

Buy EUR 21.30 Price EUR 15.20 Upside 40.1 %	Value Indicators: EUR DCF: 21.32 FCF-Value Potential 19-20: 21.76 SotP 19-20: 13.07	Share data: Bloomberg: IBU GR Reuters: IBU.DE ISIN: DE000A0XYHT5	Description: Thermal treatment of inorganic materials (service provider), Organometallics (producer)
	Market Snapshot: EUR m Market cap: 60.80 No. of shares (m): 4.00 EV: 71.32 Freefloat MC: 18.85 Ø Trad. Vol. (30d): 17.94 th	Shareholders: Freefloat 31.0 % Weitz family 39.7 % Management (incl. CEO Weitz) 29.3 %	Risk Profile (WRe): 2018e Beta: 1.4 Price / Book: 2.0 x Equity Ratio: 59 % Net Fin. Debt / EBITDA: 1.6 x Net Debt / EBITDA: 1.6 x

Expanding on the back of a thriving battery materials market; Initiation with Buy

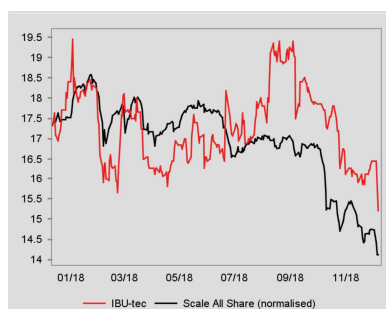
Well-positioned service provider takes a major leap forward: For years, IBU-tec has been a specialist in the thermal treatment of inorganic solid materials at its Weimar site in Germany. Services include the development of solid inorganic materials with the required physical and chemical properties, the development of production processes for these materials, the scaling of new or existing production processes as well as the toll manufacturing of materials in IBU-tec's (partly proprietary) production facilities. In its toll manufacturing business, the company treats a very wide range of inorganic materials on behalf of its customers by applying various thermal processes to transform the physical composition of the materials or give them new properties for a variety of applications as required by the customer, e.g. reducing the toxicity of emission gases or increasing the energy density of battery materials. In a nutshell, IBU-tec provides customers with solutions based on its analytical capabilities, its extensive and exclusive production know-how and equipment.

Following favourable organic growth in recent years IBU-tec was running out of space for additional capacity expansion. In April 2018 IBU-tec acquired a site in the Chemiepark Bitterfeld for a new production facility. As all permits are in place, the construction of two new rotary kilns has started. The new site will enable IBU-tec to handle a larger variety of new compounds and accept contracts for higher production volumes.

Huge future demand for battery materials paving the way for growth: Even though the customer portfolio covers a wide range of sectors such as green mobility, green economy, healthcare and life science, the company was initially unable to fully offset the fallout from "dieselgate" which resulted in a decline in contracts in connection with mobile catalysts at the beginning of 2017. However, more contracts from battery material developers/producers made up for much of this shortfall by H2 2017. The pick-up in demand for large stationary and mobile battery systems gives an indication of the strong demand ahead. As the industry is investing heavily in battery research and production, we expect services for battery material producers to become a mainstay of the expanding IBU-tec service offerings.

Acquisition broadens product portfolio and allows for synergies: The proceeds of the 2017 IPO and credit facilities were used to acquire BNT Chemicals, the producer of organotin and other metalorganic compounds, from its parent company, TIB Chemicals, for an undisclosed sum. BNT Chemicals is also located in the Chemiepark Bitterfeld, close to IBU-tec's new site, which should allow for synergies in logistics, shared services and procurement. Unlike IBU-tec, BNT Chemicals mostly handles liquids as raw materials, intermediates and end products. However, as most chemical solid-state processes require wet-chemical processes to adequately prepare the starting materials and as products synthesized via wet chemical reactions often require drying and thermal treatment, the businesses should start working hand-in-hand to cover more steps of the value chain. There is also a certain degree of overlap in customer groups, e.g. catalyst, pharma, healthcare sectors, and BNT Chemicals will continue to provide organotin compounds as a supplier to TIB chemicals on the basis of long-term delivery contracts.

Coverage initiated with Buy and a PT of EUR 21.30: Based on FCF yield potential, Sum-of-the-Parts, and DCF valuation models, the current share price does not seem to adequately reflect the company's growth potential based on the evolution of the automotive industry towards electromobility nor does it reflect the growth and margin improvement potential of the recently-acquired BNT Chemicals. Our calculations imply upside of about 35% compared to the current valuation.

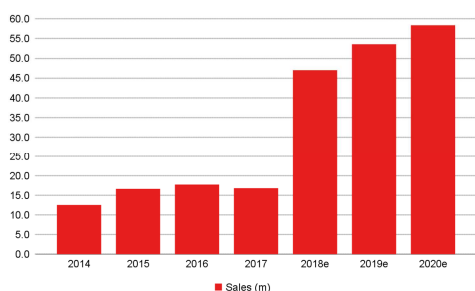


Rel. Performance vs Scale All	
1 month:	1.8 %
6 months:	9.9 %
Year to date:	2.0 %
Trailing 12 months:	9.0 %

Company events:

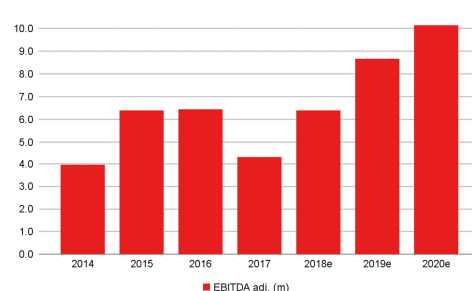
FY End: 31.12. in EUR m	CAGR (17-20e)	2014	2015	2016	2017	2018e	2019e	2020e
Sales	51.5 %	12.54	16.65	17.74	16.81	47.00	53.58	58.40
Change Sales yoy		n.a.	32.8 %	6.6 %	-5.3 %	179.6 %	14.0 %	9.0 %
Gross profit margin		92.2 %	92.9 %	92.5 %	90.9 %	50.9 %	49.3 %	49.1 %
EBITDA	56.2 %	3.96	6.40	6.20	2.66	6.40	8.67	10.15
Margin		31.6 %	38.4 %	35.0 %	15.9 %	13.6 %	16.2 %	17.4 %
EBIT	138.8 %	2.61	4.64	4.14	0.36	2.03	3.49	4.85
Margin		20.8 %	27.9 %	23.3 %	2.1 %	4.3 %	6.5 %	8.3 %
Net income	169.7 %	1.81	3.14	2.83	0.17	1.23	2.27	3.34
EPS	169.7 %	0.60	1.05	0.94	0.04	0.31	0.57	0.83
EPS adj.	22.7 %	0.60	1.05	1.02	0.45	0.31	0.57	0.83
DPS	15.4 %	0.00	0.00	0.00	0.13	0.15	0.18	0.20
Dividend Yield		n.a.	n.a.	n.a.	0.7 %	1.0 %	1.2 %	1.3 %
FCFPS		-0.10	0.70	-0.31	-0.34	-2.52	1.21	1.28
FCF / Market cap		n.a.	n.a.	n.a.	-2.0 %	-6.3 %	8.0 %	8.4 %
EV / Sales		n.a.	n.a.	n.a.	3.4 x	1.5 x	1.2 x	1.1 x
EV / EBITDA		n.a.	n.a.	n.a.	21.7 x	11.2 x	7.7 x	6.2 x
EV / EBIT		n.a.	n.a.	n.a.	162.2 x	35.2 x	19.1 x	13.0 x
P / E		n.a.	n.a.	n.a.	413.6 x	49.4 x	26.8 x	18.2 x
P / E adj.		n.a.	n.a.	n.a.	39.0 x	49.4 x	26.8 x	18.2 x
FCF Potential Yield		n.a.	n.a.	n.a.	1.8 %	5.7 %	9.2 %	11.2 %
Net Debt		2.18	0.37	1.95	-12.69	10.52	6.04	2.15
ROCE (NOPAT)		32.9 %	27.5 %	20.6 %	1.2 %	4.8 %	6.7 %	9.9 %
Guidance:		FY 2018: EBITDA EUR 5.5-7.0m, sales: EUR 45-50m						

Sales development
in EUR m



Source: Warburg Research

EBITDA (adjusted) development
in EUR m



Source: Warburg Research

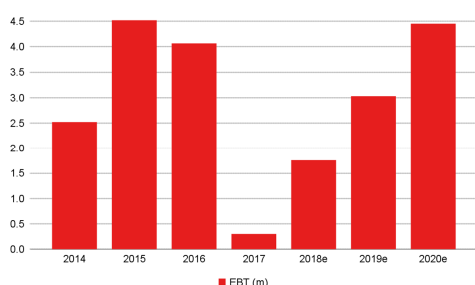
Company Background

- IBU-tec, which is based in Weimar, Germany, was founded in 1885 as a manufacturer of decorative stone from travertine and cast stone from quicklime.
- In 1975 the Weimar SKET institute took over the site and began using it as a pilot plant. This led to the installation of the first rotary kiln. Analysis, trials and measurements became core competences.
- Following German reunification, the institute was privatized in 1993. Catalyst research started in 2001 when Ulrich Weitz became CEO. The company went public in 2017.
- In 2018, IBU-tec announced the acquisition of organometallic compounds producer BNT Chemicals (Bitterfeld, Germany) and acquired a site to build a new production facility in Bitterfeld.
- In H1 2018, IBU-tec employed about 150 people. The company operated 16 rotary kilns, 8 pulsation reactors as well as equipment for pre- and post-treatment of solid materials

Competitive Quality

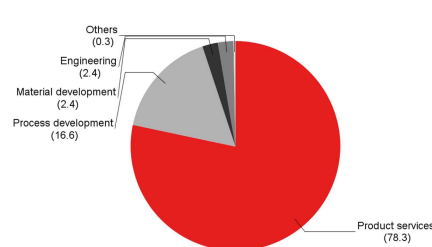
- The company provides R&D capabilities, services and toll manufacturing for the thermal processing of inorganic solid materials
- Following the acquisition of BNT Chemicals, the company is set to expand into upstream activities of solid material handling, e.g. the preparation of the repective solid materials which includes the handling of liquids
- It is a service provider for a very wide range of customer industries which includes battery material providers, manufacturers of mobile catalysts, implant producers and others
- As a supplier of services and production capacities, the company mostly competes with customers' own R&D and their respective production facilities

EBT development
in EUR m



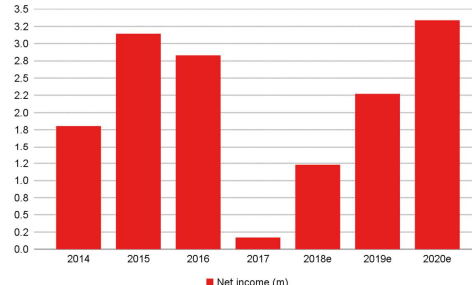
Source: Warburg Research

Sales by segments
2017; in %



Source: Warburg Research

Net income development
in EUR m



Source: Warburg Research

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Summary of Investment Case

Investment triggers

- IBU-tec is investing heavily in its existing business model, a one-stop-shop for the thermal processing of inorganic solids, with the start of construction of a new site in Bitterfeld, Germany (WRe: EUR 5.5m). The new production capacities should amply increase the company's capacity to process new contracts in the coming years, allowing for a significant expansion in sales and earnings.
- The acquisition in H2 2018 of BNT Chemicals, also located in Bitterfeld (Germany), should provide IBU-tec with a second leg to stand on. While a long-term contract with the former owner, TIB Chemicals, for manufacturing of organotin components should guarantee a baseload in regard to capacity utilisation, BNT will now be able to address external customers for the first time while adding to its existing product range of organometallic compounds. The acquisition will also expand IBU-tec's value chain, as the preparation of the respective solid materials is normally preceded by chemical processes requiring the handling of liquids. As BNT operates in close vicinity to IBU-tec's new site, there is additional potential for synergies in logistics, procurement and shared services. As a result, we expect the sales and earnings contributions of these assets to increase strongly over the next years.
- Following high growth capex in the 2016-2018 periods and costs for the M&A transaction in H2 2018, IBU-tec should become FCF positive from 2019 onwards, allowing for a reduction of the net debt position.
- Following sluggish demand from the mobile catalyst industry in 2017, IBU-tec shifted its portfolio towards battery materials. In 2018, sales with battery materials providers increased by 40%. Demand from new and existing customers is expected to continue to grow significantly in the short- and mid-term as global demand for mobile and stationary battery systems has currently just started to take off. As the battery material industry is investing heavily in research and production, we expect services for battery material producers to become a mainstay of the expanding IBU-tec service offerings.

Valuation

- We value IBU-tec on the basis of a DCF model, which implies a fair value of EUR 21.3 per share including the recently-acquired BNT Chemicals portfolio. Our model is free from the impact of any future M&A transaction.
- To validate our DCF calculation, we conducted a Sum-of-the-Parts (SotP) evaluation based on current EV/EBITDA multiples of publicly-listed competitors as well as an FCF yield calculation. The SotP assessment results in a fair value of 13.1 per IBU-tec share while the FCF yield calculation comes up with a fair value of EUR 21.8 per share.

Growth

- We forecast 51.5% sales CAGR 2017-20e, driven by the acquisitions of BNT Chemicals in 2018 and underlying organic growth of the "old" IBU-tec operations (CAGR 2017-20e: 11.2%). This should translate into an EBITDA adj. CAGR 2017-20e of 33.1% for the group.



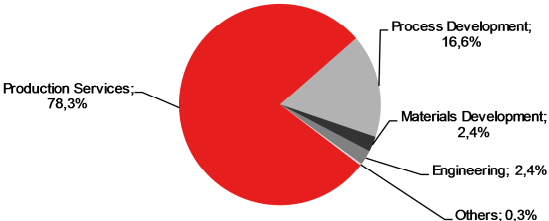
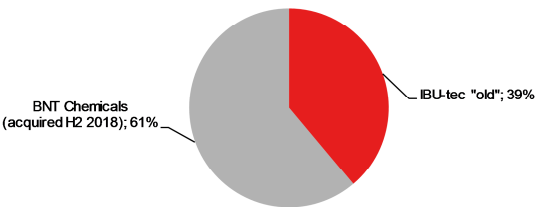
Competitive quality

- Following the acquisition of BNT Chemicals, the company has a mix of service business for the thermal processing of solid inorganic substances as well as the preparation of the solid materials via process steps requiring the handling of liquids. Additionally, IBU-tec boasts a portfolio of organometallic activities (most of them in organotin derivatives), which we regard as specialty chemicals.
- IBU-tec is active in attractive niche markets, providing services and products for a huge variety of customer industries.
- The company has close customer relationships especially in its service operations, where it sells tailor-made solutions and provides services to the customers.

Warburg versus consensus

Due to the highly limited coverage of the stock, there were no consensus numbers to be had.

Company Overview

	IBU-tec "new"	
	IBU-tec "old"	BNT Chemicals (acquired H2 2018)
	Production Services, Process & Material development, Engineering	Organometallic compounds
Segments		
Competitors	Mostly in-house R&D and production capacities of customers	Arkema PMC Organometalix Galata Chemicals Akdeniz Kimya Reagens Lanxess
Customer industries	Oil & Gas Chemicals Mineral & Cement Automotive (E-Mobility) Electronics Ceramics	Chemicals Pharma Glas
Global market position	German provider to mostly German customers in a niche market	Significant supplier to niche markets
Revenue FY 18e in EUR m / % of group	18.25 / 41%	27.75 / 59%
Adjusted EBITDA FY 18e in EUR m / margin	4.95 / 25.7%	1.45 / 5.2%
Group sales	<p>IBU-tec "old": Sales contribution by BU (2017)</p> 	<p>IBU-tec "new": Sales contribution by activity (2018e)</p> 

IBU-tec numbers for 2018e are based on WR estimates. EBITDA adjusted is free from M&A-related costs / income.

