe that our capacity expansion in Marktredwitz, as well as the strategic acquisitions we completed in the past years, have already significantly contributed and will continue to contribute to our growth in revenue and Management Adjusted EBITDA.

Cost Effectiveness through Simplification of Industrial Business and Business Excellence Initiatives

In order to improve our earnings and cash flows, we have implemented a number of measures to increase organizational cost effectiveness and drive productivity in operations.

In our Industrial business, we began implementing a comprehensive reorganization (Project SCORE) in 2016 and 2017. The reorganization is based on three guiding principles: simplification, scale and standardization. As part of the reorganization, we combined various independent reporting units into three separate clusters within the Industrial business and consolidated our operations in Europe under a centralized unit. We increased cost effectiveness based on multiple improvement levers:

- reduced complexity of management setup;
- increased employee motivation through incentives and alignment in order to work towards common goals;
- increased focus on strategic customers;
- improved customer satisfaction and better understanding of customer needs through a structured sales approach;
- reduced response time and better lead conversion through harmonized customer service;
- economies of scale and aligned steering across production sites to improve asset utilization and flexibility;
- improved use of shared technology platforms across business clusters to leverage shared know-how; and
- synergies from pooling of assets and resources leading to better allocation of funding and resources to critical growth projects.

In our Medical Products business, we launched our Innovation Excellence initiative in 2016, which seeks to refocus our R&D organization to realign resources to the most attractive, customer-driven projects in the pipeline, based on a structured opportunity management process. With regards to production in the Medical Products business, we implemented an operational efficiency program (Project ODIN), which targets cost savings. A new logistics system on the shop floor and an optimized equipment layout were implemented with an aim to reduce lead times on the shop floor, reduce rework and quality costs, as well as tooling and overhead costs.

We operate our company on a lean management, flat hierarchy philosophy and have not substantially increased the size of our administrative team for many years despite our growth in revenue. We have a centrally coordinated, structured program in place, that focuses primarily on our European operations and that aims to continuously improve our product quality, productivity and manufacturing processes' efficiency, as well as to improve the cost effectiveness of research and development, sales, and administrative functions. In addition to our Innovation Excellence initiative, we have implemented commercial excellence initiatives to improve customer focus, cross selling and commercial delivery, through implementation of a structured opportunity management process, including the implementation of customer relationship management and the education of our sales force.

Price Pressure

Due to our position as the market leader in our core medical products market, our close relationship with our customers and high switching costs for our customers, price pressure due to competition has been historically limited. While we regularly renegotiate prices with several of our medical customers, we were able to keep our prices relatively stable. However, our customer base in Medical Products is highly concentrated and we faced pricing pressure in 2015 and 2016 as a result of the merger of Biomet and Zimmer, which resulted in uniform prices for the merged entity at the low end of previous prices. In 2017 we incrementally adjusted the

contractual pricing conditions in the Medical Products business to better reflect the value of our BIOLOX® products and additional services we offer to customers.

We are also among the market leaders in many of the industrial niche markets that we target. Most of our main HPC competitors have either a different target market or geographical focus. Additionally, due to the large variety of our products, we are the sole supplier of certain specialized products in certain niche areas. However, specifically in the automotive end market, the electronics end market and in our Catalyst Carriers cluster we have faced pressure from competitors in certain niche markets. Our customers in the Industrial business also regularly stipulate annual cost improvements.

Seasonality

Our business is moderately affected by seasonal volatility in order volumes. We register a slight slowdown of new orders in the summer months and in December, related mainly to procurement and supply chain management of our customers, mainly Medical OEMs. However, due to the diversification across a large number of products sold and our global geographic footprint, the fluctuations in revenue on a quarter-by-quarter basis we experience over the course of a year are similar from year to year and moderately low. Our revenue is usually strongest in the first quarter of a year and lowest in the fourth quarter. The slowdown in the summer and at the end of December is also driven by the impact of vacation at our production sites and year-end holidays.

Key Components of our Historical Results of Operations

Revenue

Revenue is recognized to the extent that it is probable that the economic benefits from the transaction will flow to the Group and the revenue can be reliably measured. Revenue is measured at the fair value of the consideration received or receivable less any trade discounts and volume rebates granted.

Revenue from the sale of goods is recognized upon delivery of the goods and transfer of ownership if the following criteria are satisfied: (i) the Group has transferred to the buyer the significant risks and rewards of ownership of the goods and merchandise sold, (ii) the Group retains neither continuing managerial involvement to the degree usually associated with ownership nor effective control over the goods and merchandise sold, (iii) the amount of revenue can be measured reliably, (iv) it is probable that the economic benefits associated with the transaction will flow to the Group and (v) the costs incurred or to be incurred in respect of the transaction can be measured reliably.

Revenue from services is recognized using the percentage of completion method if (i) the amount of revenue can be determined reliably, (ii) it is probable that the economic benefits associated with the transaction will flow to the Group, (iii) the stage of completion of the transaction at the end of the reporting period can be determined reliably, and (iv) the costs incurred for the transaction and the costs to complete the transaction can be determined reliably.

Cost of Sales

Cost of sales reflects all costs incurred by us for the delivery of goods to the customer. Cost of sales consist of material and packaging costs, amortization and depreciation, personnel expenses and other costs of sales.

Material and packaging costs are variable costs and include raw materials and costs of contract workers.

Amortization and depreciation is mainly driven by depreciation of our manufacturing sites and machinery.

Our personnel expenses are mostly fixed costs (excluding costs for a small number of contract workers (*Leiharbeiter*)) and include wages, bonuses and social costs, post-retirement costs and severance payments.

Other costs of sales mainly contain energy costs and maintenance expenses.

Selling Costs

Selling costs are incurred in the marketing of finished products and certain services rendered to customers in connection with the sale of products. Selling costs primarily contain amortization and depreciation as well as personnel expenses.

Research and development costs

Research and development costs mainly comprise personnel expenses attributable to our R&D employees.

General Administrative Costs

The majority of our general administrative costs are personnel expenses, which are partially fixed, but as far as they relate to bonuses paid out to management and other key employees, are variable costs. Other main components within general administrative costs are IT-expenses, travel costs, pension cost, rentals as well as professional and contract services.

Other Income and Expenses, net

Other income and expenses include various smaller income sources and expenses, such as foreign currency results, write-downs and impairment, sundry other income and expenses, restructuring costs and income from reversal of provisions.

Interest Income and Other Finance Income

Interest income and other finance income includes interest from shareholder loans, bank balances and certain other interest income.

Interest Expenses and Other Finance Costs

Interest expenses and other finance costs primarily reflects interest on borrowings under our Existing Senior Facilities Agreement and the Existing Shareholder Loan, as well as interest on the Existing Notes. Interest expenses and other finance costs also include the accumulation of interest on provisions and accrued liabilities and as well as certain other financing costs and financial expenses, such as exchange rate losses or gains resulting from loans that are not granted in the functional currency of the relevant entity.

