

Buy EUR 35.00 Price EUR 22.10 Upside 58.4 %	Value Indicators: EUR DCF: 35.00 FCF-Value Potential 21-23: 37.19 SotP 21-23: 39.92	Warburg ESG Risk Score: 2.4 ESG Score (MSCI based): 3.0 Balance Sheet Score: 3.3 Market Liquidity Score: 1.0	Description: AlzChem is an integrated specialty chemicals provider
	Market Snapshot: EUR m Market cap: 224.0 No. of shares (m): 10.1 EV: 248.1 Freefloat MC: 97.0 Ø Trad. Vol. (30d): 59.29 th	Shareholders: Freefloat 43.3 % LIVIA Corporate Development 23.6 % for two na GmbH 15.1 % HDI Vier CE GmbH 12.0 %	Key Figures (WRe): 2021e Beta: 1.5 Price / Book: 2.7 x Equity Ratio: 23 % Net Fin. Debt / EBITDA: 0.4 x Net Debt / EBITDA: 2.5 x

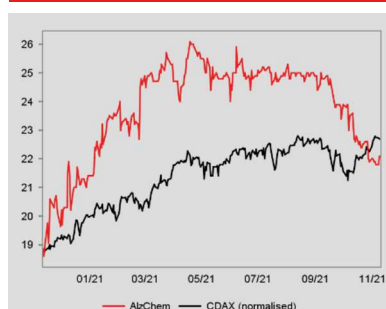
Benefitting from strong demand and past capacity expansions; Initiation with Buy

AlzChem is a specialty chemicals provider of calcium carbide / calcium cyanide-based chemicals (NCN value chain) with most of its production base located in Germany. However, 66% of its sales are generated outside Germany. The company's three segments vary greatly in size and profitability. Its largest and most profitable segment by far, Specialty Chemicals, provides a wide range of products, including nutritional and feed additives, plant growth regulators, and hardening solutions for composite materials used in lightweight vehicles and wind turbines. The smaller Basics & Intermediates segment provides a backward integration of the NCN value chain to lime, coke and electricity. Besides providing chemical building blocks to both internal and external customers, its setup enables an unrivalled fully integrated production setup for the NCN value chain that comes with significant cost savings as well as economies of scale. The Other & Holding segment is mostly a service provider and chempark operator with a highly limited impact on sales and earnings progression.

Following impressive volume growth of 9.8% that filled up capacities to the brim, AlzChem seems well prepared to achieve the upper end of its FY 2021 guidance range for sales (up to EUR 415m) and EBITDA (up to EUR 64m). Past capacity expansions that burdened FCF generation up to FY 2019 are now enabling the company to meet the strong demand. High capacity utilization and efficiency measures more than offset increasing costs for raw materials and electricity. In addition, the company experienced a time lag when passing on higher production costs to customers, thus the benefit from higher product prices should be seen only from H2 2021 onwards.

As key product groups cater to megatrends like population growth, an aging population especially in the industrialized countries, sustainable energy production, and CO₂ emission reduction, we expect the positive demand trend to continue well beyond FY 2021. This is planned to be accompanied by some selective capacity expansions and the introduction of new innovative products. Significant growth, which is set to outpace GDP, will be generated primarily in the Specialty Chemicals segment and should lead to favourable FCF generation, bringing down the company's net debt and increasing the equity ratio tangibly. Furthermore, AlzChem should continue to shell out an attractive dividend with a pay-out ratio of 30% to 50% of net earnings.

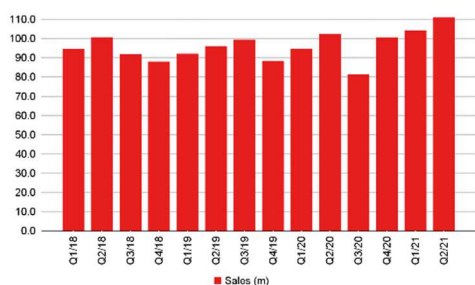
Using a DCF and a free cashflow potential calculation to assess the fair value of the company, its current valuation strikes us as highly undemanding and not an adequate reflection of the company's favourable prospects for profitable growth in the short, mid and long term. This assessment is verified with the help of a sum-of-the-parts calculation, which shows similar upside to today's share price. As a consequence, we initiate coverage of AlzChem with a Buy rating and a PT of EUR 35.



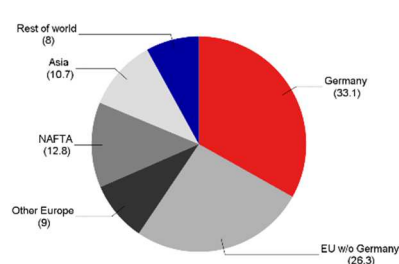
Rel. Performance vs CDAX:	
1 month:	-11.2 %
6 months:	-16.3 %
Year to date:	-10.3 %
Trailing 12 months:	1.5 %