Competitive Quality

- IBU-tec's competitive quality is based on close customer relationships, its ability to provide tailor-made solutions for wide-ranging solid materials handling and thermal processing with company equipment, some of which is exclusive to IBU-tec
- Significant future growth is likely to be generated by the processing of battery materials as growth in the relevant markets is set to be well ahead of GDP growth
- The acquisition of BNT Chemicals provides the opportunity for additional growth and an improved strategic position

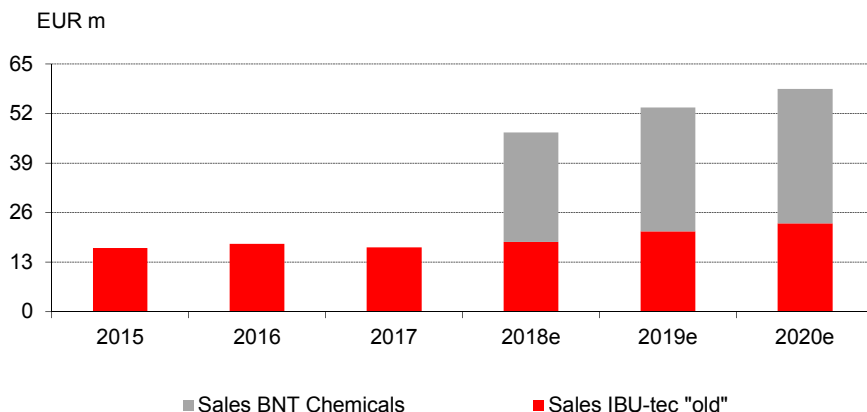
Two distinct growth initiatives

Boosting existing activities with a major investment in new capacities

As IBU-tec's Weimar site provides little additional space for major capacity expansions, the company decided to invest in the Chemiepark Bitterfeld-Wolfen (Germany). In April 2018, the company acquired 15,500 m² of land including 4,000 m² of building space. With all required permits in place, IBU-tec started to build its first two rotating kilns in the new site shortly after. Its location and respective permits allow the Bitterfeld site to handle a wider variety of compound groups and provide higher volumes for toll manufacturing. As a result of the modular setup of IBU-tec's production base, investment in additional equipment at Bitterfeld is likely to go hand-in-hand with new contracts requiring additional production capacity.

Following the decline in demand from mobile catalyst producers in the wake of the dieselgate scandal, IBU-tec's exposure to customers in the battery material market has already increased significantly (the company targets a 40% sales increase yoy with battery materials in 2018) and IBU-tec seems well prepared to continue to participate in the fast-growing market for battery materials. We expect the company to leverage its technological expertise in the thermal processing of inorganic solids to attract new customers and acquire new and possibly larger contracts from its existing customer base. Considering IBU-tec's ability to provide customers with tailor-made solutions based on its analytical capabilities, its extensive production, its expertise and to some extent exclusive equipment for thermal processing, the company should be a preferred partner for new and existing customers. Companies active in battery materials research or production that are seeking third-party R&D capacities, process optimisation know-how or are simply interested in third-party production capacities by a reliable toll manufacturer may well turn to IBU-tec. While still far from being a global player in battery material processing, given that the market for cathode active materials alone is expected to grow by 25% p.a. in the 2019–2025 timeframe, reaching a size of EUR 25–30bn by 2025, underlying market growth should allow IBU-tec to grow its operations at a faster pace than global GDP growth.

Sales split IBU-tec “old” and newly acquired BNT Chemicals (2018e)

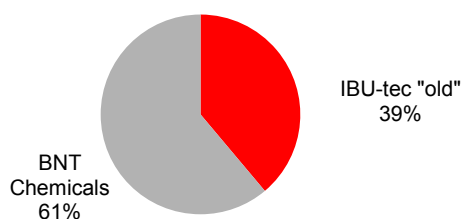


Source: IBU-tec, Warburg Research

The recent acquisition of BNT Chemicals provides IBU-tec with a second leg to stand on

BNT Chemicals is a producer of specialty and semi-commodity chemical compounds in the area of organometallics, especially in organotin compounds. It was acquired by IBU-tec from TIB Chemicals, a German supplier of commodity chemicals on 2.7.2018. The acquisition represents a major step for IBU-tec to increase its portfolio of activities as well as its technological know-how in regard to processing solid as well as liquid chemical compounds. The acquisition is set to more than double IBU-tec’s annual sales figure.

Sales split IBU-tec “old” and newly acquired BNT Chemicals (2018e)



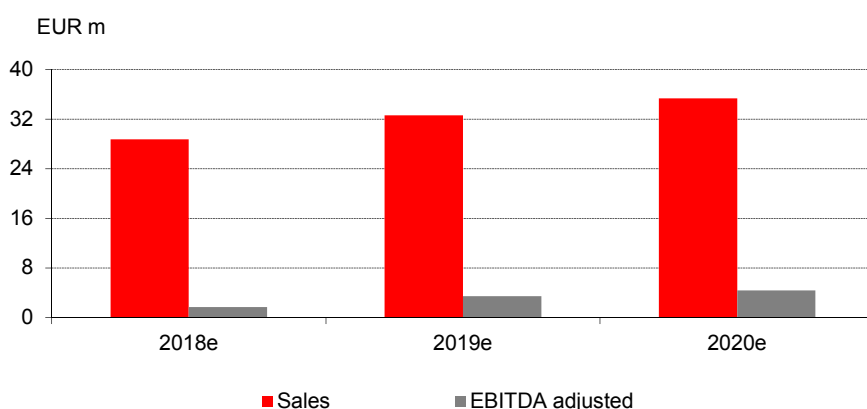
Source: Warburg Research

BNT chemicals serves a wide variety of customer industries (chemical companies, manufacturers of glass as well as pharmaceutical companies) and there is some overlap with IBU-tec’s existing customer base in its thermal processing activities. BNT Chemicals is located in the vicinity of IBU-tec’s new site in the Chemiepark Bitterfeld. This should allow for sizeable synergies in logistics, procurement and shared services.

The expertise of BNT Chemicals in the handling of liquid chemical compounds as well as its existing production capacities should enable IBU-tec to expand its value chain in the thermal processing of solid inorganic materials. As thermal processing is frequently preceded by the preparation of starting materials using one or more steps involving liquid chemicals, IBU-tec is set to expand its portfolio of services.

Operated mostly as a cash cow by its former owner TIB chemicals, BNT Chemicals seems to have significant idle capacity as well as an underdeveloped product portfolio that was not adequately marketed to third parties. We expect the company to thrive under its new owner IBU-tec, as BNT Chemical's activities are earmarked to become the the group's second major pillar. Currently, BNT Chemicals is not catering for key organotin applications like chemical catalysts or PVC stabilisers. This might change over time under the ownership of IBU-tec. Existing expertise in the handling and processing of organotin compounds could be leveraged to significantly extend the product portfolio to other organometallic compounds. As a result, the activities are expected to show favourable growth in sales and adjusted EBITDA in the short and mid term.

BNT Chemicals profitability set to improve with favourable top-line growth



Source: Warburg Research

Analysis of return on capital

- Given the consolidation of recently acquired BNT chemicals, the balance sheet ratios and ROCE figures will change significantly once again from FY 2018 onwards
- As the business models of IBU-tec and BNT Chemicals differ, (service provider vs producer), the balance sheet and P&L ratios are set to structurally change
- ROCE will exceed the WACC once again from 2019 onwards

Capital employed

Inventory management has to remain a top priority

As a service provider employing capital-intensive assets IBU-tec generated only slightly more than 1 EUR of sales for every 1 EUR tied up in property, plant & equipment (sales divided by PP&E) until 2017. The same was true for a comparison of the company's sales and capital employed. These ratios are about to change in FY 2018e owing to the consolidation of BNT, which operates a different business model (producer of chemicals which buys raw materials and sells its product with a margin).

Given the lower capital intensity of BNT, PP&E turnover should jump to 1.5x in 2018e and well exceed 2.0x by 2020e. Capital employed turnover should increase at a slower pace, given the higher working capital needs of BNT Chemicals.

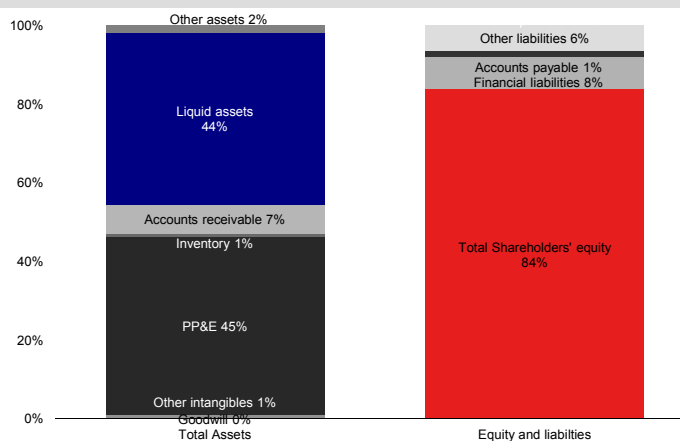
PP&E and capital employed turnover

Capital intensity	2015	2016	2017	2018e	2019e	2020e
PP & E turnover	1.20x	1.08x	1.04x	1.52x	1.86x	2.29x
Capital employed turnover	1.38x	1.12x	0.97x	1.14x	1.43x	1.61x
Capital employed (excl. Goodwill) turnover	1.38x	1.12x	0.97x	1.23x	1.54x	1.73x

Source: IBU-tec, Warburg Research,

Among the largest positions in IBU-tec's balance sheet in 2017 were tangible and intangible assets (in sum 45% of total assets) as well as a huge cash position (EUR 15.7m, 44% of total assets). The cash pile was mainly explained by IPO proceeds after the company went public on 30.3.2017. The IPO also bolstered the equity position, which amounted to 84% (EUR 30.1m) of total assets by the end of 2017.

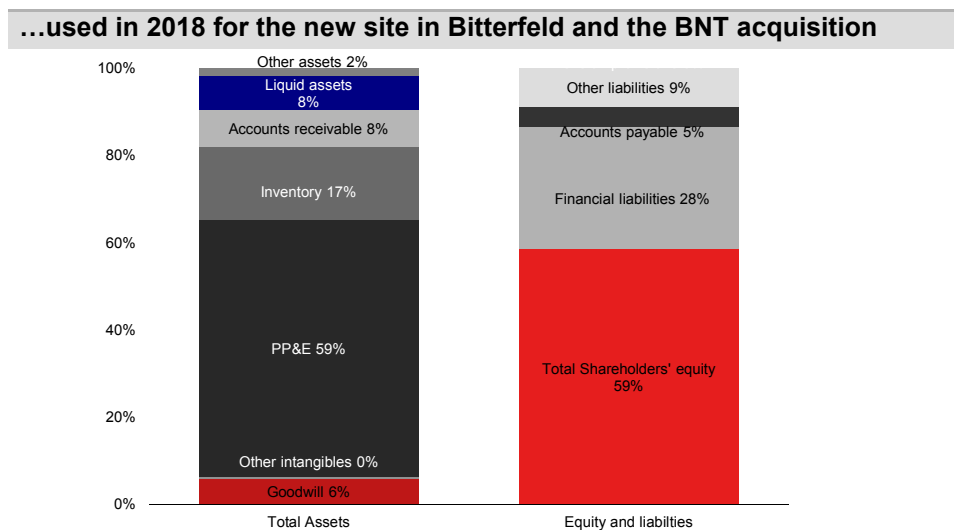
After the IPO the balance sheet was flush with cash



Source: IBU-tec, Warburg Research

Beyond the acquisition of BNT Chemicals and investment in the new Bitterfeld site, the balance sheet is expected to change dramatically. The company has not yet released an

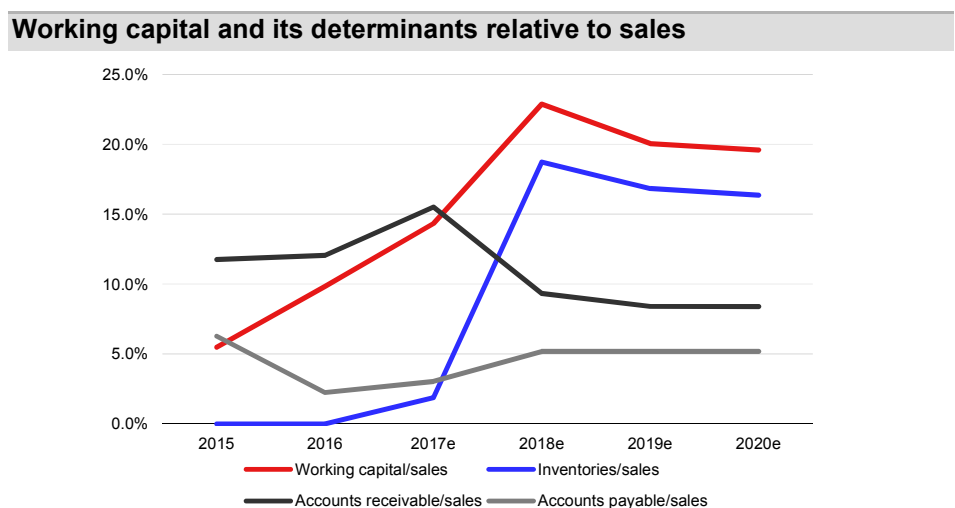
updated balance sheet past the acquisition of BNT Chemicals, thus all 2018e numbers are based on WR estimates.



Source: Warburg Research

Following cash-out for BNT chemicals and the new site in Bitterfeld, IBU-tec now should be in a net debt position. Working capital should have increased significantly as BNT's business model as a producer of chemicals differs from the service-provider character of IBU-tec's original set-up.

At the end of 2017, net working capital was about EUR 2.4m and thus significantly higher than in 2016 (EUR 1.7m). This is the result of higher raw material costs as IBU-tec started to provide selected raw materials for some of its contracted services. However, NWC was just 6.7% of total assets. After the changes in the scope of consolidation, this should change materially; WR is expecting NWC to reach 20.5% of total assets in 2018e.



Source: IBU-tec, Warburg Research

We expect the working capital/sales ratios to peak at 22.9% in 2018e and slightly decline from that level thereafter to 19.6% in 2020e as we expect the service business to grow faster compared to the BNT Chemicals assets.

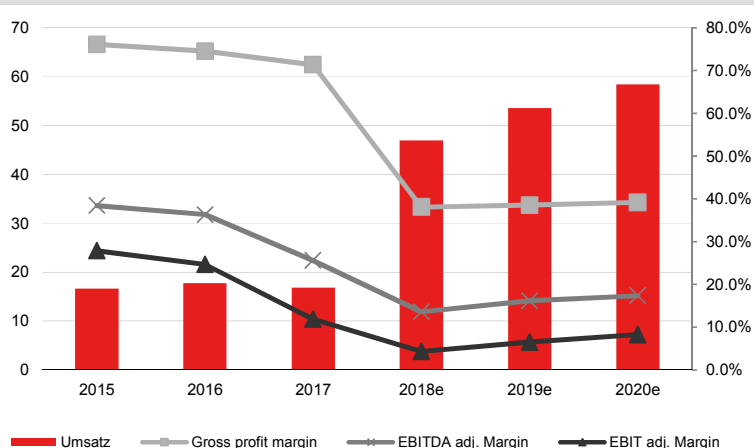
Operating profitability

IBU-tec's sales and profitability declined significantly in 2017 mainly as a result of lower

demand from mobile catalysts producers in the wake of dieselgate. However a halt to this negative trend is expected in 2018e given the rise in the proportion of sales attributable to battery material companies since H2 2017. This was also reflected in IBU-tec's original guidance for 2018 which anticipated a sales increase of 10-20% with a similar increase in (adj.) EBITDA.

With the acquisition of BNT chemicals, sales will increase substantially but the EBITDA adjusted margin is set to decline as a result of the significantly lower profitability of BNT Chemicals. Margins should increase thereafter based on synergies, organic growth and a higher capacity utilisation at BNT due to an improved product range and higher sales rep activities. However, margins are unlikely to reach historical levels for structural reasons. EBIT is set to be burdened by a significantly higher D&A burden though, as IBU-tec reports according to German HGB standards, which requires the company to depreciate its tangible/intangible assets as well as its goodwill position.

Margins should expand again from 2019e onwards



Source: IBU-tec, Warburg Research

Return on capital employed

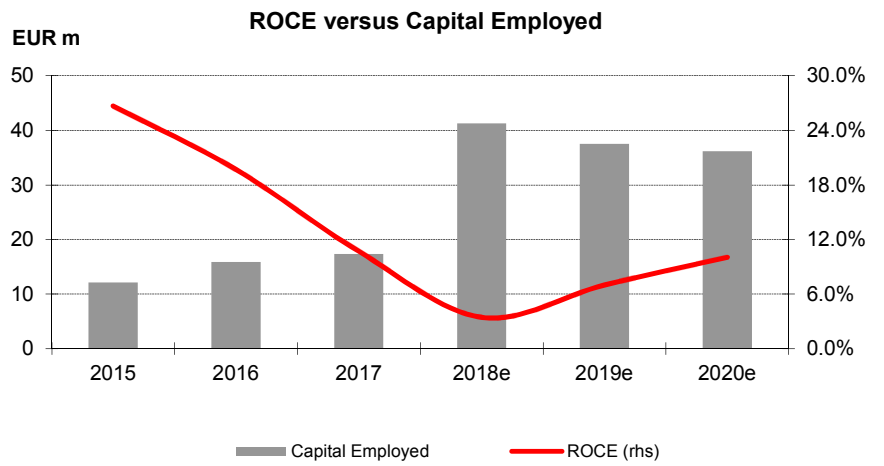
Return on capital employed (ROCE) has been way ahead of the cost of capital in the past. However, the high capital influx after the IPO and lower EBITDA as a result of sluggish demand from mobile catalyst producers put a temporary end to high ROCE numbers in 2017. As a result of the acquisition in 2018, ROCE is expected to decline below WACC in 2018e. We expect it to return to levels ahead of WACC (WRe: 7.24%) already by 2020 and thereafter as synergies and an improved capacity load kick in.