Income tax expense

There is a consolidated tax group for income tax purposes between CeramTec and its German subsidiaries. This means that German corporate income tax and trade tax is only levied at the level of CeramTec. We also have indirect shareholdings in foreign corporations. Our current income taxes therefore include, in addition to German corporate income tax and trade tax, the tax expense of our foreign subsidiaries, which is calculated based on taxable income according to local tax law and the tax rate applicable in each case.

Results of Operations

The following discussion should be read in conjunction with the information contained in our audited financial statements and the notes thereto as well as in our Interim Financial Statements and the notes thereto included elsewhere in this Supplemental Bondholder Report. In the following discussion, we present certain components also on an adjusted basis before giving effect to depreciation and amortization and certain extraordinary, non-recurring items. For a detailed reconciliation to the closest comparable IFRS measure.

Nine Months Ended September 30, 2017 Compared to Nine Months Ended September 30, 2016

The following table sets forth amounts from our unaudited interim condensed consolidated financial information along with the percentage change for the nine months ended September 30, 2017 compared to the nine months ended September 30, 2016:

	Nine Months Ended September 30,

	2016	2017	Change
	(€ million)		(%)
Revenue	376.4	419.7	11.5
Cost of sales	224.7	236.7	5.4
Gross profit	**151.7**	**183.1**	**20.7**
Selling costs	70.4	60.9	(13.5)
Research and development costs	17.8	15.4	(13.6)
General administrative costs	16.3	16.7	2.1
Other income and expenses (-), net	(0.0)	1.8	N/A
Operating income	**47.1**	**91.9**	**94.9**
Interest income and other financial income	5.2	4.4	(15.8)
Interest expenses and other financial expenses	(53.8)	(57.9)	7.7
Financial result	**(48.6)**	**(53.5)**	**10.2**
Profit/(loss) before income taxes	(1.4)	38.3	N/A
Income tax expense	(6.0)	(13.9)	132.0
Net profit/(loss) for the period	**(7.5)**	**24.4**	**N/A**

Revenue

The following table provides a breakdown of our revenue for the nine months ended September 30, 2017, compared to the nine months ended September 30, 2016 on a cluster level:

	Nine Months Ended September 30,		
	2016	2017	Change
	(€ million)		(%)
Medical Products[(1)]	**141.8**	**155.2**	**9.4**
Industrial[(1)(2)]	**234.6**	**264.5**	**12.8**
thereof Specialty Applications	63.0	68.7	9.0
thereof Industrial Solutions	104.1	109.0	4.7
thereof CT North America	33.6	42.7	27.1
thereof Emil Müller Companies	18.1	16.4	(9.4)
thereof other units / consolidation[(3)]	15.8	27.7	(75.3)
Total revenue	**376.4**	**419.7**	**11.5**

(1) The numbers presented for Medical Products and Industrial are external revenue to third parties.

(2) We began implementing a comprehensive reorganization of our Industrial business in 2016 and 2017 in order to streamline our internal structure by bundling together similar clusters, aligning our marketing and sales team across the business, standardizing key processes and centralizing R&D know-how. In the second fiscal quarter of 2017, we began presenting revenue in our Industrial business by new clusters as follows: Specialty Applications, Industrial Solutions, CeramTec North America, Emil Müller GmbH, and Other.

(3) The revenue presented for the individual units in Industrial includes internal revenue to Group companies. The line item "other units / consolidation" includes all internal revenue between the clusters listed under "Industrial" to show the amount by which the total revenue figure for Industrial has been reduced to account for such internal revenue. However, our management believes that revenue including internal sales for our clusters in Industrial provides a better description of trends in these clusters due to substantial internal revenue between our clusters in Industrial.

The following table provides a breakdown of our revenue for the nine months ended September 30, 2017, compared to the nine months ended September 30, 2016 by region:

	Nine Months Ended September 30,		
	2016	2017	Change
	(€ million)		(%)
Europe (excluding Germany)	162.7	187.2	15.0
Germany	102.5	102.5	(0.1)
North America	54.3	62.8	15.6
Asia	45.0	54.2	20.3
Rest of World	11.8	13.1	11.3
Total revenue	**376.4**	**419.7**	**11.5**

Revenue was €419.7 million for the nine months ended September 30, 2017, an increase of €43.4 million or 11.5%, as compared to €376.4 million for the nine months ended September 30, 2016. This increase was mainly due to higher volumes in both businesses and the acquisition of the UK electro-ceramics business from Morgan Advanced Materials plc which we completed in April 2017.

Revenue in our Medical Products business was €155.2 million for the nine months ended September 30, 2017, an increase of €13.4 million or 9.4%, as compared to €141.8 million for the nine months ended September 30, 2016. This increase was mainly due to a volume increase in ball-heads and inserts, partly offset by price reductions.

Revenue in our Industrial business was €264.5 million for the nine months ended September 30, 2017, an increase of €30.0 million or 12.8%, as compared to €234.6 million for the nine months ended September 30, 2016. This increase was mainly due to overall strong demand across major markets such as Textile, Automotive and strong U.S. market conditions. The increase is supported by organizational streamlining and commercial excellence initiatives and the acquisition of the UK electro-ceramics business from Morgan Advanced Materials plc. The decrease at our Emil Müller Companies cluster was mainly driven by lower volumes at a top customer in automotive.

Cost of sales and gross profit

The following table shows a breakdown of our costs of sales for the nine months ended September 30, 2016 and 2017:

	Nine Months Ended September 30,			
	2016		2017	
	(€ million)	(% of revenue)	(€ million)	(% of revenue)
Material and packing costs	67.4	17.9	79.8	19.0
Personnel expenses	85.1	22.6	87.7	20.9
Amortization and depreciation	37.8	10.0	37.3	8.9
Other costs of sales	34.4	9.2	32.0	7.6
Cost of sales	**224.7**	**59.7**	**236.7**	**56.4**

Cost of sales was €236.7 million (56.4% of revenue) for the nine months ended September 30, 2017, an increase of €12.0 million or 5.4%, as compared to €224.7 million (59.7% of revenue) for the nine months ended September 30, 2016. Excluding amortization and depreciation and non-recurring items, our Adjusted cost of sales increased by 7.8% from €182.3 million or 48.4% of revenue for the nine months ended September 30, 2016 to €196.4 million or 46.8% of revenue for the nine months ended September 30, 2017. This increase was mainly due to higher volumes partly offset by operational excellence measures and the release of a jubilee provision.