Company events:	
11.11.21	Q3

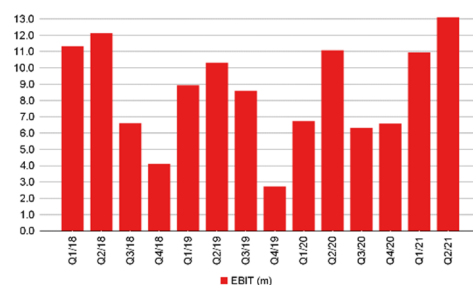
FY End: 31.12. in EUR m	CAGR (20-23e)	2017	2018	2019	2020	2021e	2022e	2023e
Sales	6.7 %	353.9	375.2	376.1	379.3	416.3	441.1	460.9
Change Sales yoy		8.2 %	6.0 %	0.2 %	0.8 %	9.8 %	5.9 %	4.5 %
Gross profit margin		61.5 %	60.0 %	60.8 %	64.4 %	65.2 %	66.0 %	65.8 %
EBITDA	9.8 %	44.0	49.4	50.1	53.8	62.8	69.0	71.2
Margin		12.4 %	13.2 %	13.3 %	14.2 %	15.1 %	15.6 %	15.4 %
EBIT	14.1 %	30.0	34.2	30.6	30.7	38.6	44.2	45.6
Margin		8.5 %	9.1 %	8.1 %	8.1 %	9.3 %	10.0 %	9.9 %
Net income	15.2 %	19.0	22.7	18.0	19.7	24.7	28.8	30.1
EPS	15.3 %	1.87	2.23	1.77	1.94	2.44	2.84	2.97
EPS adj.	15.3 %	1.87	2.23	1.77	1.94	2.44	2.84	2.97
DPS	15.5 %	0.00	0.90	0.75	0.77	0.99	1.14	1.19
Dividend Yield		n.a.	3.2 %	3.5 %	3.9 %	4.5 %	5.1 %	5.4 %
FCFPS		0.57	-0.51	0.23	1.95	2.52	2.35	2.36
FCF / Market cap		0.5 %	-1.8 %	1.1 %	9.9 %	11.4 %	10.6 %	10.7 %
EV / Sales		3.6 x	1.2 x	1.1 x	1.0 x	0.9 x	0.8 x	0.8 x
EV / EBITDA		29.3 x	9.0 x	8.1 x	7.2 x	6.1 x	5.4 x	5.1 x
EV / EBIT		42.9 x	13.0 x	13.2 x	12.6 x	9.9 x	8.5 x	8.0 x
P / E		60.7 x	12.8 x	12.0 x	10.2 x	9.1 x	7.8 x	7.4 x
P / E adj.		60.7 x	12.8 x	12.0 x	10.2 x	9.1 x	7.8 x	7.4 x
FCF Potential Yield		1.8 %	5.9 %	6.4 %	7.9 %	9.4 %	10.8 %	11.5 %
Net Debt		135.8	155.0	188.3	185.4	159.7	150.0	140.7
ROCE (NOPAT)		11.1 %	11.7 %	9.2 %	8.9 %	11.0 %	12.6 %	12.5 %
Guidance:		FY 2021: EBITDA strongly rising to up to EUR 64m						

Sales development
in EUR m


Source: Warburg Research

Sales by regions
2020; in %


Source: Warburg Research

EBIT development
in EUR m


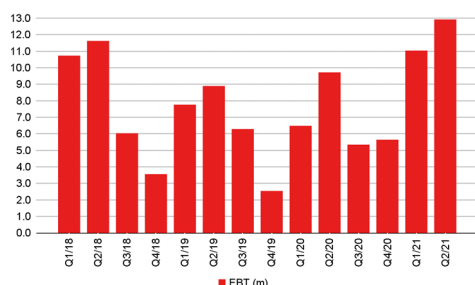
Source: Warburg Research

Company Background

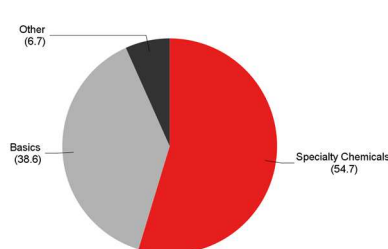
- AlzChem goes back to the Bayerische Stickstoff-Werke GmbH (1908), which built a large calcium carbide and calcium cyanamide plant on the river Alz
- In 1939, Bayerische Kraftwerk AG and Donauwerke AG merged to form Süddeutsche Kalkstickstoffe AG, based in Trostberg. In 1978 company's name was changed to SKW Trostberg AG
- Merger of Degussa Hüls AG with Trostberg AG to form Degussa AG in 2000. Merger of the Alz locations Trostberg, Schalchen, Hart and Waldkraiburg into AlzChem Holding GmbH in 2006
- Conversion to AlzChem AG 2011, takeover by bluO in 2013. In 2019 the company heavily invested in the area of feed additives with the construction of a dedicated CreAMINO® production facility
- AlzChem is brought into the listed AlzChem Group AG (formerly Softmatic AG). AlzChem Group AG is the new parent company of the AlzChem Group. 2019 Commissioning of investment projects Creamino® and Nitrile