ROCE development 2015 - 2020e

in EUR m	2015	2016	2017	2018e	2019e	2020e
Average Capital Employed	12.1	15.9	17.4	41.3	37.5	36.2
thereof						
Equity	11.7	13.9	30.1	30.8	31.4	34.1
Net financial debt incl. pension provisions	0.4	2.0	-12.7	10.5	6.0	2.1
NOPAT	3.2	3.1	1.9	1.4	2.6	3.6
ROCE	26.69%	19.7%	10.7%	3.44%	6.99%	10.04%
WACC	7.24%	7.24%	7.24%	7.24%	7.24%	7.24%

Source: IBU-tec, Warburg Research

ROCE expected to continue to increase past FY 2018e



Source: IBU-tec, Warburg Research

Growth / Financials

- Huge sales and earnings expansion in 2018e driven by consolidation effects
- Profitability to be driven by synergies and improved capacity load from 2019e onwards
- Organic growth to be driven by strong demand from battery materials suppliers as well as an improved product portfolio and higher sales activities in organometallic compounds

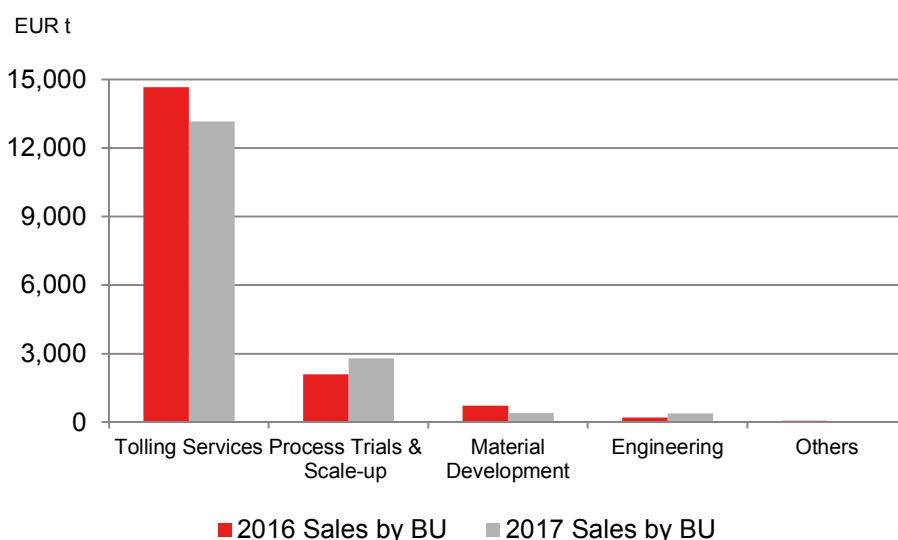
A second leg to stand on

FY 2017: “Dieselgate” took its toll

In FY 2017, IBU-tec suffered from the dieselgate scandal when it came to light that car producers had fitted cars powered by diesel engines with deceptive software that showed the required low-emissions level under test conditions but exceeded the permitted levels when on the road. This resulted in lower diesel car registrations which in turn hampered IBU-tec’s business with providers of mobile diesel catalysts. This negative development was partly offset by higher sales to battery material providers, catalyst materials for the chemical industry as well as various products for other customer groups. As result, sales declined by -5% yoy to EUR 16.8m. Adjusted EBITDA declined by -33% to EUR 4.3m. Reported EBITDA contained additional costs of EUR -1.6m in connection with IBU-tec’s successful IPO on 30.3.2017. Thus, reported EBITDA declined by -59% to EUR 2.7m. As a consequence, the reported net result dropped by -94% to EUR 0.2m.

In contrast, balance sheet ratios improved significantly as a result of the IPO. The EUR -2m net debt in FY 2016 changed into a EUR 12.7m net cash position and the equity ratio climbed from 64.9% in 2016 to 83.7% in 2017.

Decline in demand for material used in mobile diesel catalyst hurts sales progression



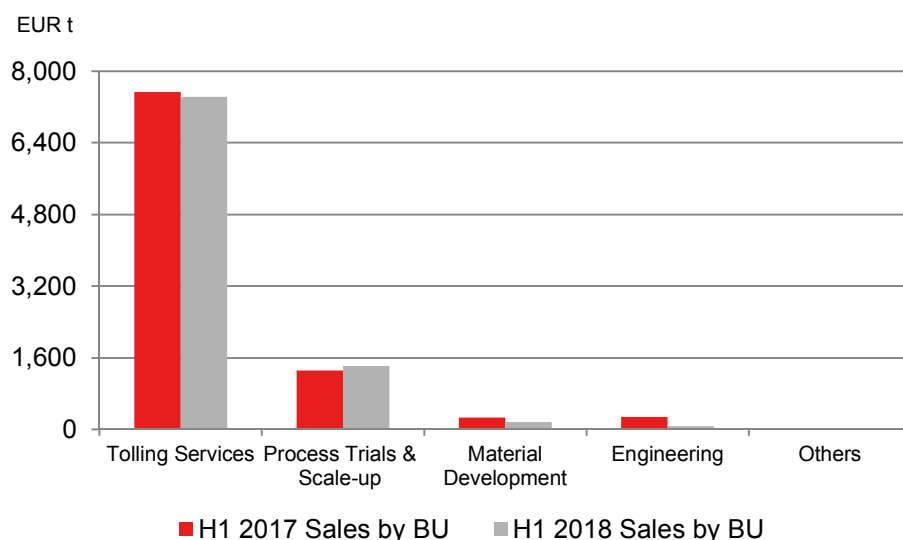
Source: IBU-tec

H1 2018: earnings decline overstated by preparation costs

In H1 2018, sales of EUR 9.1m were -3.4% below the level of H1 2017. Adjusted for costs in connection with the IPO of 2017, EBITDA declined by -25.0% yoy to EUR 2.3m.

On a reported basis however, EBITDA increased by about 170%. Reported net income was about 230% ahead of last year's level at EUR 0.7m. Not only did the adjusted EBITDA shoulder the burden of a lower top line, but it was also burdened by higher raw material costs, preparation costs for the new Bitterfeld site, and costs related to the acquisition of BNT Chemicals (2.7.2018). As IBU-tec already made a prepayment for BNT in H1 2018 (EUR 6.3m) and invested in a new site in Bitterfeld, CF from investments increased from -1m in H1 2016 to -11.3m in H1 2018. As a result, net cash declined from EUR 13.3m at the H1 2017 stage to EUR 3.1m a year later. Subsequently, the equity ratio dropped from 82.3% to 78.7%.

Sales decline less pronounced in H1 2018



Source: IBU-tec

On track to meet FY 2018 targets

IBU-tec has set the following targets for FY 2018:

- A substantial increase in sales to a level of EUR 45-50m (2017: EUR 16.8m). This number is expected to contain a sales contribution from the new site in Bitterfeld in the magnitude of EUR 0.35-0.5m.
- Increase in EBITDA adjusted to 5.5–7m (2017: EUR 4.3m)

According to our estimates, IBU-tec will achieve its FY 2018 targets. Driven by the positive effects from changes in the scope of consolidation (BNT Chemicals to be consolidated retroactively from 1.1.2018 onwards) as well as organic volume growth, especially with the start-up of the new site in Bitterfeld, IBU-tec should achieve EUR 47m in sales and an EBITDA of EUR 6.4m.

FY 2018 to be driven by positive consolidation effects

Consolidation effects should have a significant positive impact on IBU-tec as we expect BNT chemicals to add EUR 28.8m (171%) to sales and EUR 1.45m (34%) to adjusted EBITDA (WRe). Organic growth in IBU-tec's "old" businesses is expected to generate sales of EUR 18.3m (+8.7%) and EUR 4.7m in adjusted EBITDA (+9.3%). The reversal of the negative trends that were still visible in H1 2018 sales and EBITDA development should result from the start-up of Bitterfeld and new contracts for the thermal processing of battery materials and chemical catalysts. The Weimar site is expected to thrive on a new contract with a battery materials customer, which will allow for full utilisation of IBU-tec's largest rotating kiln in that site.

Synergies to kick in by 2019

With increasing sharing of services, procurement, and logistics with BNT chemicals at the new Bitterfeld site as well as the expansion of IBU-tec's value chain, we expect cost savings to contribute to group earnings starting by 2019. As there are also overlaps in procedures, know-how and the respective customer groups, we also expect sales synergies to gradually increase. In parallel, sales are expected to grow with an improved BNT Chemicals product portfolio and an increase in marketing activities for the existing organometallic product range. Once the Bitterfeld site is up and running, additional capacity expansions are likely based on respective customer contracts. We are therefore anticipating strong sales (+14.0% to EUR 53.6m) and adjusted EBITDA (+35.5% to EUR 8.7m) growth. A proportionately greater increase in EBITDA should result from the above-mentioned synergies, the absence of preparation costs in Bitterfeld as well as leverage effects from a higher capacity load and an improved range of services on offer.

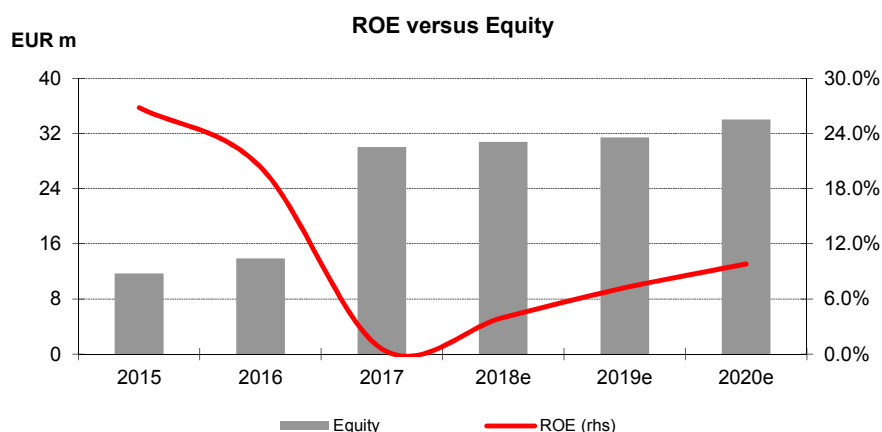
Dividend likely to increase yoy

Given the substantial increase in the reported net result in 2018e (+624% to EUR 1.2m) we suspect that IBU-tec will slightly (in absolute terms) increase its dividend payment per share from EUR 0.13 (2017) to EUR 0.15 (2018e). However, this would have little impact on the overall dividend yield, which would remain slightly below 1% based on the current share price.

Balance sheet ratios and cash flow to improve beyond 2018e

IBU-tec's equity ratio of 58.7% in FY 2018e is expected to improve towards 2020e (WR: 63.3%). However, with profits expected to increase substantially from the depressed level of 2017 (held back by IPO-related costs), ROE is mostly driven by the anticipated upswing in profits.

Equity set to increase from FY 2018e onwards



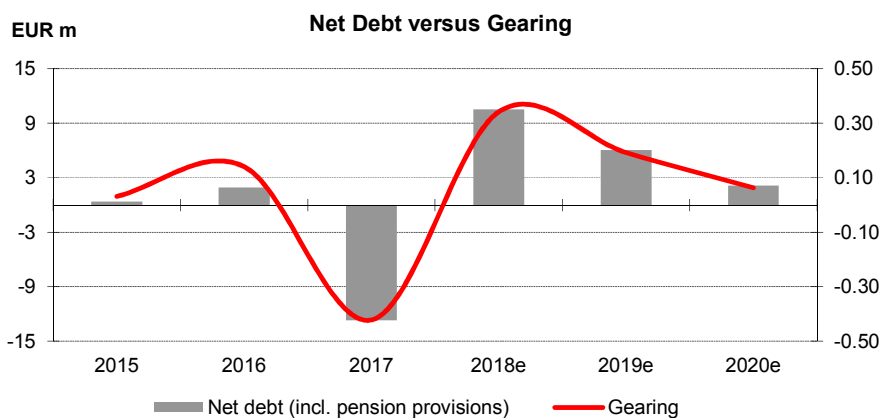
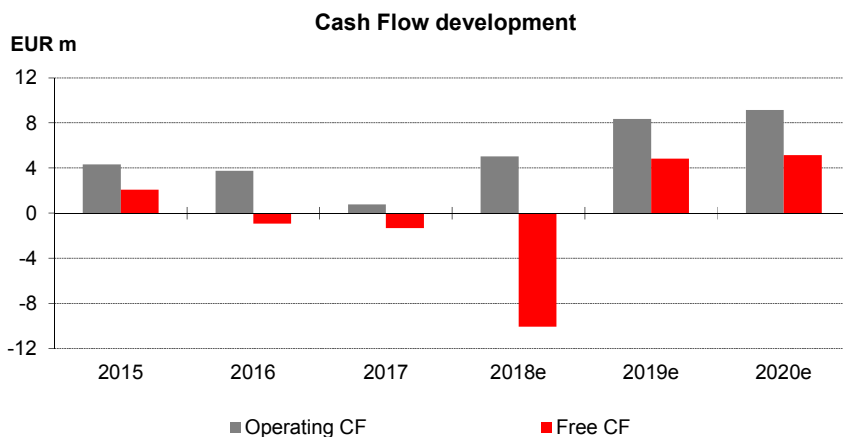
Source: IBU-tec, Warburg Research

Intangible assets represented an insignificant fraction of total assets in 2017 (EUR 0.4m; 1.1% of total assets) while tangible assets accounted for 45.2% (16.2m) of total assets. Following the acquisitions of BNT Chemicals in 2018 as well as investments in the new site in Bitterfeld, IBU-tec's balance sheet will contain a goodwill position for the first time. According to WR estimates, intangible assets will increase to EUR 3.3m which is 6.4% of total assets. Goodwill is expected to amount to EUR 3.1m or 5.9% of total assets. Tangible assets in FY 2018 are expected to sum up to EUR 31.0m, 59.0% of total assets.

Net cash amounted to EUR 12.7m in FY 2017. Following the capex spent in 2018 both on organic growth and on the acquisition (WR: EUR 15.1m) we expect a net debt level

of EUR 10.5m in 2018, which would translate into a net debt/EBITDA ratio of 1.6x. With free cash flow generation kicking in by 2019, IBU-tec's net debt position should drop to EUR 2.2m in 2020e and turn into a net cash position by 2021.

Net debt/EBITDA to improve past FY 2018e on increased FCF generation



Source: IBU-tec, Warburg Research

Valuation

- Our DCF calculation indicates a fair value of EUR 21.3 per share for IBU-tec
- Using the SOTP method, we derive a fair value of EUR 13.1 per share
- Using the FCF yield method, the fair value of Evonik is 21.8 per share

PT of EUR 21.00 is based on a DCF calculation

DCF model: FCF generation to increase on the strength of a larger asset base – fair value of EUR 21.3 per share

The valuation of IBU-tec is based on a three-stage DCF calculation which derives a fair value of EUR 21.32 per share. The fair value of the company is based on the assumption that IBU-tec can benefit from the various growth patterns in its respective markets. The result of the DCF calculation is rather sensitive to changes in underlying supply/demand patterns in the respective industries given that a) IBU-tec's business model is significantly geared to serving the battery materials, the pharmaceutical and the glass producing industry b) the fair value of the company is mostly based on the mid-term (transitional period) and long-term (terminal value) business prospects.

The three stages of the DCF calculation are structured as follows:

- The first stage is based on detailed estimates for cash flow, balance sheet and P&L numbers for the years 2018–2020.
- The second stage is an assessment of the company's development in the years 2021–2030. The model is based on the anticipated effects of key drivers in terms of sales growth, development of the operating margin, changes in working capital and the evolution of capex and depreciation.
- The third stage is based on perpetual growth from 2031 onwards. It is based on a static sales growth rate with a fixed operating margin. Depreciation matches investment in tangible and intangible assets as well as investment in capitalised research projects.

Underlying assumptions included in the DCF model are based on the following scenario:

- Stage 1: The company is expected to generate significant organic sales growth as well as growth from acquisitions in 2018-2020, as a result of upcoming capacity expansions in the thermal treatment activities as well as consolidation effects from the acquisition of BNT Chemicals 2018. EBITDA growth however is expected to benefit from the availability of new capacities (e.g. in Bitterfeld), an increasing capacities load, as well as the onset of synergies past 2018. This positive trend is likely to continue well into 2020. As a result, the EBITDA adjusted margin should increase from 13.5% in 2018e to 17.3% in 2020e.
- Stage 2: Based on the assumption of volume growth of 2-10% in its relevant markets and limited price effects, sales growth should amount to 6.0–3.5%. The working capital level should decline from 19.5% to 18.6% of sales. After capex/sales hits a peak ratio of 18.8% in 2018e, we are expecting a reduction to 6.5% by 2019e, followed by a small increase to 6.8% in 2020e. From 2021 onwards, the capex/sales ratio should slowly decline from 6.5% to 5.0% which we deem to be sustainable.
- Stage 3: A terminal growth rate of 1% was applied, as well as a 12.0% EBIT margin (EBITDA margin: 17.0%).