Gross profit was €183.1 million for the nine months ended September 30, 2017, an increase of €31.3 million or 20.7%, as compared to €151.7 million for the nine months ended September 30, 2016. Our Adjusted gross profit margin increased to 53.2% for the nine months ended September 30, 2017, from 51.6% for the nine months ended September 30, 2016, mainly due to higher sales and productivity excellence partly offset by cost increase and repairs, and further impacted by the release of a jubilee provision in 2017.

Selling costs

Selling costs were €60.9 million (14.5% of revenue) for the nine months ended September 30, 2017, a decrease of €9.5 million or 13.5%, as compared to €70.4 million (18.7% of revenue) for the nine months ended September 30, 2016. Excluding amortization and depreciation and non-recurring items, our Adjusted selling costs decreased to €36.6 million or 8.7% of revenue for the nine months ended September 30, 2017 from €36.9 million or 9.8% of revenue for the nine months ended September 30, 2016. This decrease was mainly due to organizational streamlining and commercial excellence measures.

Research and development costs

Research and development costs were €15.4 million (3.7% of revenue) for the nine months ended September 30, 2017, a decrease of €2.4 million or 13.6%, as compared to €17.8 million (4.7% of revenue) for

the nine months ended September 30, 2016. Excluding amortization and depreciation and non-recurring items, our Adjusted research and development costs decreased to €13.8 million or 3.3% of revenue for the nine months ended September 30, 2017 from €15.4 million or 4.1% of revenue for the nine months ended September 30, 2016. This decrease was mainly due to streamlining medical R&D and the refocusing of our organization through the Innovation Excellence initiative.

General administrative costs

General administrative costs were €16.7 million (4.0% of revenue) for the nine months ended September 30, 2017, an increase of €0.3 million or 2.1%, as compared to €16.3 million (4.3% of revenue) for the nine months ended September 30, 2016. This increase was mainly due to higher bonus accruals. Excluding amortization and depreciation and non-recurring items, our Adjusted general administrative costs increased to €14.3 million or 3.4% of revenue for the nine months ended September 30, 2017 from €12.1 million or 3.2% of revenue for the nine months ended September 30, 2016 and remain broadly unchanged as a percentage of sales.

Other income and expenses, net

Other income was €1.8 million for the nine months ended September 30, 2017, an increase of €1.8 million compared to other expenses of €0.0 million for the nine months ended September 30, 2016. This increase was mainly due to a gain from a land sale related to our Colyton site, partially offset by acquisition costs for the acquisition of the UK electro-ceramics business from Morgan Advanced Materials plc and restructuring costs. Excluding non-recurring items and foreign exchange effects, our Adjusted other expenses, net, were €0.1 million for the nine months ended September 30, 2017, a decrease of €0.3 million as compared with Adjusted other income, net of €0.2 million for the nine months ended September 30, 2017, due to certain types of operating income not being present in the nine months ended September 30, 2017.

Interest income and other finance income

Interest income and other finance income was €4.4 million for the nine months ended September 30, 2017, a decrease of €0.8 million or 15.8%, as compared to €5.2 million for the nine months ended September 30, 2016. This decrease was mainly due to the lack of gains resulting from the fair value measurement of derivatives and higher foreign currency effects in the nine months ended September 30, 2017.

Interest expenses and other finance costs

Interest expenses and other finance costs were €57.9 million for the nine months ended September 30, 2017, an increase of €4.1 million or 7.7%, as compared to €53.8 million for the nine months ended September 30, 2016. This increase was mainly due to a loss resulting from the fair value measurement of derivatives largely compensated by lower interest expenses. The financial expenses of €57.9 million include €11.1 million of losses on derivative valuations, €35.6 million of interest expenses from syndicated loan, revolving credit line and bond, €4.4 million of expenses from the effective interest rate method, €5.3 million of interest expenses from a shareholder loan and €1.5 million of other interest expenses.

Income tax expenses

Income tax expenses were €13.9 million for the nine months ended September 30, 2017, an increase of €7.9 million as compared to €6.0 million for the nine months ended September 30, 2016. This increase was mainly due to an increase of taxable income, partly compensated by lower deferred tax expenses from valuation of derivatives.

Net profit/(loss) for the period

As a result of the developments described above, net profit for the period was €24.4 million for the nine months ended September 30, 2017, an increase of €31.8 million compared to a net loss of €7.5 million for the nine months ended September 30, 2016.

Year Ended December 31, 2016 Compared to the Year Ended December 31, 2015

The following table sets forth amounts from our historical consolidated financial information along with the percentage change for the year ended December 31, 2016 compared to the year ended December 31, 2015:

	Year Ended December 31,		
	2015	2016	Change
	(€ million)		(%)
Revenue	501.3	493.3	(1.6)
Cost of sales	300.0	294.9	(1.7)
Gross profit	**201.4**	**198.4**	**(1.5)**
Selling costs	86.8	91.5	5.4
Research and development costs	24.2	22.8	(6.0)
General administrative costs	21.1	22.2	5.1
Other income and expenses (-), net	0.4	(2.2)	N/A
Operating income	**69.7**	**59.7**	**(14.3)**
Interest income and other finance income	5.4	18.7	>100.0
Interest expenses and other finance costs	81.7	73.6	(9.9)
Financial result	**(76.3)**	**(54.9)**	**(28.1)**
Profit/(loss) before income tax	**(6.6)**	**4.8**	**N/A**
Income tax expense	(7.7)	(10.0)	30.1
Net loss for the year	**(14.3)**	**(5.2)**	**(63.8)**

Revenue

The following table provides a breakdown of our revenue for the year ended December 31, 2016 compared to the year ended December 31, 2015 on a cluster level:

	Year Ended December 31,		
	2015	2016	Change
	(€ million)		(%)
Medical Products[(1)]	**182.7**	**185.6**	**1.5**
Industrial[(1)(2)]	**318.6**	**307.8**	**(3.4)**
Thereof Multifunctional Ceramics	46.1	47.4	2.8
Thereof Electronic Applications	53.2	49.6	(6.8)
Thereof SPK Cutting Tools	39.9	38.8	(2.8)
Thereof Mechanical Systems	35.8	34.8	(2.8)
Thereof Mechanical Applications	21.8	21.3	(2.3)
Thereof Other	172.9	164.3	(5.0)
Consolidation[(3)]	(51.1)	(48.5)	(5.1)
Total revenue	**501.3**	**493.3**	**(1.6)**

(1) The numbers presented for Medical Products and Industrial represent external revenue to third parties.

(2) We began implementing a comprehensive reorganization of our Industrial business in 2016 and 2017 in order to streamline our internal structure by bundling together similar clusters, aligning our marketing and sales team across the business, standardizing key processes and centralizing R&D know-how. As a result, the presentation of our revenue by cluster for the Industrial business for the years ended December 31, 2014, 2015 and 2016 is not comparable to the presentation for the nine months ended September 30, 2016 and 2017, respectively.