Competitive Quality

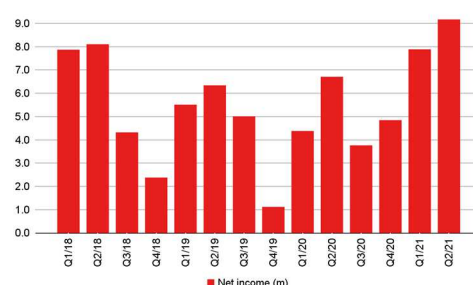
- AlzChem is a globally active, vertically integrated manufacturer of various chemical products of the calcium carbide/calcium cyanamide chain with a strategic focus on growth in the Specialty Chemicals business segment
- AlzChem's integrated manufacturing "Verbund" system enables efficiency gains in production. The company is the global leader or among the leading companies in its chosen fields of activity
- The company has four production facilities in Germany and one in Sweden that are complemented by two marketing companies in the US and in China allowing for global distribution of its products
- The company is benefiting from megatrends like sustainable energy production, population growth and increase in aging population. Its products offer attractive solutions that meet demand growth.
- AlzChem provides a highly diversified product portfolio ranging e.g. from dietary supplements, plant growth regulators to precursors for corona testing, thus addressing a wide range of customer industries

EBT development
in EUR m


Source: Warburg Research

Sales by segments
2020; in %


Source: Warburg Research

Net income development
in EUR m


Source: Warburg Research

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Summary of Investment Case

Investment triggers

- Strong FCF generation following a period of high investment
- High demand should unlock additional pricing power in H2 2021 and at least H1 2022
- Attractive dividend yield of 4.5% (2021e)

Valuation

- Company trades on attractive multiples such as EV/EBITDA (2021e: 6.5x) and P/E (2021e: 9.0x). Sizeable discounts of the current share price to peers (SotP: EUR 39.92 per share) as well as to a fair value calculation by DCF (EUR 35.00)
- Positive growth prospects not yet reflected in the current share price

Growth

- Tailwind from megatrends is boosting demand
- Past capacity expansions as well as the launch of new products should enable attractive volume growth in the 2021-2023 periods
- We expect the company to be able to expand its sales organically at a rate that is ahead of GDP growth








Competitive quality

- Global No 1-3 in selective niche markets
- High regulatory hurdles as well as the introduction of brands in its key products erect high barriers to entry in the respective markets
- The highest backward integration in the NCN chemical industry by far enables a Verbund structure that provides significant cost savings for the company

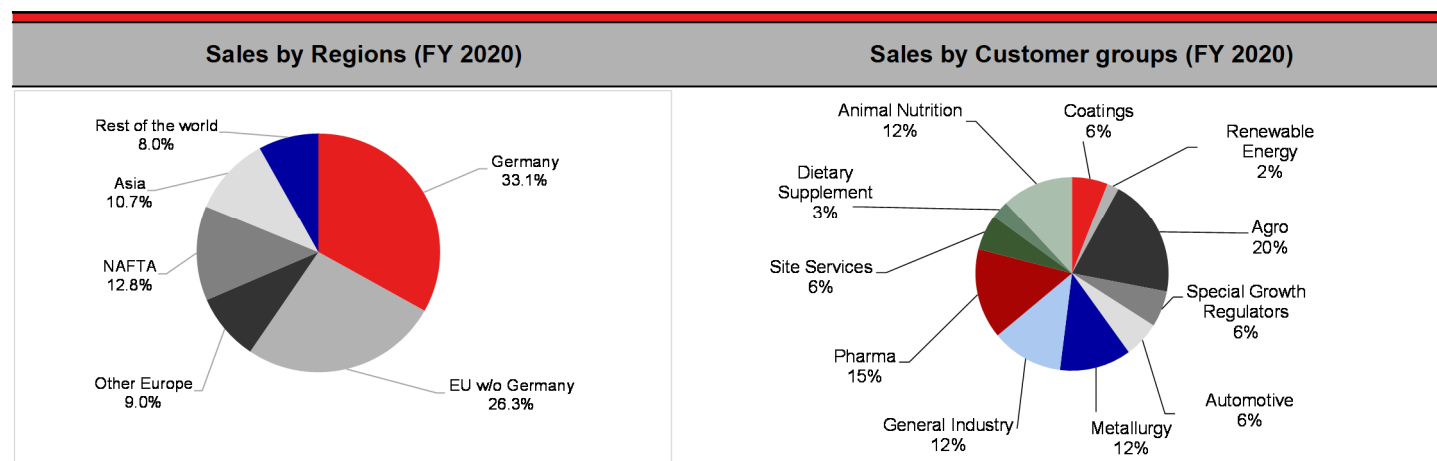
Company Overview



Segments (FY 2020)	Basics & Intermediates	Specialty Chemicals	Other & Holding	Group
Sales in EUR m	146.4	207.4	25.4	379.3
<i>in % of total</i>	39%	55%	6%	100%
EBITDA in EUR m	9	44.1	0.7	53.8
<i>EBITDA Margin</i>	6.1%	21.3%	1.3%	14.2%

Segments	Basics & Intermediates	Specialty Chemicals
Product examples with Global Market Position	 CaD[®] No.1  Guanidine Salts No. 1  NITRALZ[®] Top 3	 CREAMINO No. 1  Creapure[®] Top 3  Dormex[®] No. 1  Bioselect[®] No. 1
Applications	Nutrition	Renewable energy Agriculture Fine chemistry Metallurgy

Customers	        
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Source: AlzChem, Warburg Research

Competitive Quality

- Growth potential due to megatrends
- Leading position in a number of niche markets
- High barriers to entry

Tailwind from markets set to continue

Benefitting from megatrends

AlzChem is aiming to benefit from megatrends such as

- Population growth
- Aging population
- Energy efficiency
- Sustainability

As a result, AlzChem focusses mainly on unlocking the growth potential of new and existing products in its portfolio that cater to these megatrends.