In none of the three stages were the likely effects of future acquisitions or divestments included (besides the already finalised acquisition of BNT Chemicals).

For the calculation of the WACC, a beta of 1.40 was used. The above-average risk results from limited visibility as regards the mid-term development of the company and rather limited liquidity of the IBU-tec shares. A market risk premium of 5.5% and a risk-free rate of 1.5% were applied, as well as a normalised tax rate of 28%. The resulting WACC is 7.24% and the calculated fair value, EUR 21.32 per share. (For more details, please refer to our DCF model.

FCF Value Potential suggests a fair value of EUR 21.8 per share

WR's "FCF Value Potential" model reflects the ability of a company to generate sustainable free cash flows. It is based on the FCF potential – a FCF figure calculated on a "ex growth" basis which assumes unchanged working capital and pure maintenance capex in a given year. The value indication is derived via the perpetuity of a given year's FCF potential with consideration of the weighted costs of capital. The fluctuating value indications for the various years add a timing element to the DCF model (our preferred valuation tool). We assume the maintenance capex of IBU-tec to amount to EUR 2m from FY 2020e onwards.

The FCF Value Potential model puts the value of the IBU-tec shares at between EUR 11.5 (FY 2018e) and EUR 23.8 (FY 2020e). As the FY 2018 number is burdened by preparation / ramp-up costs for the new Bitterfeld site, which is unlikely to make a positive contribution to earnings as it only started operating late in the year as well as very low initial profitability of BNT Chemicals, we used the average of the 2019-2020 periods (EUR 21.76). For more details, please refer to our FCFVP model.

Sum of the Parts valuation hints at a fair value of EUR 13.1 per share

As a result of IBU-tec's quite diverse range of activities from 2018 onwards, a number of publicly-listed companies can be regarded as peers in some of IBU-tec's markets. To distinguish the "old" IBU-tec activities from the newly acquired BNT Chemicals operations we have split our calculation into two peer groups. As IBU-tec can be regarded as rather capital intense, the calculation focuses on EV/EBITDA multiples to eliminate the influence of depreciation on profits. The SotP calculation points to a fair value of EUR 13.07 per IBU-tec share

Sum of the parts: Fair value per IBU-tec share at EUR 15.43

€ m	Sales			EBITDA			EBITDA-Margin			EBITDA (x)			Fair value (calc.)		
	2018e	2019e	2020e	2018e	2019e	2020e	2018e	2019e	2020e	2018e	2019e	2020e	2018e	2019e	2020e
IBU-tec	18.25	20.99	23.09	4.73	5.25	5.77	25.9%	25.0%	25.0%	8.08	7.47	6.86	38.20	39.21	39.60
BNT Chemicals	28.75	32.59	35.32	1.67	3.42	4.38	5.8%	10.5%	12.4%	5.92	4.80	4.01	9.85	16.43	17.53
Total	47.00	53.58	58.40	6.40	8.67	10.15	13.6%	16.2%	17.4%				48.05	55.64	57.13
- Net debt**													-10.52	-6.04	-2.15
- Pension liabilities**													0.00	0.00	0.00
- Minorities***													0.00	0.00	0.00
+ Financial investments***													0.00	0.00	0.00
Fair equity value													37.53	49.60	54.98
Fair value/share (€)													9.38	12.40	13.75
Average fair value/share (€)															13.07

* w/o extraordinary items

** At book value

*** At market value

Source: Warburg Research

Peers used for the valuation of IBU-tec “old” and BNT Chemicals

Peers for the IBU-tec “old”:

- **BASF (BAS GR; Buy, PT EUR 84)** German-based BASF is currently the largest chemical company globally. The company comprises five segments (Chemicals, Performance Products, Functional Materials & Solutions, Agricultural Solutions, Others). Due to its exposure in cathode active materials BASF competes with IBU-tec in the production of battery materials. BASF’s Functional Materials & Solutions is one of the three major players globally for mobile catalysts but it is also active in chemical catalysts.
- **Ecopro Co., Ltd. (086520 KR; not covered)** focuses on the development of air pollution control materials and parts in South Korea. The company offers environmental solutions; adsorbents used in industrial facilities, purification filters, vehicles, gas masks, etc.; chemical air filters that remove various harmful gases; greenhouse gas reduction equipment; and air pollution prevention systems, such as combustion, concentration, complex bad odor and chemical removal systems. It also provides cathode materials, precursors, lithium-ion products and filter frames
- **LG Chem (051910 KR; not covered)** is a Korean chemical company that produces a variety of products, including cosmetics, personal care products, petrochemicals, pharmaceuticals, and specialty chemicals. It’s divided into two segments. The Petrochemicals unit makes basic chemicals like ethylene, propylene, and their derivatives, as well as PVC, acrylates, and engineering plastics. The company’s Information and Electronic Materials segment produces rechargeable batteries and display materials. It boasts 12 manufacturing subsidiaries and 20-plus marketing subsidiaries. Formerly the chemical division of the LG Group, the company went public in 2001, while LG still owns a third of LG Chem.
- **Varta Aktiengesellschaft (VAR1 GR, not covered)** manufactures and markets a wide range of industrial, commercial, and miniaturised batteries for equipment and devices worldwide. The subsidiary VARTA Microbattery is a global innovation leader for hearing aid batteries and nickel metal hydride buttoncells. VARTA Storage develops and manufactures lithium-ion battery packs for mobile applications as well as stationary energy storage systems for households and commercial applications, like cameras, telephones, toys, and watches.
- **Umicore (UMI BE; not covered)** is a Belgian materials technology company. Its diversified business includes four segments: Catalysis (automotive catalysts, precious metals chemistry), Energy Metals (cobalt and specialty materials, electro-optic materials, thin film products, fuel cells), Performance Materials (building products. electroplating, platinum engineered materials, zinc chemicals) and Recycling (precious metals refining, battery recycling, jewellery and industrial metals, precious metals management). The company also owns 40% of Element Six Abrasives, a joint venture with industrial diamond producer Element Six. Another joint venture with Zinifex, called Nyrstar, combines the two companies’ zinc businesses and is the world’s largest zinc producer.
- **Johnson Matthey (JMAT LN; not covered)** is an UK-based company which operates four segments: Clean Air, Efficient Natural Resources, Health and New Markets. The Clean Air segment produces mobile catalysts for the automotive and the motorcycle industries. The Efficient Natural Resources segment provides process catalysts to the chemical industry. It conducts precious metal refining. It provides advanced glass materials to the automotive industry and organometallics to the chemical industry. The Health segment provides drug development and custom manufacturing of drugs. It is also the leading producer of opiate alkaloids globally. The New Markets segment is home to material development for battery technology, new catalysts development and fuel cell components.
- **Nippon Shokubai (4114 JP, not covered):** The Japanese company operates three segments: Basic Chemicals, Functional Chemicals and Environment & Catalysts. The

Basic Chemicals segment produces mainly ethylene oxide, ethylene glycol, ethanol amines and secondary ethoxylates as well as acrylic acid and acrylates. Functional Chemicals produce polymers for concrete admixtures, water-soluble polymers, specialty acrylates and specialty methacrylates, superabsorbent polymers as well as resins for paints and adhesives. The Environment & Catalysts segment produces process and mobile catalysts.

- **Lonza AG (LONN SW, not covered):** Swiss-based Lonza Group AG engages in the supply of pharmaceutical, healthcare, and life science products. It provides chemical and biotech ingredients to the nutrition and agro markets. The company operates its business in two segments: Pharma & Biotech and Specialty Ingredients. The Pharma & Biotech segment clusters all offerings for pharmaceutical markets, with Lonza positioned in custom development, custom manufacturing and bioscience solutions. The Specialty Ingredients segment supplies solutions that promote health, wellness, beauty, nutrition, hygiene and materials protection.
- **WR Grace (GRA US, not covered)** is an US-based company that has two segments: Catalysts Technologies and Materials Technologies. The Catalysts Technologies segment is the global leader in process catalysts, developing used in refining, petrochemical and other chemical manufacturing applications. The Materials Technologies segment is the worldwide leader in specialty silica gel used incoatings, consumer, industrial, and pharmaceutical applications.

Peers for **BNT Chemicals**:

- **Lanxess (LXS GR; Buy, PT EUR 79)** is a German company with five segments: Advanced Intermediates, Specialties Additives, Performance Chemicals, Engineering Materials and Arlanxeo. The Advanced Intermediates segment produces intermediates and precursors like aromatics, amines, polymerisation catalysts organometallics, thiazols as well as base chemicals (sulphuric acid, hydrofluoric acid). It also provides custom manufacturing for fine chemicals, mostly active ingredients for pesticides. The Specialty Additives segment supplies flame retardants, fuel and lubricant additives as well as rubber chemicals to various industries. The Performance Chemicals segment supplies inorganic pigments, leather chemicals, material protection products as well as liquid purification technologies to customers. The Engineering Materials segment manufactures fibre-reinforced plastic compounds (mostly based on polyimide) as well as urethane systems.
- **Songwon Industrial Co., Ltd (004430 KR; not covered)** manufactures plastic additives and specialty chemicals. The company operates four segments: Polymer Stabilizers, Fuel & Lubes Antioxidants, Tin Intermediates, PVC Additives & Polymers and Specialty Chemicals. Plastic stabilizers are produced to protect polymer during processing and ensure that plastic end products retain their physical properties during use. The segment Fuel and Lubes Antioxidants offers phenolic, aminic, phosphite and thioester antioxidants. Tin Intermediates, PVC Additives & Polymers and Specialty Chemicals focus on coating industry applications and protection against heat during processing. The Specialty Chemicals segment develops chemicals for fast-moving industries such as electronics, as well as coating additives and functional monomers for a wide variety of applications.

Free Cash Flow Value Potential

Warburg Research's valuation tool "FCF Value Potential" reflects the ability of the company to generate sustainable free cash flows. It is based on the "FCF potential" - a FCF "ex growth" figure - which assumes unchanged working capital and pure maintenance capex. A value indication is derived via the perpetuity of a given year's "FCF potential" with consideration of the weighted costs of capital. The fluctuating value indications over time add a timing element to the DCF model (our preferred valuation tool).

in EUR m	2014	2015	2016	2017	2018e	2019e	2020e	
Net Income before minorities	1.81	3.14	2.83	0.17	1.23	2.27	3.34	
+ Depreciation + Amortisation	1.35	1.76	2.07	2.31	4.37	5.18	5.30	
- Net Interest Income	-0.09	-0.12	-0.07	-0.06	-0.27	-0.46	-0.40	
- Maintenance Capex	0.98	1.14	1.18	1.52	1.77	1.75	2.00	
+ Other	0.00	0.00	0.00	0.00	0.00	0.00	0.00	
= Free Cash Flow Potential	2.26	3.88	3.79	1.01	4.10	6.16	7.03	
FCF Potential Yield (on market EV)	n/a	n/a	n/a	1.8 %	5.7 %	9.2 %	11.2 %	
WACC	7.24 %	7.24 %	7.24 %	7.24 %	7.24 %	7.24 %	7.24 %	
= Enterprise Value (EV)	n.a.	n.a.	n.a.	57.73	71.32	66.84	62.95	
= Fair Enterprise Value	31.19	53.53	52.29	13.99	56.61	85.11	97.17	
- Net Debt (Cash)	-12.69	-12.69	-12.69	-12.69	10.52	6.04	2.15	
- Pension Liabilities	0.00	0.00	0.00	0.00	0.00	0.00	0.00	
- Other	0.00	0.00	0.00	0.00	0.00	0.00	0.00	
- Market value of minorities	0.00	0.00	0.00	0.00	0.00	0.00	0.00	
+ Market value of investments	0.00	0.00	0.00	0.00	0.00	0.00	0.00	
= Fair Market Capitalisation	43.88	66.22	64.97	26.68	46.09	79.07	95.02	
Number of shares, average	3.00	3.00	3.00	4.00	4.00	4.00	4.00	
= Fair value per share (EUR)	14.63	22.07	21.66	6.67	11.52	19.77	23.75	
premium (-) / discount (+) in %					-24.2 %	30.1 %	56.3 %	
Sensitivity Fair value per Share (EUR)								
	10.24 %	8.68	12.63	12.41	5.65	7.38	13.53	16.64
	9.24 %	9.28	13.66	13.41	5.91	8.46	15.16	18.50
	8.24 %	10.02	14.93	14.66	6.25	9.80	17.19	20.81
WACC	7.24 %	10.97	16.55	16.24	6.67	11.52	19.77	23.75
	6.24 %	12.22	18.70	18.34	7.23	13.79	23.18	27.65
	5.24 %	13.95	21.66	21.23	8.00	16.92	27.89	33.03
	4.24 %	16.49	26.02	25.49	9.14	21.53	34.82	40.94

■ Historical volatility of the value indication is due to cyclical operative development, portfolio changes.

DCF model

Figures in EUR m	Detailed forecast period			Transitional period										Term. Value
	2018e	2019e	2020e	2021e	2022e	2023e	2024e	2025e	2026e	2027e	2028e	2029e	2030e	
Sales	47.00	53.58	58.40	61.91	65.62	69.56	73.73	78.16	82.45	86.58	90.47	94.09	97.38	1.0 %
Sales change	179.6 %	14.0 %	9.0 %	6.0 %	6.0 %	6.0 %	6.0 %	6.0 %	5.5 %	5.0 %	4.5 %	4.0 %	3.5 %	
EBIT	2.03	3.49	4.85	5.34	5.86	6.49	7.17	7.83	8.51	9.20	9.88	10.56	11.69	
EBIT-margin	4.3 %	6.5 %	8.3 %	8.6 %	8.9 %	9.3 %	9.7 %	10.0 %	10.3 %	10.6 %	10.9 %	11.2 %	12.0 %	
Tax rate (EBT)	30.0 %	25.0 %	25.0 %	28.0 %	28.0 %	28.0 %	28.0 %	28.0 %	28.0 %	28.0 %	28.0 %	28.0 %	28.0 %	
NOPAT	1.42	2.62	3.64	3.84	4.22	4.67	5.16	5.64	6.13	6.62	7.12	7.60	8.41	
Depreciation	4.37	5.18	5.30	5.62	5.82	5.97	6.10	6.23	6.33	6.39	6.40	6.38	5.84	
in % of Sales	9.3 %	9.7 %	9.1 %	9.1 %	8.9 %	8.6 %	8.3 %	8.0 %	7.7 %	7.4 %	7.1 %	6.8 %	6.0 %	
Changes in provisions	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	
Change in Liquidity from														
- Working Capital	8.34	-0.01	0.70	0.62	0.66	0.69	0.73	0.77	0.74	0.70	0.65	0.59	0.52	
- Capex	8.85	3.50	4.00	4.05	3.97	3.86	3.72	3.95	4.16	4.37	4.57	4.75	4.92	
Capex in % of Sales	18.8 %	6.5 %	6.8 %	6.5 %	6.0 %	5.5 %	5.0 %	5.0 %	5.0 %	5.0 %	5.0 %	5.0 %	5.0 %	
Other	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	
Free Cash Flow (WACC Model)	-11.40	4.30	4.24	4.78	5.41	6.08	6.81	7.16	7.56	7.94	8.30	8.64	8.82	
PV of FCF	-11.40	4.01	3.69	3.88	4.09	4.29	4.48	4.39	4.32	4.23	4.13	4.01	3.81	58
share of PVs	-3.87 %			43.44 %										60.42 %

Model parameter

Derivation of WACC:		Derivation of Beta:	
Debt ratio	35.00 %	Financial Strength	1.00
Cost of debt (after tax)	3.6 %	Liquidity (share)	2.00
Market return	7.00 %	Cyclicality	1.00
Risk free rate	1.50 %	Transparency	2.00
		Others	1.00
WACC	7.24 %	Beta	1.40

Valuation (m)

Present values 2030e	38		
Terminal Value	58		
Financial liabilities	15		
Pension liabilities	0		
Hybrid capital	0		
Minority interest	0		
Market val. of investments	0		
Liquidity	4	No. of shares (m)	4.0
Equity Value	85	Value per share (EUR)	21.32

Sensitivity Value per Share (EUR)