(3) The revenue presented for the individual units in Industrial includes internal revenue to CeramTec Group companies. The line item "Consolidation" represents all internal revenue between the clusters listed under Industrial to show the amount by which the total revenue figure for Industrial has been reduced to account for such internal revenue. However, our management believes that revenue including internal sales for our clusters Industrial provides a better description of trends in these clusters due to substantial internal revenue between our clusters in Industrial.

The following table provides a breakdown of our revenue for the year ended December 31, 2016 compared to the year ended December 31, 2015 by region:

	Year Ended December 31,		
	2015	2016	Change
	(€ million)		(%)
Europe (excluding Germany)	209.3	210.8	0.7
Germany	130.2	133.1	2.2
North America	83.5	73.0	(12.7)
Asia	62.7	61.4	(2.1)
Rest of World	15.5	15.1	(2.5)
Total revenue	**501.3**	**493.3**	**(1.6)**

Revenue was €493.3 million for the year ended December 31, 2016, a decrease of €8.0 million or 1.6%, as compared to €501.3 million for the year ended December 31, 2015. This decrease was mainly due to the decrease in revenue of our Industrial business.

Revenue in our Medical Products business was €185.6 million for the year ended December 31, 2016, an increase of €2.8 million or 1.5%, as compared to €182.7 million for the year ended December 31, 2015. This increase was mainly due to an increase in volume growth, which more than offset adverse pricing effects at key customers.

Revenue in our Industrial business was €307.8 million for the year ended December 31, 2016, a decrease of €10.8 million or 3.4%, as compared to €318.6 million for the year ended December 31, 2015. This decrease was mainly due to several Industrial clusters not repeating their strong 2015 performance. While revenue in Industrial is influenced by the development of our target markets, the effect of the industrial cycle in the past has been offset by various particular developments, namely project activity in the ethylene oxide catalyst business of CeramTec North America was lower in 2016 due to reduced demand from Chinese end market customers, resulting in lower sales against the previous year. In Electronic Applications, sales to a key customer did not see a repetition of the extra volumes sold to this customer in 2015. Mechanical Systems and Mechanical Applications were facing lower demand in the construction and textile machinery markets in 2016 as a result of the economic cycle. This is partly compensated by positive developments in our ETEC division showing good ballistic sales, CeramTec Malaysia with additional volumes in the examination segment, CeramTec Suzhou showing a strong fourth quarter and the full year effect in 2016 of our acquisition of DAI Ceramics, Inc.

Cost of sales and gross profit

The following table shows a break-down of our costs of sales for the years ended December 31, 2015 and 2016:

	Year Ended December 31			
	2015		2016	
	(€ million)	(% of revenue)	(€ million)	(% of revenue)
Material and packing costs	94.8	18.9	88.7	18.0
Personnel expense	108.5	21.6	113.5	23.0
Amortization and depreciation	50.4	10.1	49.9	10.1
Other cost of sales	46.3	9.2	42.8	8.7
Cost of sales	**300.0**	**59.8**	**294.9**	**59.8**

Cost of sales was €294.9 million (59.8% of revenue) for the year ended December 31, 2016, a decrease of €5.0 million or 1.7%, as compared to €300.0 million (59.8% of revenue) for the year ended December 31, 2015. This decrease was mainly caused by lower volumes which were offset by additional contribution to pension fund (solvency) and severance payments.

Gross profit was €198.4 million for the year ended December 31, 2016, a decrease of €3.0 million or 1.5%, as compared to €201.4 million for the year ended December 31, 2015. Excluding amortization and depreciation and non-recurring items, our Adjusted gross profit increased by €2.0 million from €252.6 million for the year ended December 31, 2015, to €254.7 million for the year ended December 31, 2016, while our Adjusted gross profit margin increased by 1.2 percentage points from 50.4% to 51.6%.

Selling costs

Selling costs were €91.5 million (18.5% of revenue) for the year ended December 31, 2016, an increase of €4.7 million or 5.4%, as compared to €86.8 million (17.3% of revenue) for the year ended December 31, 2015. Excluding amortization and depreciation and non-recurring items (which, for both periods mainly comprised non-recurring litigation costs), our Adjusted selling costs decreased from €49.9 million or 9.9% of revenue for the year ended December 31, 2015 to €47.4 million or 9.6% of revenue for the year ended December 31, 2016 and remained broadly stable as a percentage of revenue.

Research and development costs

Research and development costs were €22.8 million for the year ended December 31, 2016, a decrease of €1.4 million or 6.0%, as compared to €24.2 million for the year ended December 31, 2015. Excluding amortization and depreciation and non-recurring items, our Adjusted research and development costs decreased to €19.9 million or 4.0% of revenue for the year ended December 31, 2016, as compared to €22.4 million or 4.5% of revenue for the year ended December 31, 2015. This decrease was mainly due to a re-focusing of our R&D expenses as part of our Innovation Excellence initiative.

General administrative costs

General administrative costs were €22.2 million for the year ended December 31, 2016, a decrease of €1.1 million or 5.1%, as compared to €21.1 million for the year ended December 31, 2015. Excluding amortization and depreciation and excluding non-recurring items, our Adjusted general administrative costs decreased from €16.4 million or 3.3% of revenue for the year ended December 31, 2015 to €16.3 million or 3.3% of revenue for the year ended December 31, 2016 and remain broadly unchanged in terms of percentage of revenue.

Other income and expenses, net

Other expenses were €2.2 million for the year ended December 31, 2016, a decrease of €2.7 million, as compared to other income of €0.4 million for the year ended December 31, 2015. This decrease was mainly due to foreign exchange effects, as a net gain on foreign exchange of €2.0 million in 2015 changed to a net gain on foreign exchange of €0.0 million in 2016, compensated by a reduction of €0.6 million acquisition costs and €0.7 million lower restructuring cost.

Interest income and other finance income

Interest income and other finance income was €18.7 million for the year ended December 31, 2016, an increase of €13.3 million as compared to €5.4 million for the year ended December 31, 2015. This increase was mainly due to a higher net gain resulting from the fair value measurement of derivatives.

Interest expenses and other finance costs

Interest expenses and other finance costs were €73.6 million for the year ended December 31, 2016, a decrease of €8.1 million or 9.9%, as compared to €81.7 million for the year ended December 31, 2015. This decrease was mainly due to the reduction of losses on foreign exchange differences and lower interest expenses. The financial expenses include €50.7 million in interest expenses from syndicated loan and bond , €5.7 million in expenses from the effective interest rate method, €11.9 million in interest expenses from shareholder loan and €5.2 million in exchange rate losses and other interest expenses.

Income tax expenses

Income tax expenses were €10.0 million for the year ended December 31, 2016, an increase of €2.3 million or 30.1%, as compared to expenses of €7.7 million for the year ended December 31, 2015. This increase was mainly due to an increase in income before tax.