Population growth

The UN predicts population growth well into 2035, however arable land is limited. For this reason, efficient processes and cultivation methods are required to ensure adequate food supply. AlzChem provides products that can be used for optimized yield-oriented agricultural production.

Products: Dormex® (plant growth regulator used in fruit production), CreAMINO® (nutrient additive for poultry and pigs), Perlka (for healthy soils and plants)

AlzChem is the global No. 1 creatine supplier with its CreAMINO® brand. The product was developed over several years and has country-specific approvals throughout the world. CreAMINO® is used as a feed additive for animals that, once absorbed into the animal's body, is employed for the synthesis of creatine. Creatine is an essential component for energy transfer and supply in the body. Thus, CreAMINO® provides additional energy for animal growth. Thus, feed uptake is used more effectively by the animal, reducing costs and enhancing productivity. It also reduces the ecological footprint of animal production in terms of feed volumes required per unit.

Dormex® is a plant growth regulator used in fruit production. AlzChem is global number 1 in the market. This plant growth regulators (PGR) is used to break bud dormancy as well as stimulating more uniform and earlier bud break. Dormex® is typically used in regions with rather mild winters where the climate is not cold enough to break crop buds. Dormex® enhances crop yield via an acceleration of time to harvest. It also increases fruit yield by decreasing the rate of over cropping and poor leafing. Its main areas of application are grapes, apples, peaches and nectarines, kiwis, cherries and berries. Dormex® is listed as a PGR in 30 countries worldwide, especially including the main fruit producing countries

Perlka® is a special calcium cyanamide multi-effect fertilizer. It can reverse or prevent yield and quality losses caused by tightly timed crop rotations. The unique NCN binding form of the nitrogen in the fertilizer contributes to a long-term nitrogen supply, in line with plant demand. It's the calcium cyanamide seal that increases the biological activity of the soil. The fertilizer's calcium content is bio-available to plants due to its water solubility. It also improves the lime balance of the soil, whereas most nitrogen fertilizers tend to acidify the soil. After distribution, the substance decomposes into fertilized lime and plant-available nitrogen.

Renewable energies and higher energy efficiency are indispensable for the future of our planet. AlzChem's product portfolio gives it a good basis to participate in hydrogen-powered vehicles, lightweight construction and in wind energy. AlzChem is also developing sustainable products with a negative carbon footprint.

DYHARD® is AlzChem's brand for high-performance cross-linkers for hot-curing epoxy applications based on dicyandiamide curing agents, uron and imidazole accelerators, master batches and latent liquid cross-linkers. DYHARD® products are used in adhesives, in powder coating, in board connectors and most importantly, in the composite materials industry. Hardeners, accelerators and modifiers of the DYHARD® product range play an important role in the manufacturing of highly demanding end products. DYHARD® cross-linkers are widely used in the automotive and aviation industry to reduce weight in comparison with the use of traditional materials as well as for the manufacture of the blades of wind turbines. They can also be used in the electronics industry and for the production of sports equipment.

Silzot HQ® is an α -silicon nitride powder which used for the production of high-performance technical ceramics as well as for high-strength special steel grades. It has been produced in Trostberg since 1992. The product has been optimized since to provide ceramic manufacturers with good workability regarding their manufacturing process and to enable specific product characteristics. Silzot HQ® is suited for the sintering of complex parts for high-end applications as well as for various technical and advanced ceramics. It is used in the production of wear and corrosion-resistant structural parts for the chemical industry, heavy duty ball/roller bearings, cutting tools, high-endurance materials for the automotive and aerospace industries and other applications.

Silzot SQ® is an ultrapure silicon nitride powder for application in the solar industry. It is obtained from the direct chemical reaction of silicon metal (polysilicon) and ultrapure nitrogen. As a result, it can be used as a release agent for the casting of multicrystalline PV silicon ingots.

Sustainability

Besides enabling the production of resource conserving applications, like windmills and PV panels, AlzChem recently launched its first product that predominantly targets the reduction of greenhouse gases at the customer's site.

Eminex® suppresses methane and CO₂ emissions during manure slurry storage and hence improves the environmental footprint of animal production. The product was launched in September 2021. More than 50% of German methane emissions originate from liquid manure and biogas digestates. Eminex® can reliably suppress 90-100% methane and CO₂ emissions during long-term storage, which makes slurry storage environmentally friendly for the first time. In addition, Eminex® increases slurry quality by reducing space requirements for liquid manure and improving flow, resulting in time and cost savings during agitation. Last but not least, Eminex eliminates highly toxic sulphide vapours.