Beta	WACC	Terminal Growth							Beta	WACC	Delta EBIT-margin						
		0.25 %	0.50 %	0.75 %	1.00 %	1.25 %	1.50 %	1.75 %			-0.8 pp	-0.5 pp	-0.3 pp	+0.0 pp	+0.3 pp	+0.5 pp	+0.8 pp
1.68	8.2 %	16.24	16.57	16.92	17.29	17.69	18.12	18.58	1.68	8.2 %	15.79	16.29	16.79	17.29	17.79	18.29	18.79
1.54	7.7 %	17.89	18.28	18.70	19.15	19.64	20.17	20.74	1.54	7.7 %	17.53	18.07	18.61	19.15	19.69	20.23	20.77
1.47	7.5 %	18.79	19.23	19.69	20.20	20.74	21.33	21.96	1.47	7.5 %	18.51	19.07	19.63	20.20	20.76	21.32	21.88
1.40	7.2 %	19.77	20.25	20.77	21.32	21.93	22.58	23.30	1.40	7.2 %	19.57	20.15	20.74	21.32	21.91	22.49	23.08
1.33	7.0 %	20.82	21.35	21.92	22.55	23.22	23.96	24.76	1.33	7.0 %	20.71	21.32	21.93	22.55	23.16	23.77	24.38
1.26	6.7 %	21.95	22.54	23.18	23.88	24.63	25.46	26.38	1.26	6.7 %	21.96	22.60	23.24	23.88	24.51	25.15	25.79
1.12	6.2 %	24.51	25.24	26.04	26.92	27.89	28.96	30.14	1.12	6.2 %	24.81	25.51	26.22	26.92	27.62	28.33	29.03

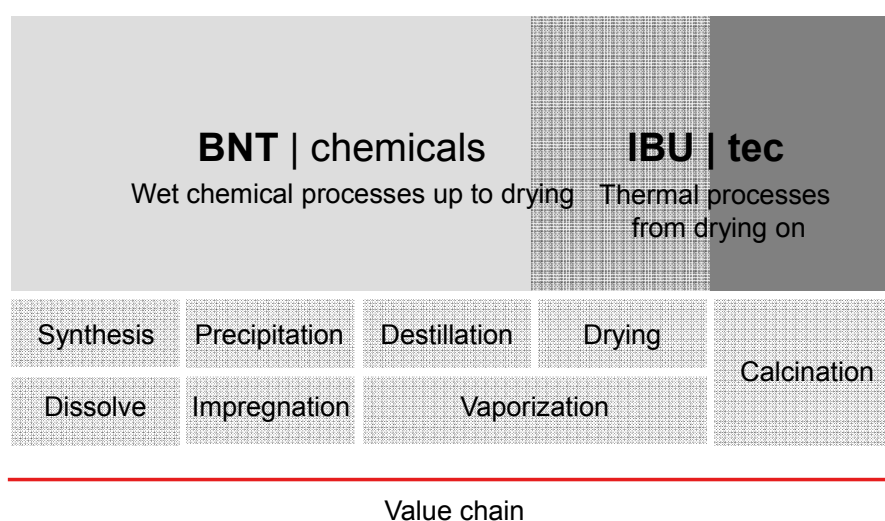
- The company's beta value reflects limited liquidity (strategic investors hold 69% of the shares)

Company & Products

IBU-tec’s new structure is now based on two different business models

With the acquisition of BNT Chemicals in July 2018, IBU-tec is now home to two complementary business models and product portfolios. The “old” IBU-tec is a service provider in the area of thermal treatment of solid inorganic materials. BNT Chemicals however is a classic producer of specialty and semi-commodity chemical compounds in the field of organometallics. The acquisition of BNT will expand IBU-tec’s value chain, as the preparation of the respective solid materials is normally preceded by chemical processes requiring the handling of liquids. As BNT operates in close vicinity to IBU-tec’s new site, there is additional potential for synergies in logistics, procurement and shared services from 2019 onwards.

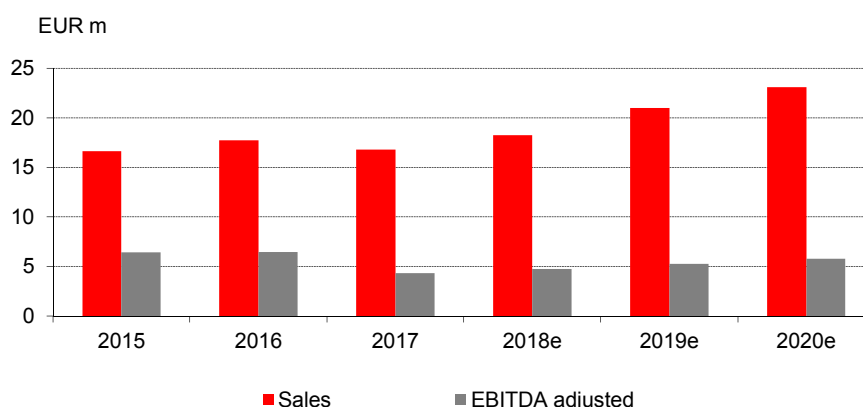
The acquisition of BNT Chemicals: expanding the value chain



Source: IBU-tec

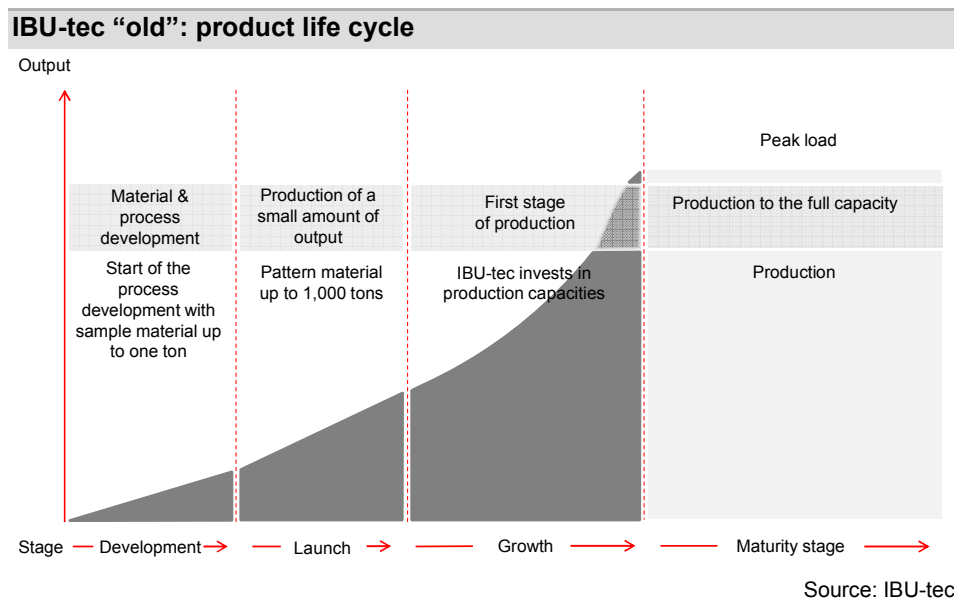
IBU-tec “old” – a full service provider for the thermal processing of anorganic solid materials

IBU-tec “old”: Sales and EBITDA adjusted development



Source: IBU-tec, Warburg Research

Services provided by IBU-tec include the development of solid inorganic materials with the required physical and chemical properties, the development of production processes for these materials, the scaling of new or existing production processes as well as the toll manufacturing of materials in IBU-tec's (partly proprietary) production facilities. In its toll manufacturing business, the company treats a very wide range of inorganic materials on behalf of its customers by applying various thermal processes to transform the physical composition of the materials or give them new properties for a variety of applications as required by the customer, e.g. reducing the toxicity of emission gases or increasing the energy density of battery materials. In a nutshell, IBU-tec provides customers with solutions based on its analytical capabilities, its extensive and exclusive production know-how and equipment.



The operations comprise the service operations for the thermal treatment of solid inorganic materials. To perform the required thermal treatment procedures, the company employs two different type of kilns: directly and indirectly fired. On top of that, IBU-tec operates unique Pulsation reactors which are patent-protected.

IBU-tec "old": Key equipment

	Direct Fired Rotary Kilns	Indirect Fired Rotary Kilns	Pulsation reactor
Picture			
Temperature range	100 - 1550°C	100 - 1200°C	250 - 1000°C
Residence time	15 - 180 minutes	15 - 180 minutes	0.005 - 2 secs
Reaction modes	Continuous, batch, co-current, counter-current	Continuous, batch, co-current, counter-current	continuous
Typical processes	Calcination, sintering, reduction, oxidation and drying	Pyrolysis, calcination, reduction and surface treatment of catalyst supports	Drying, calcination, oxidation

Source: IBU-tec

Thermal treatment procedure applied by IBU-tec

Key procedures	Calcination	Sintering	Pyrolysis	Reduction
Description	a thermal treatment process in the absence or limited supply of air or oxygen applied to ores and other solid materials to bring about a thermal decomposition	The sintering process transforms usually porous and unhardened bodies made of pressed fine granulates or powders by making the material stronger, harder or denser.	thermal treatment that decomposes organic material into its component parts in an oxygen-free atmosphere.	Reduction is an important chemical reaction that has one particle gaining electrons, lowering the oxidation stage and thus 'reducing' the particle.
Main applications	converting calcium carbonate to calcium oxide; converting aluminum hydroxide to aluminum oxide; firing clay; driving off the water of crystallization from hydrated salts	Sintering aluminium oxide; sintering pellets, granulated, tablets and other preformed bulk materials; used for many industrial catalysts and catalyst supports;	Producing catalysts, battery materials and zeolites; conversion of biomass to useful organic products; converting used tires into carbon black and oil;	Reduction of Hydrogen, Carbon, gaseous hydrocarbons and carbon monoxide; production of powder metals and catalysts;
Key procedures	Doping	Drying	Coating	
Description	Doping refers to the process of impregnating the surface of a material with small quantities of a different substance, to enhance its properties in some way	freeze-drying, condensation methods and vacuum drying; drying process with a purer outcome; shock-drying process	Coatings give materials a different surface; protective coating	
Main applications	Ceramic materials with aluminium oxide and zirconium oxide	ultrapure silica, aluminium oxide	Coating of proppants or gravel packs with phenolic resin	

Source: IBU-tec, Warburg Research

IBU-tec "old" serves a wide variety of customer industries. There was a significant increase in contracts in 2018 (+40% yoy) from the thriving battery material industry catering to electro mobility and stationary energy storage facilities.

IBU-tec's key markets – addressing megatrends

AIR PURIFICATION	ELECTRO-MOBILITY & ENERGY STORAGE	DEVELOPMENT OF MATERIALS	CHEMICAL INDUSTRY	BUILDING MATERIALS INDUSTRY
▶ Catalysts & catalyst carrier (automotive & chemical industry)	▶ Raw materials for battery materials (Lithium) ▶ Battery materials for electronic and hybrid cars ▶ Energy storage for renewable energy	▶ Oil and gas industry (Proppants) ▶ Zirconium oxide for bioceramics ▶ Polishing & buffing materials ▶ Activated coal	▶ Aluminum oxide ▶ Phosphates ▶ Titanium oxide ▶ Silicon oxide ▶ Silicates ▶ Carbonates ▶ Catalysts	▶ R&D cement resp. other building materials ▶ Consulting in the cement industry ▶ Pug

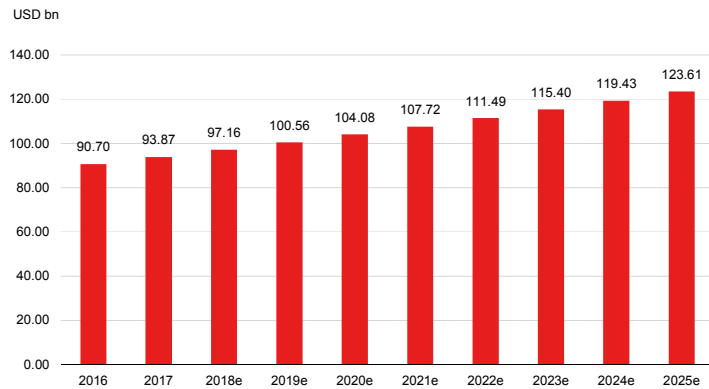
IBU-tec treats and refines currently materials worth approx. EUR 200m per year

Source: IBU-tec

Global thermal treatment market set to grow at, or above, global GDP rates well into the next decade

The global thermal treatment market was valued at USD 93.87bn (EUR 65bn) in 2016 and is estimated to expand at a CAGR of 3.5% from 2018 to 2025. Growing penetration of thermal treatment applications in aerospace, automotive, construction, machining, and electrical and electronics industries are projected to act as key market drivers over the next eight years.

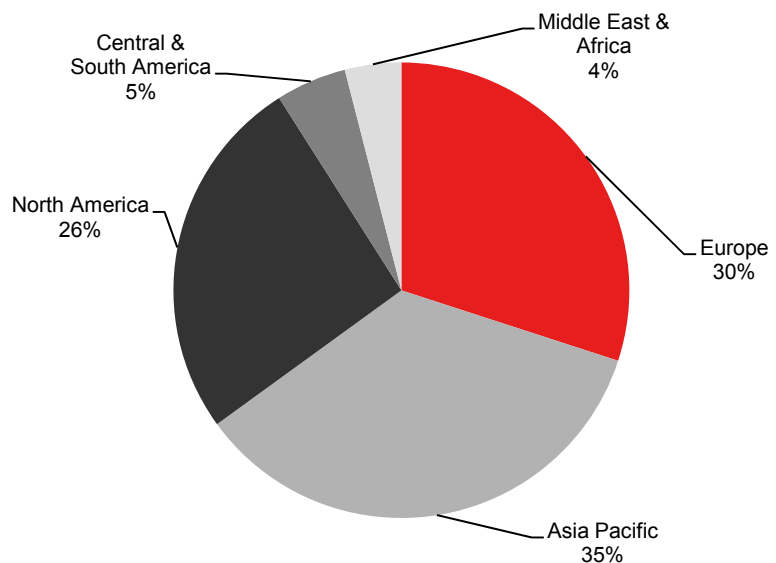
The global thermal treatment market: driven by megatrends



Source: ITP, Warburg Research

Automotive and aerospace are two crucial application segments. Growing demand for thermal treatment services in aerospace can be attributed to rapidly increasing demand for commercial vehicles due to high aviation demand and rising air passenger traffic. Furthermore, upsurge in thermal treatment services for construction, primarily in Asia Pacific and Middle East and Africa, is projected to benefit overall thermal treatment market growth.

The global thermal treatment market: sales by regions (2016)



Source: ITP, Warburg Research

As IBU-tec is still a regional German niche player, its activities and relevant customer groups do not fully correspond to the world market distribution.

Key markets for IBU-tec “old” and the respective trends driving them are:

Catalyst materials: Increasingly efficient usage of fossil raw materials, reduced energy consumption of chemical processes, cleaning of exhaust gases in mobile (automotive, marine) as well as stationary applications (generation of energy)

Battery materials: technical evolution of battery materials towards less toxic ingredients (lower lead, nickel and cobalt content), higher energy density, lower unit costs

Rare earths: more efficient usage of rare earths in diverse applications, recycling of used materials containing rare earths

Building materials: making the production processes of building materials more sustainable by reducing both energy consumption and CO₂ emissions.

Life science/Healthcare: providing durable material for the use in prostheses for an aging population

The company is a one-stop-shop that helps customers develop their initial ideas into a product that can be mass produced. Services provided by IBU-tec for its customers include:

- Development of materials accompanied by the respective analytical capabilities
- Trials and up-scaling from lab size to larger batches and industrial mass production
- Engineering, process and site optimisation to allow for highly efficient production processes at a given scale / up-scaling production processes
- Toll manufacturing of thermally treated materials at various volumes

Successfully shifting the product mix towards battery materials

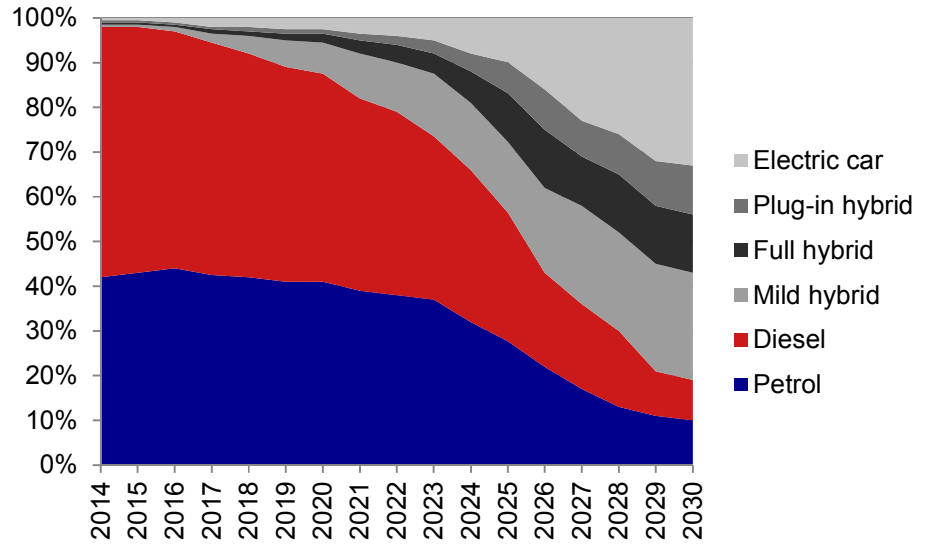
As a result of “dieselgate” (deceptive devices built into diesel cars by OEMs for the purposes of passing emissions standards tests) contracts with producers of mobile diesel catalyst materials declined significantly at IBU-tec in 2017, and had a negative impact on adjusted EBITDA (-33% to EUR 4.3m). To fill the gap, IBU-tec successfully increased volumes with other customer industries, especially battery materials. In 2018, sales from the treatment of battery materials are to increase 40% yoy, as planned, showing that IBU-tec is already benefiting from the evolution of the automotive industry towards electro mobility. In future, the initial hiccup in regard to lost sales in materials earmarked to be used in connection with combustion engines might prove to have been a boon.