Net loss

As a result of the developments described above, net loss for the period was €5.2 million for the year ended December 31, 2016, a decrease of €9.1 million or 63.8%, as compared to a net loss of €14.3 million for the year ended December 31, 2015.

Year Ended December 31, 2015 Compared to the Year Ended December 31, 2014

The following table sets forth amounts from our historical consolidated financial information along with the percentage change for the year ended December 31, 2015 compared to the year ended December 31, 2014:

	Year Ended December 31,		
	2014	2015	Change
	(€ million)		(%)
Revenue	474.8	501.3	5.6
Cost of sales	293.5	300.0	2.2
Gross profit	**181.3**	**201.4**	**11.1**
Selling costs	78.9	86.8	10.0
Research and development costs	24.1	24.2	0.7
General administrative costs	18.9	21.1	11.9
Other income and expenses (-), net	2.0	0.4	(77.6)
Operating income	**61.5**	**69.7**	**13.3**
Interest income and other finance income	0.2	5.4	>100.0
Interest expenses and other finance costs	94.1	81.7	(13.2)
Financial result	**(93.9)**	**(76.3)**	**(18.7)**
Loss before income tax	**(32.4)**	**(6.6)**	**(79.6)**
Income tax expense	1.0	(7.7)	N/A
Net loss for the year	**(31.4)**	**(14.3)**	**(54.4)**

Revenue

The following table provides a breakdown of our revenue for the year ended December 31, 2015 compared to the year ended December 31, 2014 on a cluster level:

	Year Ended December 31,		
	2014	2015	Change
	(€ million)		(%)
Medical Products[(1)]	**177.6**	**182.7**	**2.9**
Industrial[(1)(2)]	**297.2**	**318.6**	**7.2**
Thereof Multifunctional Ceramics	47.2	46.1	(2.3)
Thereof Electronic Applications	46.9	53.2	13.4
Thereof SPK Cutting Tools	38.8	39.9	2.8
Thereof Mechanical Systems	36.0	35.8	(0.6)
Thereof Mechanical Applications	23.3	21.8	(6.4)
Thereof Other	150.6	172.9	14.8
Consolidation[(3)]	(45.5)	(51.1)	12.3
Total revenue	**474.8**	**501.3**	**5.6**

(1) The numbers presented for Medical Products and Industrial represent external revenue to third parties.

(2) We began implementing a comprehensive reorganization of our Industrial business in 2016 and 2017 in order to streamline our internal structure by bundling together similar clusters, aligning our marketing and sales team across the business, standardizing key processes and centralizing R&D know-how. As a result, the presentation of our revenue by cluster for the Industrial business for the years ended December 31, 2014, 2015 and 2016 is not comparable to the presentation for the nine months ended September 30, 2017.

(3) The revenue presented for the individual units in Industrial includes internal revenue to CeramTec Group companies. The line item "Consolidation" represents all internal revenue between the clusters listed under Industrial to show the amount by which the total revenue figure for Industrial has been reduced to account for such internal revenue. However, our management believes that revenue including internal sales for our clusters Industrial provides a better description of trends in these clusters due to substantial internal revenue between our clusters in Industrial.

The following table provides a breakdown of our revenue for the year ended December 31, 2015 compared to the year ended December 31, 2014 by region:

	Year Ended December 31,		
	2014	2015	Change
	(€ million)		(%)
Europe (excluding Germany)	202.4	209.3	3.4
Germany	134.5	130.2	(3.2)
North America	68.8	83.5	21.4
Asia	55.8	62.7	12.5
Rest of World	13.4	15.5	15.8
Total revenue	**474.8**	**501.3**	**5.6**

Revenue was €501.3 million for the year ended December 31, 2015, an increase of €26.5 million or 5.6%, as compared to €474.8 million for the year ended December 31, 2014.

Revenue in our Medical Products business was €182.7 million for the year ended December 31, 2015, an increase of €5.1 million or 2.9%, as compared to €177.6 million for the year ended December 31, 2014. This increase was mainly due to our strong market position in the growing total hip replacement market and increased penetration of ceramic components. Performance in the Medical Products business was impacted by lower volumes of inserts but higher ball head volume growth.

Revenue in our Industrial business was €318.6 million for the year ended December 31, 2015, an increase of €21.4 million or 7.2%, as compared to €297.2 million for the year ended December 31, 2014. The revenue development in Industrial was mainly influenced by the Electronic Applications cluster, which grew by 13.4% as reported mainly due to increased volumes in sensor tapes to a top customer, Emil Mueller, with good volumes development to a key customer, the acquisition of DAI Ceramics, Inc. and supported by positive foreign exchange effects from translation. We continued experiencing overall good conditions in the automotive, construction and machine industries in 2015. Notable other effects include a delay in the roller bearing project in Mechanical Systems, softer textile business in China, which negatively impacted Mechanical Applications revenue, good volumes of ethylene oxide catalyst ("EOC") products compensating for the discontinuation of our e-cigarette business in CeramTec North America and the decline in business of our CT-ETEC division (lower wear protection volumes).

The regional split of revenue for the year ended December 31, 2015 is 26.0% for Germany, 41.8% for Europe (which includes most of the revenue from OEMs in our Medical Products business), 16.7% for North America, 12.5% for Asia and 3.1% for Rest of World. The geographical split remained broadly unchanged compared to the year ended December 31, 2014.

Cost of sales and gross profit

The following table shows a break-down of our cost of sales for the years ended December 31, 2014 and 2015:

	Year Ended December 31			
	2014		2015	
	(€ million)	(% of revenue)	(€ million)	(% of revenue)
Material and packing costs	88.7	18.7	94.8	18.9
Personnel expense	101.3	21.3	108.5	21.6
Amortization and depreciation	55.5	11.7	50.4	10.1
Other cost of sales	48.0	10.1	46.3	9.2
Cost of sales	**293.5**	**61.8**	**300.0**	**59.8**

Cost of sales was €300.0 million (59.8% of revenue) for the year ended December 31, 2015, an increase of €6.5 million or 2.2%, as compared to €293.5 million (61.8% of revenue) for the year ended December 31, 2014. This increase was mainly caused by higher volumes.

Gross profit was €201.4 million for the year ended December 31, 2015, an increase of €20.1 million or 11.1%, as compared to €181.3 million for the year ended December 31, 2014. Excluding amortization and

depreciation, our Adjusted gross profit increased by €15.8 million from €237.8 million for the year ended December 31, 2014 to €252.6 million for the year ended December 31, 2015, while our gross margin increased by 0.3 percentage points from 50.1% to 50.4%.