High barriers to entry

Cost advantages of an integrated production setup (Verbund)

AlzChem is a strongly vertically-integrated producer of specialty chemicals from the NCN value chain. Its competitors focus on different sectors of the NCN chain, while AlzChem can avail of opportunities in all parts of the value chain. The Verbund system provides cost synergies, economies of scale as well as flexibility in production. Its diversified production base and multitude of products makes the company less dependent on a specific product group or customer sector. It also allows for improved leverage of R&D costs as all products are related to the NCN value chain. As it is backward-integrated into the carbide production, the company is not dependent on suppliers of intermediates.

Regulatory barriers

Some of the sectors AlzChem is active in are highly regulated. This applies especially to the market for biocidal and plant protection products, the market for dietary supplements and animal feed additives and dual-use products as well as the pharma and the cosmetics sector. AlzChem has the required certifications and registrations in place, allowing it to sell its products on the respective markets. These certifications, permits and authorisations by public or private authorities are time consuming and sometimes difficult to receive and place a regulatory moat around AlzChem's business model.

Know-how, IP and brands put up additional barriers

High product quality, reliability process know-how and intellectual property rights as a result of investments in R&D are protecting AlzChem's business model. Its well-established brands represent another hurdle for new entrants in niche markets that tend to be highly consolidated. This is especially true when it comes to the highly attractive products of the company's Specialty Chemicals segment.

Analysis of Return on Capital

- Profits to rise based on gross-margin expansion
- Attractive FCF generation based on moderate capex spent and supported by the OCF level
- FCF level allows for net-debt reduction, equity ratio to rise materially
- ROCE to improve as a result of higher earnings

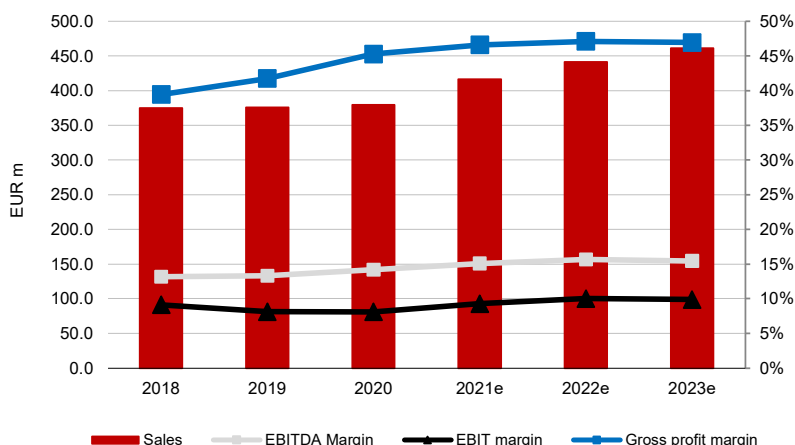
Favourable FCF generation to continue

Bolstering the balance sheet

Earnings set to improve from 2021 onwards

We expect AlzChem to expand EBITDA and sales on the back of an increasing market penetration namely for its Creamino® and Creapure® products but also due to higher product availability (Nitralz®) as a consequence of capacity expansions.

Profitable growth to shape FY 2021-2023



Source: AlzChem, Warburg Research

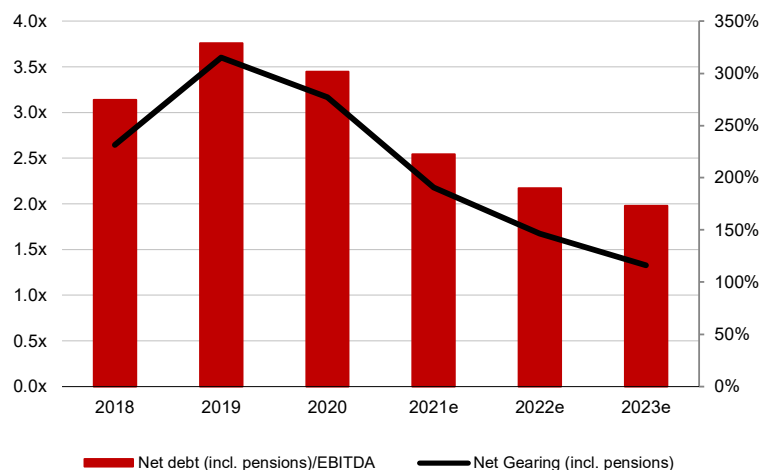
Net debt to decline on positive FCF generation

Employing a dividend pay-out ratio of approx. 40% of EPS in line with the company's dividend policy (DPS = 30% - 50% of EPS) and an annual capex of EUR 30m, FCF generation should allow for a gradual reduction in net financial debt. The most important swing factor in the company's net debt however are the provisions for pensions.