Electro mobility: changing demand for thermally treated materials in the automotive industry

Thermally treated materials are used in a wide range of automotive components. The use of high strength steel in the automotive industry has increased at an exponential rate, owing to requirements of light-weight vehicles with higher fuel efficiency. Heat treated components are used in numerous auto-parts such as transmission, suspension, engine, body frame, and braking systems. Iron and steel are the primary constituents used in automotive production. Furthermore, aluminum, copper, titanium, and their alloys are used in manufacturing various automotive components. Different processes of heat treatments are performed on metallic automotive parts to achieve reliable quality. Thermal treatment helps to improve the microstructure and hardness by modifying various properties such as strength, toughness, fatigue strength, and wear properties.

Thermally treated exhaust catalysts are required to cut down emission levels. To reduce emissions even further and use more sustainable forms of energy, the automotive industry is expected to gradually shift away from the combustion engine to hybrid propulsion (combination of an electric and a combustion engine within the same car) and eventually full electro mobility.

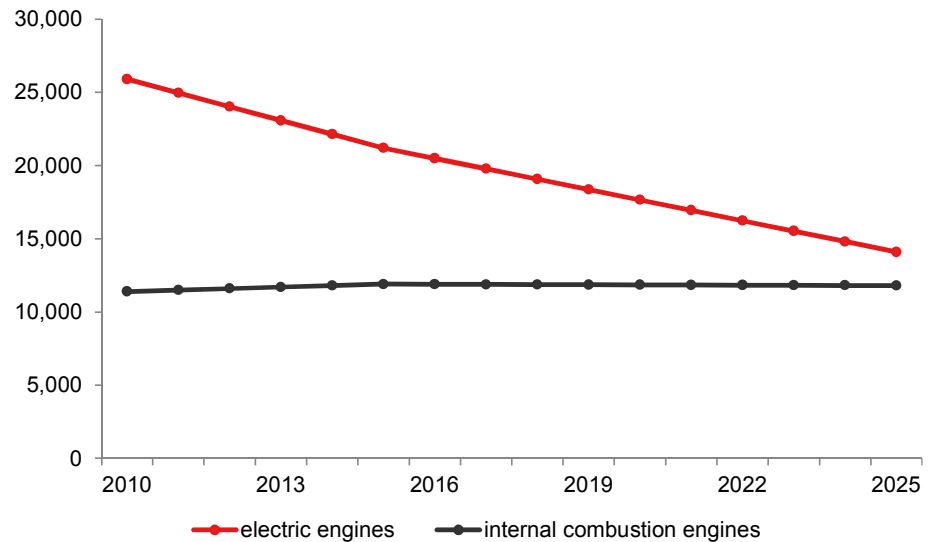
Share of propulsion systems in light vehicles from 2014 -2030



Source: PWC

To kick-start the upcoming changes, not only is support required in the form of regulation and fiscal subsidy programmes but most importantly unit costs for hybrid and fully electrical cars need to close the gap to cars with internal combustion engines. Materials currently account for nearly 50% of the total battery cost, among which cobalt, lithium, nickel and graphite are the most expensive, accounting for 30% of total cost. Process and chemistry improvements and pack engineering advances will lower battery prices, all else being equal.

Production costs of electric and internal combustion engines in EUR



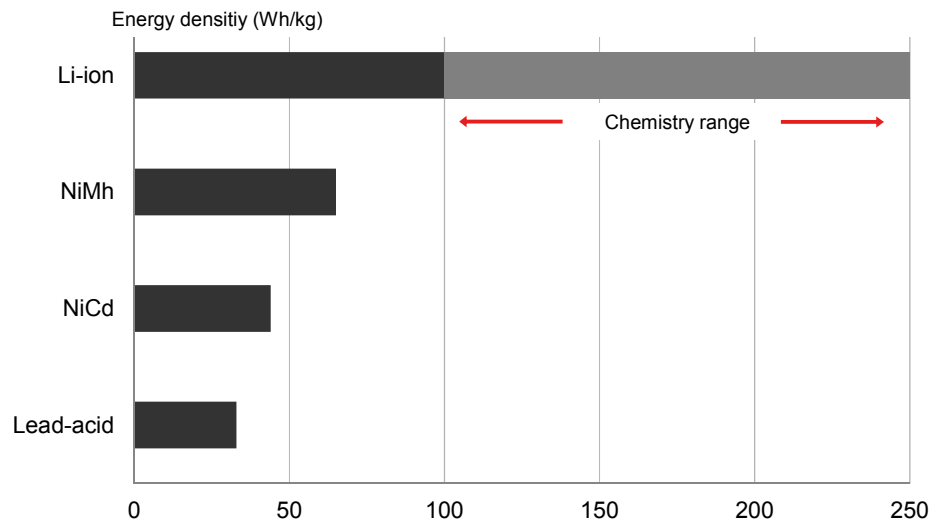
Source: McKinsey

Energy density is critical for the electrification of transportation. Within the industry, the concept of “range anxiety” has been widely discussed as one of the factors limiting customers’ interest for EVs. Increasing battery capacity is the primary option for increasing vehicle range. However, as there is a limit to how much battery capacity can be installed due to vehicle space and weight limits, high energy density is key to achieving long-range EVs. In addition, the feasibility of heavy-duty vehicle electrification

will partly depend on future increases in energy density. Electrifying long-range heavy-duty trucks with current lithium-ion batteries would shrink the amount of goods trucks can transport over long distances. However, energy-dense chemistries are also the ones that use expensive raw materials, such as cobalt. While some early EVs sold outside China relied on low-energy density batteries automakers use high energy density batteries in their latest EV models to achieve higher vehicle ranges. Tesla has been the main proponent of the lithium nickel aluminum cobalt oxide cathode (NCA). Other manufacturers use the lithium nickel manganese cobalt oxide (NMC) chemistry.

Optimizing existing as well as developing new battery technologies to reduce unit prices and increase energy density will require a massive R&D effort especially from battery and battery material suppliers, as the battery may easily become the crucial selling point of a hybrid or fully electrical vehicle. IBU-tec stands to benefit strongly from the oncoming wave of R&D spent by battery suppliers as well as from production capacity requirements for battery materials.

Comparison of various, currently available battery technologies

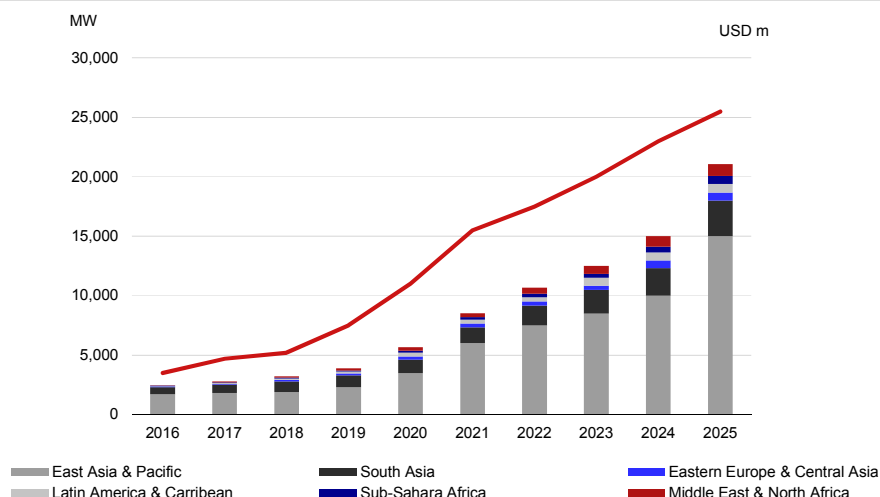


Source: S&P Global Platts Analytics

Stationary battery technology: augmenting sustainable energy production

Wind turbines and PV (solar) technology have one common structural fault: their energy production is highly volatile. To bridge the gap between sustainable energy production and energy consumption patterns, battery storage systems are likely to be employed at a fast-increasing rate. This includes both battery storage systems at the household level as well as utility-size facilities.

Expected uptake of stationary energy storage systems



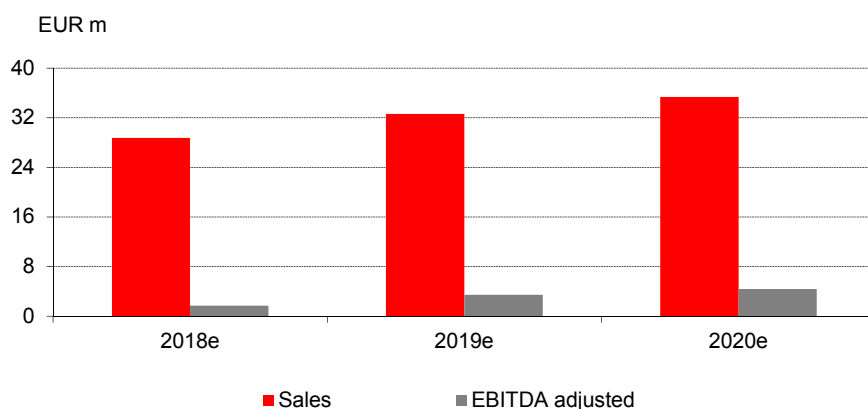
Source: Navigant Research

Again, the estimated uptake needs to be fuelled by declining unit costs as well as higher energy density of the respective battery packs to make them more attractive.

As a result of the significant growth in demand for both mobile and stationary battery storage systems, BASF (world market leader in cathode materials for the merchant market) expects the battery material market to grow by 25% p.a. in the period 2019–2025. By 2025, the market for cathode active materials is to reach a size of EUR 25–30bn.

BNT chemicals – a supplier of organotin and other organometallic compounds

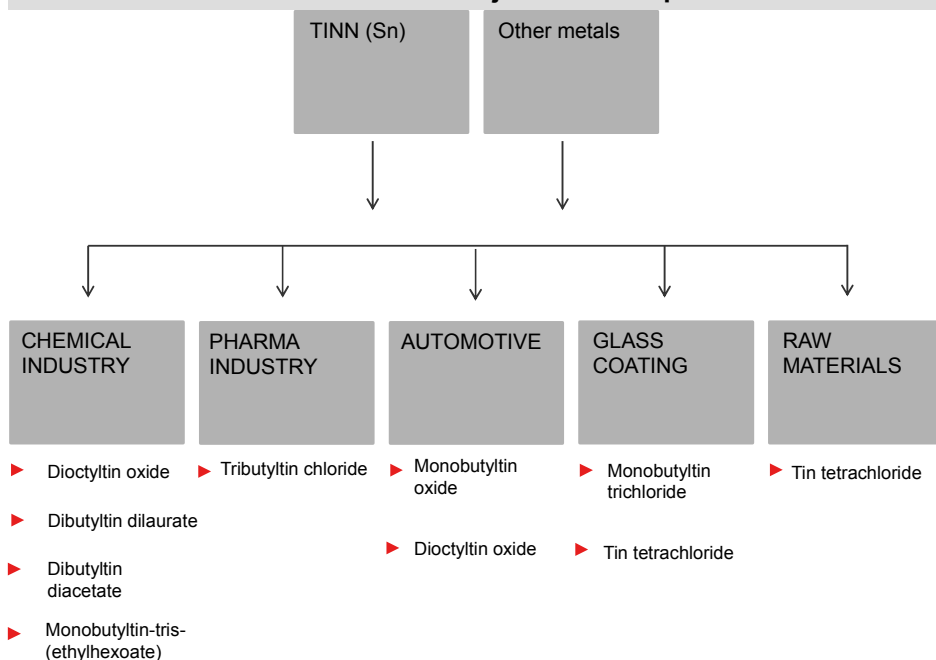
BNT Chemicals: Sales and EBITDA adjusted development



Source: Warburg Research

BNT Chemicals is a classic producer of specialty and semi-commodity chemical compounds in the field of organometallics, especially organotin compounds. It was acquired by IBU-tec from TIB Chemicals, a German supplier of commodity chemicals on 2.7.2018 for an undisclosed sum.

BNT Chemicals: Sales and EBITDA adjusted development



Source: IBU-tec

Key markets for BNT Chemicals and the respective trends driving them are:

Toll manufacturing for TIB Chemicals: Based on long-term delivery contracts, BNT chemicals produces organotin compounds for its former parent company for use as intermediate or end products

Glass manufacturing: organotin compounds (e.g. monobutyltin) are used to deposit tin dioxide coatings on glass to give various physical properties to the material. The container glass industry tends to grow in line with GDP but niche activities within this industry can achieve higher growth rates.



Pharmaceutical applications: Organotin compounds are e.g. employed in anti-tumour drugs which are becoming ever more important for the aging societies of developed countries

As it was operated as a cash cow by its former owner TIB chemicals, BNT Chemicals seems to have significant idle capacities as well as an underdeveloped product portfolio that was not adequately marketed to third parties. We expect the company to thrive under its new owner, IBU-tec, as the activities are earmarked to become a second leg to stand on for the company.

BNT Chemicals does not (yet) serve key organotin markets

The customer portfolio of BNT chemicals differs greatly from the organotin market structure as key applications like catalysts and PVC stabilisers were not intensively addressed. This might change over time under IBU-tec's ownership.

Key organotin applications: catalysts and stabilisers for PVC applications

	Product description	Catalysts	Function/Effect
Catalysts in Silicones Manufacture	Silicones, also known as polysiloxanes, are polymers that include any inert, synthetic compound made up of repeating units of siloxane, which is a chain of alternating silicon atoms and oxygen atoms, combined with carbon, hydrogen, and sometimes other elements.		Organotins are used as catalysts in room temperature vulcanisation (RTV) via a condensation reaction to produce silicone elastomers.
Catalysts for Electro-deposition Coatings	Electrodeposition coatings are used in car production, since the metal frame of a vehicle has an extremely complex shape with many areas hidden from a direct line of sight. In this process, a mixture of resin and binder and a paste containing the pigments are fed into a tank. The vehicle is then lowered into the tank from an overhead conveyor and an electric current applied.		Dibutyltin oxide (DBTO) and dioctyltin oxide (DOTO) are the main organotins used as catalysts for the curing of EDCs in Europe.
Catalysts in Polyurethane Applications	Polyurethanes are formed by reacting a polyol (an alcohol with more than two reactive hydroxyl groups per molecule) with a diisocyanate or a polymeric isocyanate in the presence of suitable catalysts and additives. Polyurethanes exist in a variety of forms including flexible foams, rigid foams, chemical-resistant coatings, specialty adhesives/sealants and elastomers		Organotin catalysts are used in a wide variety of polyurethane applications, aiding formation of the urethane bond and generally functioning as Lewis acid catalysts. They catalyse the reaction of isocyanates with both hydroxyl groups and water and also catalyse the hydrolysis of ester groups.
PVC Pipes	PVC pipe applications include: high and low-pressure systems, drinking and waste water pipes, smooth large diameter and corrugated drainage pipes.	Organotin Stabilisers	Owing to the high chlorine content of PVC-C in these pipes, which requires more efficient thermal stabilisation compared to unplasticised PVC. The manufacturer has argued that, at present, only organotin compounds may be used as the prime stabiliser while alternative systems do not perform to the required level of effectiveness.
Bottles	PVC bottles are produced by the (injection) blow moulding process. A large proportion of PVC bottles are used in food packaging, as well as in non-food packaging (e.g. cosmetics and cleaning materials).		Organotin stabilisers are able to provide the required colour stability of the bottle as well as long-term storage stability for the products packaged, since these bottles are made in an extensive variety of colours. Therefore, organotin mercaptides are efficient PVC stabilisers in this process due to their excellent heat stability and lubricating effect and are, because of this, critical for product quality and process.
Plasticised PVC	Plasticised PVC is used in a variety of industrial, household and medical applications. The main applications of plasticised PVC are in wires/cables, coatings and flooring (including wall covering) and steel coatings.		In terms of wires/cables, stabilisers giving high electrical resistance and low energy dissipation are crucial for safe power transmission. When it comes to coatings and floorings, stabilisers for these need to provide good clarity, printability and be free of volatile substances. Finally in steel coating segment, butyltin mercaptides are used for this plasticised application.

Source: Warburg Research

History: More than a century of expertise in thermal processing

IBU-tec can be traced back to a German company founded in **1885** to manufacture decorative stone made from travertine and, later, to cast stone from quicklime.