Selling costs

Selling costs were €86.8 million for the year ended December 31, 2015, an increase of €7.9 million or 10.0%, as compared to €78.9 million for the year ended December 31, 2014. Excluding amortization and depreciation, our Adjusted selling costs increased by €7.2 million from €49.7 million or 10.5% of revenue for the year ended December 31, 2014 to €56.9 million or 11.4% of revenue for the year ended December 31, 2015, mainly due to increased revenue due to accelerated growth and affected by non-recurring litigation costs relating to litigation with C5/Metoxit.

Research and development costs

Research and development costs were €24.2 million (4.8% of revenue) for the year ended December 31, 2015, an increase of €0.2 million or 0.7%, as compared to €24.1 million (5.1% of revenue) for the year ended December 31, 2014. This increase was mainly due to increased efforts to develop new medical products and to support our other growth projects, offset by savings in our development of transparent ceramics which entered a more customer and application focused stage.

General administrative costs

General administrative costs were €21.1 million (4.2% of revenue) for the year ended December 31, 2015, an increase of €2.2 million or 11.9%, as compared to €18.9 million (4.0% of revenue) for the year ended December 31, 2014. This increase was broadly in line with our revenue growth and affected by non-recurring consulting costs.

Other income and expenses, net

Other income was €0.4 million for the year ended December 31, 2015, a decrease of €1.6 million or 77.6%, as compared to other income of €2.0 million for the year ended December 31, 2014. This decrease was mainly due a lower non-operating release of provisions for pension adjustment.

Interest income and other finance income

Interest income and other finance income was €5.4 million for the year ended December 31, 2015, an increase of €5.2 million as compared to €0.2 million for the year ended December 31, 2014. This increase was mainly due to a net gain on the fair value measurement of derivatives.

Interest expenses and other finance costs

Interest expenses and other finance costs were €81.7 million for the year ended December 31, 2015, a decrease of €12.4 million or 13.2%, as compared to €94.1 million for the year ended December 31, 2014. This decrease was mainly due to the reduction of losses on derivative valuations and lower expenses from application of the effective interest rate method. Interest expenses and other finance costs for the year ended December 31, 2015 include €54.1 million in interest expenses from syndicated loan and bond, €7.2 million in expenses from the effective interest rate method, €11.0 million in cash interest expenses from shareholder loan and €9.5 million in exchange rate losses and other interest expenses.

Income tax benefit/(expenses)

Income tax expenses were €7.7 million for the year ended December 31, 2015, an increase in expenses of €8.7 million, as compared to an income tax benefit of €1.0 million for the year ended December 31, 2014. This increase was mainly due to an increase in income and a decrease in deferred tax income from temporary differences.

Net loss

As a result of the developments described above, net loss was €14.3 million for the year ended December 31, 2015, a decrease of €17.0 million or 54.4%, as compared to a net loss of €31.4 million for the year ended December 31, 2014.

Liquidity and Capital Resources

Our principal source of liquidity has been cash flows from operations as well as drawings under our revolving credit facility under the Existing Senior Facilities Agreement. Our liquidity needs arise primarily from debt service requirements related to our Existing Debt and the need to fund our working capital requirements, capital expenditures and restructuring costs.

Cash Flows

The following table summarizes our cash flows for the years ended December 31, 2014, 2015 and 2016 and the nine months ended September 30, 2016 and 2017:

	Year Ended December 31,			Nine Months Ended September 30,	
	2014	**2015**	**2016**	**2016**	**2017**
			(€ million)		
Net income/(loss) for the period	(31.4)	(14.3)	(5.2)	(7.5)	24.4
Income tax expenses	(1.0)	7.7	10.0	6.0	13.9
Interest result	79.1	74.7	71.2	53.7	46.6
Depreciation and amortization on non-current assets	89.2	84.6	86.0	62.8	62.7
Gain/(Losses) from disposal of fixed assets	0.0	0.1	0.1	(0.0)	(3.2)
Increase/(decrease) in provisions (excluding deferred taxes)	3.2	1.2	9.4	8.1	(4.3)
Income tax refund/(payment)	(16.4)	(11.3)	(16.2)	(10.9)	(17.0)
Other non-cash expenses/income, net	15.5	1.7	(15.1)	(5.2)	3.0
(Increase)/decrease in inventories	3.4	(6.3)	(1.8)	0.7	(6.8)
(Increase)/decrease in trade receivables	(4.1)	(5.1)	(0.4)	(8.7)	(4.6)
(Increase)/decrease in other receivables and (financial) assets	0.4	0.6	1.7	1.5	(2.5)
Increase/(decrease) in trade accounts payable	(9.7)	1.9	(0.9)	(2.6)	(0.0)
Increase/(decrease) in other (financial) liabilities	1.8	0.1	(0.7)	3.7	1.6
Cash flows from operating activities	**130.0**	**135.5**	**138.0**	**101.7**	**113.8**
Cash received from disposals of property, plant and equipment	1.3	0.3	0.3	0.3	3.4
Cash (paid) for investments in property, plant and equipment	(47.7)	(26.9)	(15.0)	(10.7)	(14.6)
Cash received from grants	6.1	1.1	0.1	0.1	0.0
Cash received from/(paid for) investments in intangible assets	(1.4)	(1.1)	(0.7)	(0.3)	(0.5)
Cash paid for the acquisition of entities	(3.5)	(10.9)	0.0	0.0	(55.5)
Cash flows from investing activities	**(45.3)**	**(37.5)**	**(15.2)**	**(10.7)**	**(67.1)**
Repayment of syndicated loan	(7.5)	(18.7)[(1)]	(30.1)[(2)]	(21.7)	(27.8)[(3)]
Interest paid	(55.4)	(55.3)	(54.1)	(47.1)	(49.9)
Cash received from drawing of revolver loan	—	—	—	—	22.0
Repayment of shareholder loan	—	—	—	—	(97.6)
Transfer of profit/(loss) to former shareholder	(26.9)	—	—	—	—
Cash flows from financing activities	**(89.8)**	**(74.0)**	**(84.2)**	**(68.8)**	**(153.3)**
Change in cash and cash equivalents	**(5.1)**	**24.0**	**38.6**	**22.3**	**(106.6)**
Net foreign exchange difference	0.4	0.2	(0.4)	(0.5)	(0.9)
Cash and cash equivalents at the beginning of the period	67.0	62.2	86.5	86.5	124.6
Cash and cash equivalents at the end of the period	**62.2**	**86.5**	**124.6**	**108.3**	**17.0**

(1) Includes transaction costs of €0.5 million costs for the repricing of a term loan.

(2) Includes transaction costs of €0.3 million costs for the repricing of a term loan.

(3) Includes transaction costs of €0.3 million costs for the repricing of a term loan.

Cash flows from operating activities

Cash flows from operating activities increased from €101.7 million for the nine months ended September 30, 2016 to €113.8 million for the nine months ended September 30, 2017, principally due to an increase in our EBITDA, mainly driven by higher volumes with limited price erosion, higher productivity from operational excellence initiatives, as well as a decrease in selling, general and administrative expenses due to cost management.