Pension provisions to benefit from rising interest rates

Pension provisions amounted to a staggering EUR 141.8m in FY 2020, clearly dwarfing net financial debt of EUR 43.6m in the same period. However, given the slow rise in interest rates in FY 2021, it stands to reason that pension provisions are bound to be tangibly lower by the end of FY 2021e as for every 0.1% increase in the discount rate (which was at 0.5% in FY 2020), pension provisions are set to be reduced by ca. EUR 3m. As a result, we expect net debt to decline from FY 2021 onwards.

Profitable growth to shape FY 2021-2023

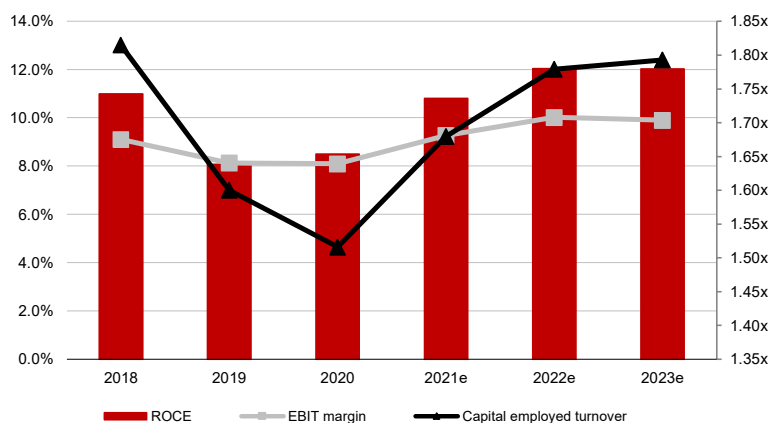


Source: AlzChem, Warburg Research

ROCE restrained during ramp-up of production capacity

Given that AlzChem cannot rely on debottlenecking of existing production facilities alone to provide enough additional production capacity to allow for significant growth, capacity expansions tend to be lumpy, especially if those expansions are earmarked to supply future growth markets. To put that into perspective, the last major capacity increase for CreAMINO® in 2019 added 200% of new capacity in one go. Obviously, those additional capacities are not fully utilized from day one, thus reducing ROCE at the beginning of their lifetime before higher sales and earnings start to kick in. As AlzChem's capex has been consistently ahead of depreciation levels since 2018, money tied up in fixed assets has increased, depressing ROCE. Given that AlzChem started to thrive significantly on volume expansions in FY 2021, we expect ROCE to stabilize in the 2021e – 2023e periods.

ROCE improving on higher volumes sold



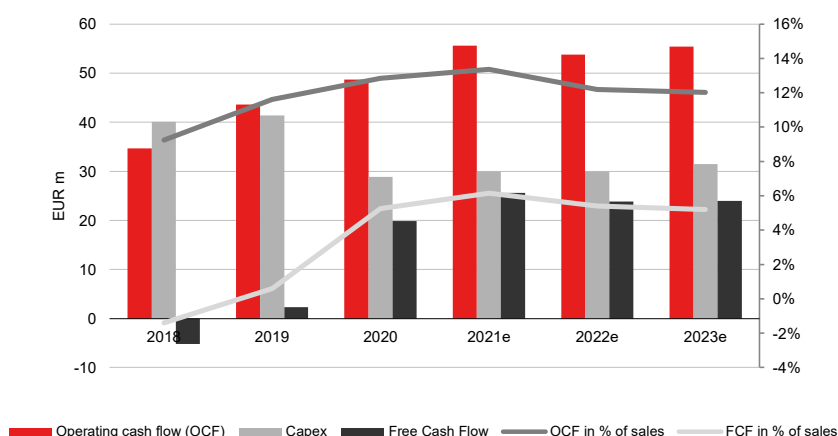
Source: AlzChem, Warburg Research

FCF generation to benefit from lower capex

Both FY 2018 and FY 2019 carried the burden of capex that was at more than EUR 40m each year, thus double the level of depreciation & amortisation of those periods. This was mostly due to the tripling in CreAMINO® production capacities which were concluded in FY 2019. The capacity expansions proved their worth especially in FY 2021 as demand picked up strongly. Currently, AlzChem is investing in additional production

capacities for CREAPURE® (about EUR 11m), with a start-up of the new facilities earmarked for mid-2022. As we expect capex to remain at a level of ca. EUR 30 – 31.5m in the FY 2021 – 2023 periods, FCF expansion ensues. Additionally, OCF is expected to remain at an attractive level on average, hence assisting in attractive FCF generation.