After WWII, the business continued as a state-run business in East Germany under the name of VEB Ehringsdorf Lime and Travertine Works from **1948 to 1974**. In 1974, lime production was stopped. To this day travertine deposits continue to be quarried at the site for high-quality decorative cut stone.

In **1975**, the Weimar SKET-Institute took over the factory site and began using it as a pilot plant. This led to the installation of the first rotary kiln. Analysis, trials and measurements became part the company's core competence.

In **1993**, following German reunification, the SKET-Institute was privatised and became the Institute for Building Material and Environmental Protection Technologies.

In **2001**, Ulrich Weitz took over as CEO. Renamed IBU-tec, it started catalyst research.

In **2005**, having successfully developed a unique process for creating nano and submicro powders in a pulsation reactor IBU-tec was awarded the respective patent rights. Despite the financial crisis in **2008** IBU-tec invested in new capacities, constructing the largest pulsation reactor to date.

In **2016**, IBU-tec installed a new indirect fired rotary kiln.

The company went public in **2017** and inaugurated its new logistics centre in Nohra (Germany) the same year.

In **2018**, IBU-tec started setting up a second site in Bitterfeld (Germany). In addition, BNT Chemicals was acquired, a producer of organometallic compounds

Management: an experienced team

CEO Ulrich Weitz has been with IBU-tec since 2000 and developed the company into its present form. He is also a major shareholder in IBU-tec. Following his engineering studies, he worked for the elevator manufacturer OTIS in Paris and held management positions in quality management, design and production. He later moved to Winkler + Dünnebier AG to become a factory manager.

CFO Jörg Leinenbach has been in charge of Commercial Management since 2015. Before joining IBU-tec, he worked for Prego Services GmbH in Saarbrücken as the Head of Strategic Management and Control. He has a business degree from the University of Saarland with majors in Auditing, Fiduciary Management and Taxation Law. Over the course of his career, he has held various positions in Accounting, Controlling and Participation Management.

Head of Sales and Business Development Robert Suesse also leads IBU-tec's Sales Team. Previously, he worked in an international capacity for the SMS Group as VP for Corporate Development Asia and as a Project Leader for Roland Berger Strategy Consultants. He has a degree in Engineering Management for Mechanical Engineering from Ilmenau University of Technology and an MBA in Entrepreneurship & Operations Management from the University of Wisconsin-Madison, USA.

Division Manager Operations/Technology Dr. Toralf Rensch has been with IBU-tec since 1997. He holds a doctorate from the Otto-von-Guericke University of Magdeburg in the field of Thermal Soil Decontamination in Rotary Kilns. He manages the Operations Department at IBU-tec, which supervises materials and process development (R&D), as well as rotary kiln and pulsation reactor production.

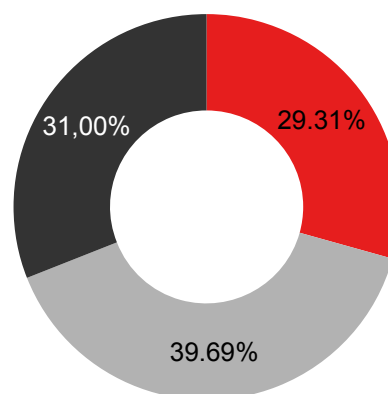
Division Manager Plant Optimisation & Engineering Dr. Wocadlo holds a doctorate from TU-Dortmund in the field of Thermal Soil Remediation using rotary kilns. Following his studies, he worked at MAN GHH on further developing this technology for use in waste management. After serving as CEO of an industrial boiler manufacturer, he moved on to various management positions in business development, marketing and sales at

companies such as ALSTOM, Viessmann and Infracore Gendorf.

Shareholder structure: The Weitz family including CEO Ulrich Weitz holds more than two-thirds of the shares

Following the IPO on 30.3.2017, IBU-tecs free float is 31%.

Shareholder structure of IBU-tec



■ Management board (including Ulrich Weitz) ■ Weitz family ■ Free float

Source: IBU-tec, Warburg Research

Lock-up periods of key shareholders:

IBU-tec group: six months past the IPO date (expired 30.9.2017)

Ulrich Weitz (CEO IBU-tec), Jörg Leinenbach (CFO IBU-tec) Prof. Büchner: 24+6 months past the IPO date (will expire 30.9.2019)

Viola-Kirby-Weitz, Isabelle Weitz: 24+69 months past the IPO date (will expire 30.9.2024)

DCF model

Figures in EUR m	Detailed forecast period			Transitional period										Term. Value
	2018e	2019e	2020e	2021e	2022e	2023e	2024e	2025e	2026e	2027e	2028e	2029e	2030e	
Sales	47.00	53.58	58.40	61.91	65.62	69.56	73.73	78.16	82.45	86.58	90.47	94.09	97.38	1.0 %
Sales change	179.6 %	14.0 %	9.0 %	6.0 %	6.0 %	6.0 %	6.0 %	6.0 %	5.5 %	5.0 %	4.5 %	4.0 %	3.5 %	
EBIT	2.03	3.49	4.85	5.34	5.86	6.49	7.17	7.83	8.51	9.20	9.88	10.56	11.69	
EBIT-margin	4.3 %	6.5 %	8.3 %	8.6 %	8.9 %	9.3 %	9.7 %	10.0 %	10.3 %	10.6 %	10.9 %	11.2 %	12.0 %	
Tax rate (EBT)	30.0 %	25.0 %	25.0 %	28.0 %	28.0 %	28.0 %	28.0 %	28.0 %	28.0 %	28.0 %	28.0 %	28.0 %	28.0 %	
NOPAT	1.42	2.62	3.64	3.84	4.22	4.67	5.16	5.64	6.13	6.62	7.12	7.60	8.41	
Depreciation	4.37	5.18	5.30	5.62	5.82	5.97	6.10	6.23	6.33	6.39	6.40	6.38	5.84	
in % of Sales	9.3 %	9.7 %	9.1 %	9.1 %	8.9 %	8.6 %	8.3 %	8.0 %	7.7 %	7.4 %	7.1 %	6.8 %	6.0 %	
Changes in provisions	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	
Change in Liquidity from														
- Working Capital	8.34	-0.01	0.70	0.62	0.66	0.69	0.73	0.77	0.74	0.70	0.65	0.59	0.52	
- Capex	8.85	3.50	4.00	4.05	3.97	3.86	3.72	3.95	4.16	4.37	4.57	4.75	4.92	
Capex in % of Sales	18.8 %	6.5 %	6.8 %	6.5 %	6.0 %	5.5 %	5.0 %	5.0 %	5.0 %	5.0 %	5.0 %	5.0 %	5.0 %	
Other	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	
Free Cash Flow (WACC Model)	-11.40	4.30	4.24	4.78	5.41	6.08	6.81	7.16	7.56	7.94	8.30	8.64	8.82	
PV of FCF	-11.40	4.01	3.69	3.88	4.09	4.29	4.48	4.39	4.32	4.23	4.13	4.01	3.81	58
share of PVs	-3.87 %			43.44 %										60.42 %

Model parameter

Derivation of WACC:		Derivation of Beta:	
Debt ratio	35.00 %	Financial Strength	1.00
Cost of debt (after tax)	3.6 %	Liquidity (share)	2.00
Market return	7.00 %	Cyclicality	1.00
Risk free rate	1.50 %	Transparency	2.00
		Others	1.00
WACC	7.24 %	Beta	1.40

Valuation (m)

Present values 2030e	38		
Terminal Value	58		
Financial liabilities	15		
Pension liabilities	0		
Hybrid capital	0		
Minority interest	0		
Market val. of investments	0		
Liquidity	4	No. of shares (m)	4.0
Equity Value	85	Value per share (EUR)	21.32

Sensitivity Value per Share (EUR)

Beta	WACC	Terminal Growth							Beta	WACC	Delta EBIT-margin						
		0.25 %	0.50 %	0.75 %	1.00 %	1.25 %	1.50 %	1.75 %			-0.8 pp	-0.5 pp	-0.3 pp	+0.0 pp	+0.3 pp	+0.5 pp	+0.8 pp
1.68	8.2 %	16.24	16.57	16.92	17.29	17.69	18.12	18.58	1.68	8.2 %	15.79	16.29	16.79	17.29	17.79	18.29	18.79
1.54	7.7 %	17.89	18.28	18.70	19.15	19.64	20.17	20.74	1.54	7.7 %	17.53	18.07	18.61	19.15	19.69	20.23	20.77
1.47	7.5 %	18.79	19.23	19.69	20.20	20.74	21.33	21.96	1.47	7.5 %	18.51	19.07	19.63	20.20	20.76	21.32	21.88
1.40	7.2 %	19.77	20.25	20.77	21.32	21.93	22.58	23.30	1.40	7.2 %	19.57	20.15	20.74	21.32	21.91	22.49	23.08
1.33	7.0 %	20.82	21.35	21.92	22.55	23.22	23.96	24.76	1.33	7.0 %	20.71	21.32	21.93	22.55	23.16	23.77	24.38
1.26	6.7 %	21.95	22.54	23.18	23.88	24.63	25.46	26.38	1.26	6.7 %	21.96	22.60	23.24	23.88	24.51	25.15	25.79
1.12	6.2 %	24.51	25.24	26.04	26.92	27.89	28.96	30.14	1.12	6.2 %	24.81	25.51	26.22	26.92	27.62	28.33	29.03

- The company's beta value reflects limited liquidity (strategic investors hold 69% of the shares)

Free Cash Flow Value Potential

Warburg Research's valuation tool "FCF Value Potential" reflects the ability of the company to generate sustainable free cash flows. It is based on the "FCF potential" - a FCF "ex growth" figure - which assumes unchanged working capital and pure maintenance capex. A value indication is derived via the perpetuity of a given year's "FCF potential" with consideration of the weighted costs of capital. The fluctuating value indications over time add a timing element to the DCF model (our preferred valuation tool).

in EUR m	2014	2015	2016	2017	2018e	2019e	2020e	
Net Income before minorities	1.81	3.14	2.83	0.17	1.23	2.27	3.34	
+ Depreciation + Amortisation	1.35	1.76	2.07	2.31	4.37	5.18	5.30	
- Net Interest Income	-0.09	-0.12	-0.07	-0.06	-0.27	-0.46	-0.40	
- Maintenance Capex	0.98	1.14	1.18	1.52	1.77	1.75	2.00	
+ Other	0.00	0.00	0.00	0.00	0.00	0.00	0.00	
= Free Cash Flow Potential	2.26	3.88	3.79	1.01	4.10	6.16	7.03	
FCF Potential Yield (on market EV)	n/a	n/a	n/a	1.8 %	5.7 %	9.2 %	11.2 %	
WACC	7.24 %	7.24 %	7.24 %	7.24 %	7.24 %	7.24 %	7.24 %	
= Enterprise Value (EV)	n.a.	n.a.	n.a.	57.73	71.32	66.84	62.95	
= Fair Enterprise Value	31.19	53.53	52.29	13.99	56.61	85.11	97.17	
- Net Debt (Cash)	-12.69	-12.69	-12.69	-12.69	10.52	6.04	2.15	
- Pension Liabilities	0.00	0.00	0.00	0.00	0.00	0.00	0.00	
- Other	0.00	0.00	0.00	0.00	0.00	0.00	0.00	
- Market value of minorities	0.00	0.00	0.00	0.00	0.00	0.00	0.00	
+ Market value of investments	0.00	0.00	0.00	0.00	0.00	0.00	0.00	
= Fair Market Capitalisation	43.88	66.22	64.97	26.68	46.09	79.07	95.02	
Number of shares, average	3.00	3.00	3.00	4.00	4.00	4.00	4.00	
= Fair value per share (EUR)	14.63	22.07	21.66	6.67	11.52	19.77	23.75	
premium (-) / discount (+) in %					-24.2 %	30.1 %	56.3 %	
Sensitivity Fair value per Share (EUR)								
	10.24 %	8.68	12.63	12.41	5.65	7.38	13.53	16.64
	9.24 %	9.28	13.66	13.41	5.91	8.46	15.16	18.50
	8.24 %	10.02	14.93	14.66	6.25	9.80	17.19	20.81
WACC	7.24 %	10.97	16.55	16.24	6.67	11.52	19.77	23.75
	6.24 %	12.22	18.70	18.34	7.23	13.79	23.18	27.65
	5.24 %	13.95	21.66	21.23	8.00	16.92	27.89	33.03
	4.24 %	16.49	26.02	25.49	9.14	21.53	34.82	40.94

■ Historical volatility of the value indication is due to cyclical operative development, portfolio changes.

Valuation

	2014	2015	2016	2017	2018e	2019e	2020e
Price / Book	n.a.	n.a.	n.a.	2.3 x	2.0 x	1.9 x	1.8 x
Book value per share ex intangibles	2.98	3.79	4.50	7.42	6.86	7.16	7.46
EV / Sales	n.a.	n.a.	n.a.	3.4 x	1.5 x	1.2 x	1.1 x
EV / EBITDA	n.a.	n.a.	n.a.	21.7 x	11.2 x	7.7 x	6.2 x
EV / EBIT	n.a.	n.a.	n.a.	162.2 x	35.2 x	19.1 x	13.0 x
EV / EBIT adj.*	n.a.	n.a.	n.a.	29.0 x	35.2 x	19.1 x	13.0 x
P / FCF	n.a.	n.a.	n.a.	n.a.	n.a.	12.5 x	11.8 x
P / E	n.a.	n.a.	n.a.	413.6 x	49.4 x	26.8 x	18.2 x
P / E adj.*	n.a.	n.a.	n.a.	39.0 x	49.4 x	26.8 x	18.2 x
Dividend Yield	n.a.	n.a.	n.a.	0.7 %	1.0 %	1.2 %	1.3 %
FCF Potential Yield (on market EV)	n.a.	n.a.	n.a.	1.8 %	5.7 %	9.2 %	11.2 %

*Adjustments made for: Restructuring costs, value adjustments, one-off earnings/losses

Consolidated profit & loss

In EUR m	2014	2015	2016	2017	2018e	2019e	2020e
Sales	12.54	16.65	17.74	16.81	47.00	53.58	58.40
Change Sales yoy	n.a.	32.8 %	6.6 %	-5.3 %	179.6 %	14.0 %	9.0 %
Increase / decrease in inventory	0.01	0.14	0.14	0.26	0.27	0.15	0.15
Own work capitalised	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Total Sales	12.55	16.80	17.88	17.07	47.27	53.73	58.55
Material expenses	0.98	1.33	1.47	1.78	23.33	27.32	29.87
Gross profit	11.56	15.47	16.41	15.29	23.94	26.41	28.68
<i>Gross profit margin</i>	<i>92.2 %</i>	<i>92.9 %</i>	<i>92.5 %</i>	<i>90.9 %</i>	<i>50.9 %</i>	<i>49.3 %</i>	<i>49.1 %</i>
Personnel expenses	5.74	6.81	7.63	8.31	12.21	12.68	13.52
Other operating income	0.47	0.53	0.85	0.62	0.70	0.70	0.76
Other operating expenses	2.34	2.79	3.19	3.30	6.03	5.76	5.77
Unfrequent items	0.00	0.00	-0.24	-1.64	0.00	0.00	0.00
EBITDA	3.96	6.40	6.20	2.66	6.40	8.67	10.15
<i>Margin</i>	<i>31.6 %</i>	<i>38.4 %</i>	<i>35.0 %</i>	<i>15.9 %</i>	<i>13.6 %</i>	<i>16.2 %</i>	<i>17.4 %</i>
Depreciation of fixed assets	1.35	1.76	2.07	2.31	4.37	5.18	5.30
EBITA	2.61	4.64	4.14	0.36	2.03	3.49	4.85
Amortisation of intangible assets	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Goodwill amortisation	0.00	0.00	0.00	0.00	0.00	0.00	0.00
EBIT	2.61	4.64	4.14	0.36	2.03	3.49	4.85
<i>Margin</i>	<i>20.8 %</i>	<i>27.9 %</i>	<i>23.3 %</i>	<i>2.1 %</i>	<i>4.3 %</i>	<i>6.5 %</i>	<i>8.3 %</i>
EBIT adj.	2.61	4.64	4.38	1.99	2.03	3.49	4.85
Interest income	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Interest expenses	0.09	0.12	0.07	0.06	0.27	0.47	0.40
Other financial income (loss)	0.00	0.00	0.00	0.00	0.00	0.00	0.00
EBT	2.52	4.52	4.06	0.30	1.76	3.03	4.45
<i>Margin</i>	<i>20.1 %</i>	<i>27.1 %</i>	<i>22.9 %</i>	<i>1.8 %</i>	<i>3.7 %</i>	<i>5.7 %</i>	<i>7.6 %</i>
Total taxes	0.72	1.38	1.23	0.13	0.53	0.76	1.11
Net income from continuing operations	1.81	3.14	2.83	0.17	1.23	2.27	3.34
Income from discontinued operations (net of tax)	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Net income before minorities	1.81	3.14	2.83	0.17	1.23	2.27	3.34
Minority interest	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Net income	1.81	3.14	2.83	0.17	1.23	2.27	3.34
<i>Margin</i>	<i>14.4 %</i>	<i>18.9 %</i>	<i>16.0 %</i>	<i>1.0 %</i>	<i>2.6 %</i>	<i>4.2 %</i>	<i>5.7 %</i>
Number of shares, average	3.00	3.00	3.00	4.00	4.00	4.00	4.00
EPS	0.60	1.05	0.94	0.04	0.31	0.57	0.83
EPS adj.	0.60	1.05	1.02	0.45	0.31	0.57	0.83

*Adjustments made for: Restructuring costs, value adjustments, one-off earnings/losses

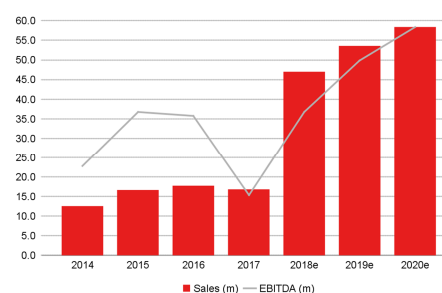
Guidance: FY 2018: EBITDA EUR 5.5-7.0m, sales: EUR 45-50m

Financial Ratios

	2014	2015	2016	2017	2018e	2019e	2020e
Total Operating Costs / Sales	26.5 %	24.8 %	26.2 %	30.2 %	62.5 %	61.7 %	61.0 %
Operating Leverage	n.a.	2.4 x	-1.6 x	17.3 x	2.6 x	5.2 x	4.3 x
EBITDA / Interest expenses	43.0 x	52.9 x	84.0 x	47.3 x	23.5 x	18.6 x	25.5 x
Tax rate (EBT)	28.4 %	30.4 %	30.4 %	43.3 %	30.0 %	25.0 %	25.0 %
Dividend Payout Ratio	0.0 %	0.0 %	0.0 %	305.5 %	48.8 %	31.7 %	24.0 %
Sales per Employee	n.a.	n.a.	113,744	n.a.	23,500,000	n.a.	n.a.