Cash flows from operating activities increased from €135.5 million for the year ended December 31, 2015 to €138.0 million for the year ended December 31, 2016. This increase was mainly due to higher earnings and a stable working capital in 2016.

Cash flows from operating activities increased from €130.0 million for the year ended December 31, 2014 to €135.5 million for the year ended December 31, 2015. This increase was mainly due to a higher EBITDA in 2015, resulting from business growth in both our Medical Products as well as our Industrial business.

Cash flows used in investing activities

Cash flows used in investing activities increased from €10.7 million for the nine months ended September 30, 2016 to €67.1 million for the nine months ended September 30, 2017, principally due to the purchase price payment of €55.5 million for assets, net of liabilities, for the UK electro-ceramics business of Morgan Advanced Materials plc, which was comprised of two manufacturing sites.

Cash flows used in investing activities decreased from €37.5 million for the year ended December 31, 2015 to €15.2 million for the year ended December 31, 2016. This decrease was mainly caused by lower investments in property, plant and equipment compared to 2015 and the acquisition of DAI Ceramics, Inc. in 2015. There was no similar acquisition in 2016.

Cash flows used in investing activities decreased from €45.3 million for the year ended December 31, 2014 to €37.5 million for the year ended December 31, 2015. This decrease was primarily related to investments in 2014 for the expansion of manufacturing capacities in Marktredwitz. This effect was partially compensated by higher cash outflows for the acquisition of DAI Ceramics in 2015.

Cash flows used in financing activities

Cash flows used in financing activities increased from €68.8 million for the nine months ended September 30, 2016 to €153.3 million for the nine months ended September 30, 2017, principally due to debt service payments (interest payments and partial repayment of principal) of €105.4 million relating to the Existing Shareholder Loan.

Cash flows used in financing activities increased from €74.0 million for the year ended December 31, 2015 to €84.2 million for the year ended December 31, 2016. This increase was mainly due to increased voluntary repayments on the term loan under the Existing Senior Facilities Agreement.

Cash flows used in financing activities decreased from €89.8 million for the year ended December 31, 2014 to €74.0 million for the year ended December 31, 2015. This decrease mainly resulted from a transfer of profit/loss to a former shareholder in 2014, partially compensated by increased voluntary repayments on our term loan.

Capital Expenditures

The following table provides an overview of our capital expenditures for the years ended December 31, 2014, 2015 and 2016, the nine months ended September 30, 2016 and 2017 and the LTM Period to September 30, 2017:

	Year Ended December 31,			Nine Months Ended September 30,		Twelve Months Ended September 30,
	2014	2015	2016	2016	2017	2017
				(€ million)		
Additions to intangible assets	1.4	1.1	0.7	0.3	0.5	0.8
Additions to property, plant & equipment	48.0	26.7	13.9	8.2	13.8	19.4
Capital expenditures (gross)	**49.4**	**27.8**	**14.5**	**8.5**	**14.3**	**20.2**
Government grants	(3.0)	(1.3)	0.1	0.1	0.0	0.0
Capital expenditures (net)	**46.3**	**26.6**	**14.6**	**8.6**	**14.3**	**20.2**
Additions from business acquisitions	-	13.1	-	-	51.6	51.6

In general, our capital investment is split evenly, between maintenance and growth projects. The lower investment spending in the year ended December 31, 2016 was mainly driven by phasing of growth projects, which reflected the market conditions in the first half of 2016, and an increased focus on asset productivity.

We believe that our asset base is well invested, with sufficient machine capacity to accommodate expected growth in demand. We expect the centralized management of operations in Europe, which was conceived in 2016 and launched on January 1, 2017, to drive additional improvements in asset productivity, as capital expenditures and asset utilization are holistically managed across sites.

Our annual capital expenditures have typically amounted to between €25 million and €30 million, of which €10 million to €15 million has typically been related to maintenance and the remaining €10 million to €15 million to growth. Given the lower level of capital expenditures in 2016, we would expect certain catch-up effects in 2018, which may be significant, and would bring the three-year average capital expenditures back in line with our typical level

Contractual Obligations

The following table summarizes our contractual obligations as of December 31, 2016:

		Payments due by period					
Contractual Obligations	**Carrying amount**	**2017**	**2018**	**2019**	**2020**	**2021**	**2022 and beyond**
				(€ million)			
Trade payables	22.4	22.4	0.0	0.0	0.0	0.0	0.0
Trade payables owed to affiliates	0.2	0.2	0.0	0.0	0.0	0.0	0.0
Liabilities to banks	664.8	28.4	29.3	27.4	668.2	0.0	0.0
Bond liabilities	308.7	25.3	25.3	25.3	25.3	332.0	0.0
Liabilities to affiliates	154.4	56.5	0.0	0.0	0.0	0.0	166.3
Finance lease liabilities	1.4	0.1	0.2	0.2	0.2	0.2	1.7
Other financial liabilities	3.6	3.6	0.0	0.0	0.0	0.0	0.0
Total	**1,155.5**	**136.5**	**54.8**	**52.9**	**693.7**	**332.2**	**168.0**

Lease Commitments

As of December 31, 2016, our future payment obligations from finance leases break down as follows:

Finance lease commitments	**Total**	**Up to 1 year**	**1 to 5 years**	**More than 5 years**
		(€ million)		

Present value of minimum lease payments	1.4	0.0	0.2	1.2
Interest effect	1.0	0.1	0.4	0.5
Minimum lease payments	**2.4**	**0.1**	**0.6**	**1.7**

Our operating lease commitments mainly relate to land and buildings as well as technical equipment and machinery. As of December 31, 2016, our future payment obligations from operating leases break down as follows:

	Up to 1 year	1 to 5 years	Total
		(€ million)	
Operating lease payment obligations	**1.7**	**0.9**	**2.6**

Provisions for Pension Commitments

We provide our employees with various defined benefit and defined contribution pension plans in relation to retirement, invalidity and death benefits. The promised benefits differ from country to country depending on the legal, tax and economic conditions. Furthermore, the existing plans are subject to the respective local requirements as well as the financing and the plan assets of pension plans.