Strong FCF generation driven by moderate capex, attractive OCF



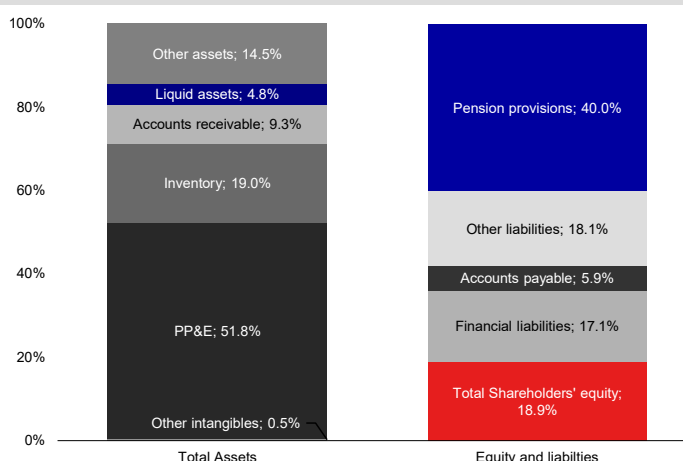
Source: AlzChem, Warburg Research

Equity ratio to increase by more than 60% in the 2020–2023 time frame

The equity ratio is expected to increase materially from 18.9% in FY 2020 to 30.4% in FY 2023e as a consequence of lower net debt. In contrast, distribution of the assets should change only slightly. Total assets are expected to increase by 9.4% to EUR 387.47m

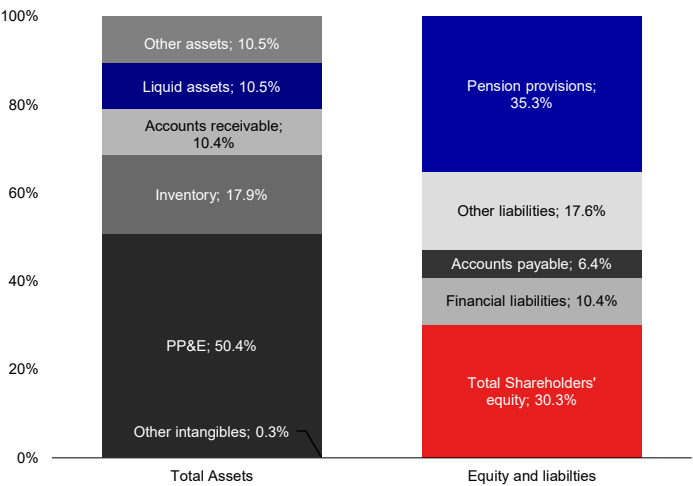
Balance sheet FY 2020 versus FY 2023e: net debt reduced, equity increased

In FY20, the total assets were dominated by property plant & equipment while total liabilities were dominated by debt (financial liabilities, pension provisions)



Source: AlzChem, Warburg Research

By FY 2023e, only minor changes are expected in the total asset composition but a huge increase is expected in shareholders' equity



Source: AlzChem, Warburg Research

Growth / Financials

- Favourable demand to boost earnings
- Rising raw material and energy prices should be successfully passed on to customers with a time lag
- Volatile development expected, especially within FY 2022
- Dividend payments to rise significantly

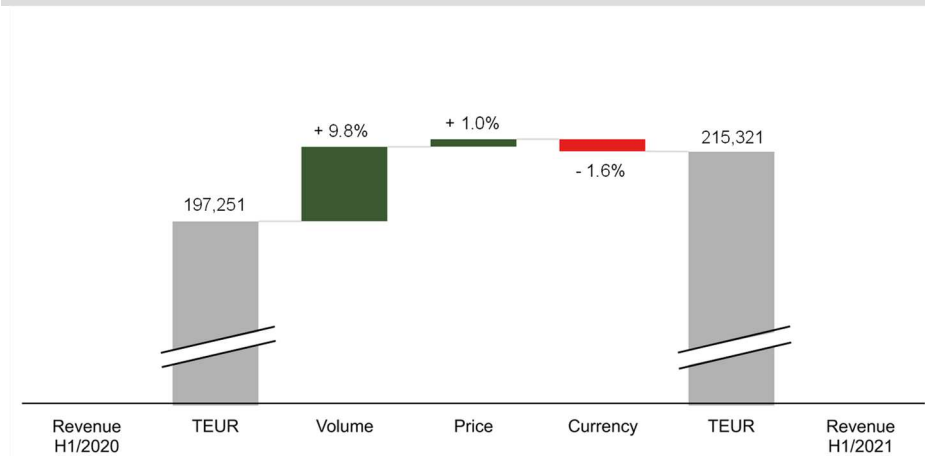
H1 2021: Significant volume growth on the back of strong demand

Favourable development in H1 2021

H1 2021 driven by volume growth

Group sales increased by 9.2% to EUR 215.32m as a consequence of higher volumes (+9.8% yoy) and slightly higher selling prices (+1.0%) while adverse FX had a slightly negative effect (-1.6%). EBITDA increased by 22.6% to EUR 35.72m. Net profit of the shareholder increased by 53.9% to EUR 17.06m as a consequence of a financial result (that?) improved by EUR 1.52m and a lower tax rate (down from 30.6% to 28.7%).

H1 sales growth mainly driven by volume improvements



Source: AlzChem, Warburg Research

Q1 2021: massive volume expansion on favourable demand

Group sales increased by 10.1% to EUR 104.32m as a consequence of significantly higher volumes (+12.9% yoy) but slightly lower selling prices (-0.4%) and adverse FX effects (-2.4%). EBITDA increased by 35.8% to EUR 16.72m. Net profit of the shareholder increased by +80.1% to EUR 7.89m as a consequence of an improvement in the financial result by EUR 0.34m and a lower tax rate (down from 31.8% to 28.2%).