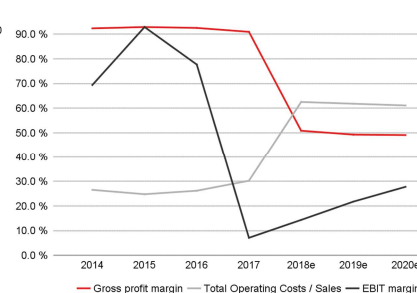
Sales, EBITDA

in EUR m

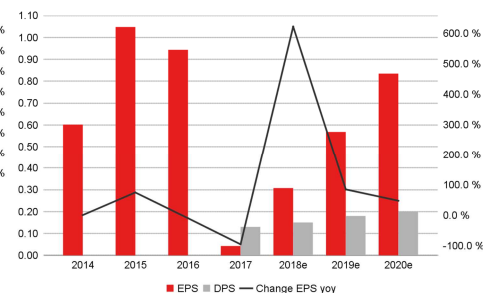


Operating Performance

in %



Performance per Share



Source: Warburg Research

Source: Warburg Research

Source: Warburg Research

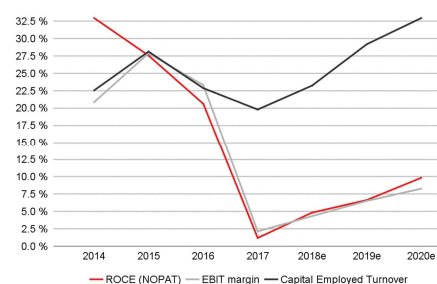
Consolidated balance sheet

In EUR m	2014	2015	2016	2017	2018e	2019e	2020e
Assets							
Goodwill and other intangible assets	0.23	0.34	0.39	0.38	3.31	2.81	4.23
thereof other intangible assets	0.23	0.34	0.39	0.38	0.24	0.05	1.74
thereof Goodwill	0.00	0.00	0.00	0.00	3.07	2.76	2.49
Property, plant and equipment	13.29	13.83	16.41	16.23	30.95	28.80	25.50
Financial assets	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Other long-term assets	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Fixed assets	13.52	14.17	16.81	16.61	34.26	31.61	29.73
Inventories	0.01	0.00	0.00	0.32	8.79	9.02	9.56
Accounts receivable	1.21	1.96	2.14	2.61	4.39	4.50	4.91
Liquid assets	1.09	2.98	2.10	15.72	4.15	6.49	8.64
Other short-term assets	0.10	0.27	0.37	0.66	0.86	0.94	0.99
Current assets	2.41	5.21	4.61	19.31	18.18	20.95	24.09
Total Assets	15.93	19.38	21.42	35.92	52.45	52.56	53.82
Liabilities and shareholders' equity							
Subscribed capital	3.00	3.00	3.00	4.00	4.00	4.00	4.00
Capital reserve	0.74	1.05	1.31	3.13	3.21	3.29	3.61
Retained earnings	4.51	6.36	7.96	19.02	19.54	20.03	21.94
Other equity components	0.93	1.31	1.63	3.91	4.02	4.12	4.51
Shareholders' equity	9.18	11.72	13.90	30.06	30.77	31.44	34.06
Minority interest	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Total equity	9.18	11.72	13.90	30.06	30.77	31.44	34.06
Provisions	2.68	2.60	2.66	2.10	2.33	3.34	3.34
thereof provisions for pensions and similar obligations	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Financial liabilities (total)	3.26	3.35	4.06	3.03	14.66	12.53	10.78
thereof short-term financial liabilities	0.75	0.74	0.95	0.78	1.71	1.87	1.98
Accounts payable	0.59	1.05	0.40	0.51	2.43	2.77	3.02
Other liabilities	0.23	0.62	0.38	0.21	2.26	2.47	2.62
Liabilities	6.75	7.62	7.49	5.86	21.68	21.11	19.76
Total liabilities and shareholders' equity	15.93	19.34	21.39	35.92	52.45	52.56	53.82

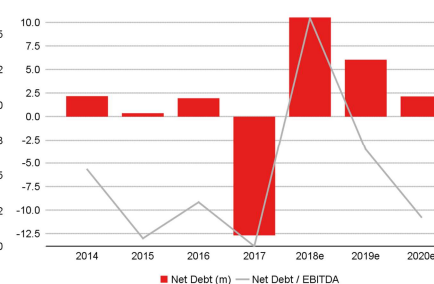
Financial Ratios

	2014	2015	2016	2017	2018e	2019e	2020e
Efficiency of Capital Employment							
Operating Assets Turnover	0.9 x	1.1 x	1.0 x	0.9 x	1.1 x	1.4 x	1.6 x
Capital Employed Turnover	1.1 x	1.4 x	1.1 x	1.0 x	1.1 x	1.4 x	1.6 x
ROA	13.4 %	22.2 %	16.8 %	1.0 %	3.6 %	7.2 %	11.2 %
Return on Capital							
ROCE (NOPAT)	32.9 %	27.5 %	20.6 %	1.2 %	4.8 %	6.7 %	9.9 %
ROE	39.3 %	30.1 %	22.1 %	0.8 %	4.0 %	7.3 %	10.2 %
Adj. ROE	39.3 %	30.1 %	24.0 %	8.2 %	4.0 %	7.3 %	10.2 %
Balance sheet quality							
Net Debt	2.18	0.37	1.95	-12.69	10.52	6.04	2.15
Net Financial Debt	2.18	0.37	1.95	-12.69	10.52	6.04	2.15
Net Gearing	23.7 %	3.2 %	14.1 %	-42.2 %	34.2 %	19.2 %	6.3 %
Net Fin. Debt / EBITDA	55.0 %	5.8 %	31.5 %	n.a.	164.5 %	69.7 %	21.2 %
Book Value / Share	3.1	3.9	4.6	7.5	7.7	7.9	8.5
Book value per share ex intangibles	3.0	3.8	4.5	7.4	6.9	7.2	7.5

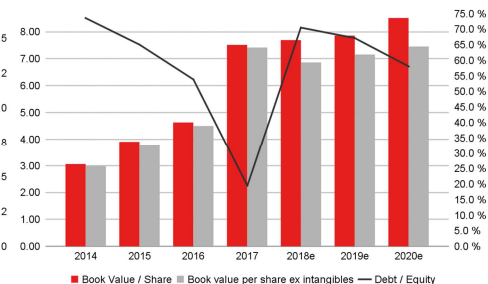
ROCE Development



Net debt in EUR m



Book Value per Share in EUR



Source: Warburg Research

Source: Warburg Research

Source: Warburg Research

Consolidated cash flow statement

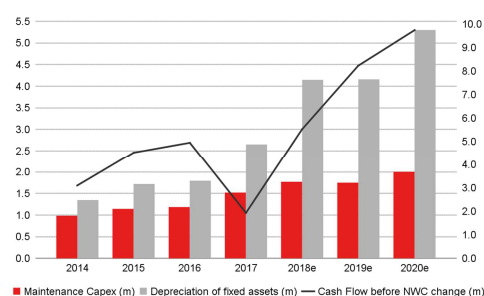
In EUR m	2014	2015	2016	2017	2018e	2019e	2020e
Net income	1.81	3.14	2.83	0.17	1.23	2.27	3.34
Depreciation of fixed assets	1.35	1.72	1.79	2.65	4.15	4.16	5.30
Amortisation of goodwill	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Amortisation of intangible assets	0.00	0.04	0.27	-0.34	0.22	1.02	0.00
Increase/decrease in long-term provisions	0.15	0.04	0.27	-0.34	0.22	1.02	0.00
Other non-cash income and expenses	-0.21	-0.42	-0.22	-0.20	-0.30	-0.25	1.10
Cash Flow before NWC change	3.09	4.51	4.95	1.94	5.52	8.21	9.74
Increase / decrease in inventory	0.00	0.00	0.00	0.00	-8.48	-0.22	-0.54
Increase / decrease in accounts receivable	0.51	-0.91	-0.28	-1.08	-1.97	-0.19	-0.46
Increase / decrease in accounts payable	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Increase / decrease in other working capital positions	0.02	0.73	-0.90	-0.09	9.97	0.55	0.40
Increase / decrease in working capital (total)	0.53	-0.17	-1.18	-1.16	-0.48	0.14	-0.60
Net cash provided by operating activities [1]	3.62	4.34	3.77	0.78	5.03	8.35	9.13
Investments in intangible assets	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Investments in property, plant and equipment	-3.94	-2.29	-4.74	-2.17	-8.85	-3.50	-4.00
Payments for acquisitions	0.00	0.00	0.00	0.00	-6.27	0.00	0.00
Financial investments	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Income from asset disposals	0.03	0.04	0.03	0.05	0.00	0.00	0.00
Net cash provided by investing activities [2]	-3.90	-2.25	-4.71	-2.13	-15.12	-3.50	-4.00
Change in financial liabilities	-0.37	0.24	0.71	-1.02	-0.94	-2.13	-1.75
Dividends paid	-0.10	-0.60	-0.65	-0.51	-0.52	-0.60	-0.72
Purchase of own shares	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Capital measures	0.00	0.00	0.00	16.50	0.00	0.00	0.00
Other	0.58	0.16	0.00	0.00	0.00	0.00	0.00
Net cash provided by financing activities [3]	0.10	-0.20	0.06	14.97	-1.46	-2.73	-2.47
Change in liquid funds [1]+[2]+[3]	-0.18	1.89	-0.88	13.62	-11.55	2.12	2.67
Effects of exchange-rate changes on cash	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Cash and cash equivalent at end of period	1.09	2.98	2.10	15.72	4.15	6.49	8.64

Financial Ratios

	2014	2015	2016	2017	2018e	2019e	2020e
Cash Flow							
FCF	-0.29	2.09	-0.93	-1.35	-10.09	4.85	5.13
Free Cash Flow / Sales	-2.5 %	12.3 %	-5.4 %	-8.3 %	-8.1 %	9.1 %	8.8 %
Free Cash Flow Potential	2.26	3.88	3.79	1.01	4.10	6.16	7.03
Free Cash Flow / Net Profit	-17.6 %	65.3 %	-34.1 %	-819.2 %	-310.3 %	213.5 %	153.8 %
Interest Received / Avg. Cash	0.4 %	0.0 %	0.1 %	0.0 %	0.0 %	0.0 %	0.0 %
Interest Paid / Avg. Debt	5.6 %	3.7 %	2.0 %	1.6 %	3.1 %	3.4 %	3.4 %
Management of Funds							
Investment ratio	31.4 %	13.7 %	26.7 %	12.9 %	18.8 %	6.5 %	6.8 %
Maint. Capex / Sales	7.8 %	6.9 %	6.7 %	9.0 %	3.8 %	3.3 %	3.4 %
Capex / Dep	292.2 %	130.2 %	229.2 %	94.1 %	202.6 %	67.6 %	75.5 %
Avg. Working Capital / Sales	2.5 %	4.6 %	7.5 %	12.4 %	14.0 %	20.1 %	19.0 %
Trade Debtors / Trade Creditors	206.1 %	187.1 %	538.6 %	508.9 %	180.4 %	162.4 %	162.4 %
Inventory Turnover	89.5 x	1330.0 x	1490.0 x	5.6 x	2.7 x	3.0 x	3.1 x
Receivables collection period (days)	35	43	44	57	34	31	31
Payables payment period (days)	218	287	99	105	38	37	37
Cash conversion cycle (Days)	-178	-244	-54	16	134	114	111

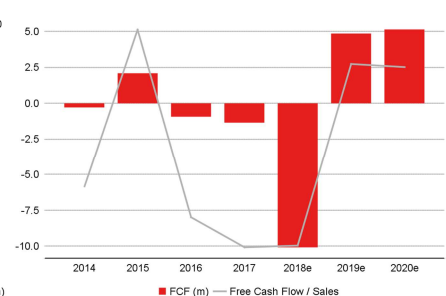
CAPEX and Cash Flow

in EUR m



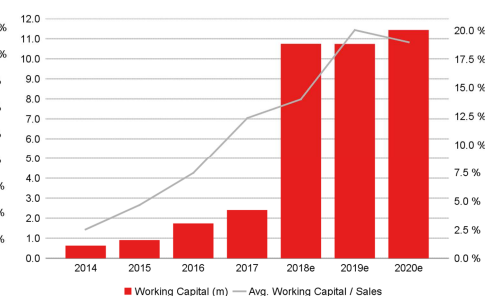
Source: Warburg Research

Free Cash Flow Generation



Source: Warburg Research

Working Capital



Source: Warburg Research

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IBU-tec	5	http://www.mmwarburg.com/disclaimer/disclaimer_en/DE000A0XYHT5.htm

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-B-	Buy:	The price of the analysed financial instrument is expected to rise over the next 12 months.
-H-	Hold:	The price of the analysed financial instrument is expected to remain mostly flat over the next 12 months.
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“-“	Rating suspended:	The available information currently does not permit an evaluation of the company.

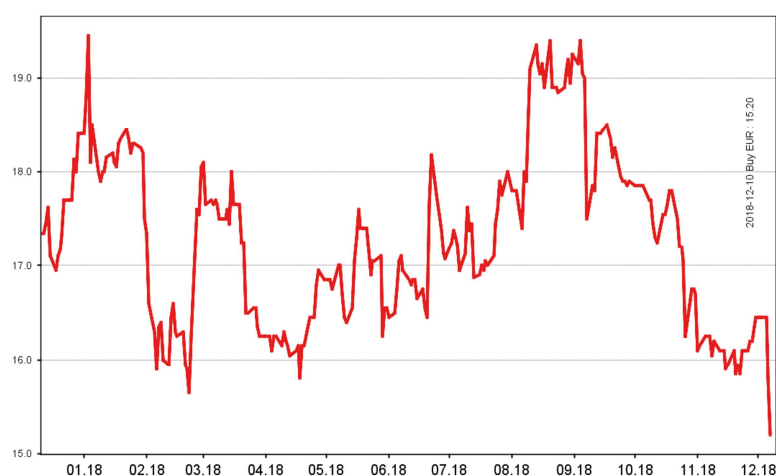
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Rating	Number of stocks	% of Universe
Buy	131	64
Hold	65	32
Sell	3	1
Rating suspended	7	3
Total	206	100

WARBURG RESEARCH GMBH – ANALYSED RESEARCH UNIVERSE BY RATING ...

... taking into account only those companies which were provided with major investment services in the last twelve months.

Rating	Number of stocks	% of Universe
Buy	33	72
Hold	11	24
Sell	0	0
Rating suspended	2	4
Total	46	100

PRICE AND RATING HISTORY IBU-TEC AS OF 10.12.2018


Markings in the chart show rating changes by Warburg Research GmbH in the last 12 months. Every marking details the date and closing price on the day of the rating change.

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