The following table shows the amount of the obligation and plan assets as well as the provisions and other assets for our defined benefit plans at the beginning and at the end of the year ended December 31, 2016:

	Year Ended December 31, 2016		
	German plans	Foreign plans	Total
		(€ million)	
Benefit obligations at the beginning of the year	**78.5**	**12.8**	**91.3**
Service costs	2.7	0.0	2.7
Interest expenses	1.9	0.4	2.3
Remeasurements	13.5	2.1	15.7
Foreign currency translation	0.0	(1.8)	(1.8)
Benefits paid	(2.3)	(1.1)	(3.4)
Benefit obligations at the end of the year	**94.4**	**12.5**	**106.8**
Market value of plan assets at the beginning of the year	**0.0**	**5.3**	**5.3**
Interest income from plan assets	0.0	0.2	0.2
Expense for managing the plans	0.0	(0.3)	(0.3)
Employer contributions	0.0	0.5	0.5
Remeasurements	0.0	0.5	0.5
Foreign currency translation	0.0	(0.7)	(0.7)
Benefits paid	0.0	(1.0)	(1.0)
Market value of the plan assets at the end of the year	**0.0**	**4.4**	**4.4**
Net obligation amount for pension benefits	**94.4**	**8.1**	**102.4**

The actuarial loss is primarily due to the decrease in the discount rate for the German plans of 1.6% for the year ended December 31, 2016, as compared to 2.4% for the year ended December 31, 2015. The expected contributions to the defined benefit plans by the employer until December 31, 2017 amount to €0.3 million. For the year ended December 31, 2017 CeramTec expects to make benefit payments in the amount of €2.6 million.

Off-Balance Sheet Arrangements

As of September 30, 2017, we have no off-balance sheet arrangements except for an uncommitted true sale and factoring program with PB Factoring GmbH in relation to certain accounts and receivables, as well as certain leases entered into in the normal course of business.

Critical Accounting Policies and Significant Accounting Estimates

Our principal accounting policies are described in note 2, titled "*Accounting principles*" of the audited financial statements included elsewhere in this Supplemental Bondholder Report. The preparation of the audited financial statements under IFRS requires assumptions and estimates to be made which can impact the measurement of the assets and liabilities recognized income and expenses, as well as the disclosure of contingent liabilities. Estimates and the assumptions underlying them are based on management's best estimate and facts, circumstances and information available to management. Actual amounts may deviate from estimated amounts. All estimates and assumptions are reviewed on a regular basis. Changes in estimates are adjusted in the current period in the event that the change only affects the current period. Otherwise the change is recorded in future periods.

Our management believes the accounting estimates discussed below represent those accounting estimates requiring the exercise of judgment where a different set of judgments could result in the greatest changes to our reported results.

Business combinations

Business combinations are accounted for using the acquisition method. The acquired assets and liabilities are measured at their acquisition-date fair value.

Using the acquisition method requires certain estimates and judgments, particularly with regard to determining the fair value of the acquired intangible assets and property, plant and equipment as well as the liabilities assumed. The expected useful lives of the acquired intangible assets and property, plant and equipment also have to be determined.

This measurement is largely based on estimated future cash flows. Deviations between the actual cash flows and those determined when calculating the fair value can have a significant effect on the future net income for the period of CeramTec Group.

Impairment of non-financial assets

Assumptions were made to calculate the recoverable amount to determine whether impairment losses had to be recognized on intangible assets and property, plant and equipment. In this regard, future cash flows were derived from the budget planning and medium-term forecast for each of the cash-generating units. Management assumes that the assumptions and estimates, on which the discounted cash flows are based, are accurate. Nevertheless, changes in the economic environment and growth assumptions can affect impairment testing resulting in the need to recognize impairment losses or to reverse impairment losses in the future.

Valuation allowances on receivables

The recoverability of trade receivables was assessed based on the estimated likelihood of default. Accordingly, receivables are reduced by appropriate allowances for amounts estimated to be irrecoverable (for example receivables from customers on whose assets insolvency proceedings have been initiated are written off in full to the extent that any collateral provided is not recoverable).

Provisions for pension obligations

Defined benefit plans are measured using actuarial valuations. These contain assumptions of discount rates, future salary trends, mortality rates and future pension increases.

Provisions

Provisions for the expected expenses from warranty obligations in accordance with national sales contract law are recognized as of the date on which the relevant products are sold according to management's best estimate regarding the expenses required to settle CeramTec Group's obligation.

A provision is set up for the obligation to eliminate environmental damage if it is likely to be utilized and the costs can be estimated reliably. With ongoing examination and over the course of performing renovation measures, the provisions are adjusted in line with the knowledge gained. The amount of the individual

provisions is influenced by factors such as the extent of the contamination, the renovation measures called for and additional demands from authorities, companies or private persons.

Deferred tax assets

The calculation of deferred tax assets requires assumptions to be made relating to the future taxable income and temporal use of deferred tax assets. These assumptions take into account the anticipated development and effect on earnings from the reversal of taxable temporary differences. As future business developments cannot be foreseen with certainty and are not entirely within CeramTec Group's sphere of influence, the measurement of deferred tax assets involves a level of uncertainty.

Qualitative and Quantitative Disclosure about Market Risk

Our business and financial results are affected by fluctuations in global financial markets, including interest rates, currency exchange rates and commodity prices.

Interest rate risk

The variable-interest rate loans in U.S. dollar and euro expose the CeramTec Group in particular to a cash flow risk from the change in the EURIBOR and LIBOR interest rates. By comparison, changes in variable interest rates relating to the fixed-interest rate bond lead to a change in fair value. However, this risk does not impact the net income for the period or group equity, as the bond is carried at amortized cost and changes in fair value are not recognized.

Foreign currency risk

Foreign currency risk is the risk that the fair value or future cash flows of a financial instrument will fluctuate because of changes in foreign exchange rates. In the past we were not significantly exposed to a particular foreign currency as most of our sales were denominated in euro.

The following table shows the effects on our net income for the year ended December 31, 2016 as well as our equity of a hypothetical change of +/- 10% to the closing rate and forward rate as of the reporting date for our main foreign currency items.

	Change in the spot rate	Change in the forward rate	As of and for the year ended December 31, 2016					
	%	%	USD	GBP	CZK	PLN	CNY	Total
Earnings effect before tax (thousand €)	+10%		5,031	-142	30	-1,824	-524	**2,571**
	-10%		-6,149	174	-36	2,229	1,179	**-2,603**
Effect on equity (thousand €)		+10%	-1,902	0	0	0	0	**-1,902**
		-10%	2,769	0	0	0	0	**2,769**

In connection with our borrowings in U.S. dollar, we are in particular exposed to foreign currency risks from changes in the U.S. dollar to euro exchange rate. We have in the past entered into currency swaps to reduce our exposure to fluctuations in the U.S. dollar to euro exchange rate.

Commodity price risk

We are subject to changes in our cost of sales caused by movements in underlying commodity prices (primarily oil and natural gas). Approximately 10% of our costs of sales is related to raw materials. Our price fluctuations generally follow industry indices. The raw materials we use are generally not traded on commodity exchanges with the exception of leadoxid which is connected to lead prices, goldsalts which are connected to the gold price, silversalts which are connected to silver and our natural gas needs which are connected to the commodities market for natural gas. We historically have not entered into long-term purchase contracts related to the purchase of raw materials and energy.