Sales of the **Specialty Chemicals segment** thrived on sequentially increasing capacity utilization and were 8.8% higher yoy at EUR 56.78m. As a result, some plants reached full capacity utilisation in Q1. In line with plans, the Creamino® market presence was strengthened. In addition, the strategic realignment of AlzChem's market presence in the area of dietary supplements continued, resulting in growth in Creapure® sales. In addition to Creapure®, marketing continued for the products LIVADUR® and Encour!™, which are intended for end-customers.. Silzot HQ®, initiated a turnaround as AlzChem was able to become successfully established in attractive niches like lightweight construction. Sales of the pharmaceutical and agricultural specialty products Bioselect® and Dormex® were at a stable high level. However, as upcoming changes to COVID-19 test procedures are likely to leave their mark on Bioselect® demand, Alzchem started to establish the product for further applications. Sustainable process cost

optimization supported the EBITDA margin development. In contrast, increases in raw material costs and an unfavourable EUR/USD exchange rate had a negative impact on EBITDA. However, this was more than offset by the favourable operative development. EBITDA increased by 37.3% yoy to EUR 13.95m.

In Q1 2021, the **Basics & Intermediates segment** achieved +14.0% yoy sales growth to EUR 41.07m. Demand for products increased, ranging from solutions for hot metal desulfurization and acetylene production, through Perlka® and dicyandiamide for farmers and as an essential raw material in the pharmaceutical industry, to the NITRALZ® product range. Process cost optimization was implemented successfully in the last six months, positively influencing EBITDA, which expanded by 46.7% yoy to EUR 2.79m. Raw material and electricity markets proved to be highly volatile, hence AlzChem continued to secure future needs while cost increases were passed on to customers.

Q1 2021 sales of the **Other & Holding segment** were mostly flat at EUR 6.48m (-0.8% yoy). Customers of AlzChem's chemical parks purchased services at a similar level to the previous year. The segment's EBITDA (+37.2% yoy to EUR 0.44m) reflected price increases based on planned cost increases as well as the effects of cost discipline measures.

Q3 2021 results expected to reflect lower Bioselect® demand

Q3 sales are expected to have continued to benefit from favourable demand in a wide range of products, given the relatively low basis comparison base of Q3 2020. What is more, selling price increases should be more pronounced towards the end of the year to compensate for higher raw material and electricity costs (price increases in H1 2021 were a meagre 1.0%). Creamino® and Creapure® sales in the **Specialty Chemicals** segment should have thrived, given that price increases in protein feed (e.g. soy beans and soy meal) is bound to have breeders aiming for high efficiency when it comes to feed use. Bioselect® however should have experienced a decline in demand given the rate of vaccination and changes to requirements regarding COVID-19 PCR tests. Thus, we are looking for a yoy-increase in Q3 sales of the Specialty Chemicals segment to EUR 48.58m (+13.0%) and a 13.2% hike in the segment's EBITDA to EUR 10.66m. Sales in the **Basic & Intermediates** segment are expected to have increased by 33.0% to EUR 42.99m due to continued high demand for most products. EBITDA, however, should reflect ongoing cost increases in raw materials and electricity, that are passed on to customers with a time lag, by 28.6% to EUR 2.58m. In contrast, we expect only minor yoy-changes in the **Other & Holding** segment as the value of services purchased by customers of AlzChem's chemical parks is likely to be slightly higher than the previous year. Thus, we are looking for an increase in the segment's quarterly sales to EUR 6.42m, up 6% yoy but almost flat sequentially. EBITDA, however, should have increased to EUR 0.45m, up 24.5% yoy based on planned cost increases as well as the effects of cost discipline measures.

The **group's** sales are expected to have increased to EUR 97.99m (+20.4% yoy), EBITDA should have reached EUR 13.57m (+13.3%). Net profit of the shareholder should have increased by +38.2% to EUR 5.20m as a consequence of a financial result (that?) improved by EUR 0.77m and a slightly higher tax rate (up from 28.8% to 30.0%).

FY 2021e - 2023e periods to record profitable growth

FY 2021-23 to thrive on favourable demand

	FY 2018	FY 2019		FY 2020		FY 2021		FY 2022		FY 2023	
in EUR m											
Sales	375.217	376.073	0.2%	379.257	0.8%	416.310	9.8%	441.070	5.9%	460.883	4.5%
thereof:											
Specialty Chemicals	209.414	200.022	-4.5%	207.431	3.7%	220.704	6.4%	236.713	7.3%	250.916	6.0%
Basics & Intermediates	138.966	149.408	7.5%	146.434	-2.0%	169.866	16.0%	178.360	5.0%	183.710	3.0%
Other & Holding	25.825	26.643	3.2%	25.392	-4.7%	25.739	1.4%	25.997	1.0%	26.257	1.0%
Change in inventories of finished & unfinished products	5.461	-4.862		-2.514		-1.500		0.000		0.000	
Other operating income	13.436	17.147	27.6%	10.671	-37.8%	11.749	10.1%	12.493	6.3%	13.054	4.5%
Cost of materials	-137.87	-142.391	3.3%	-132.507	-6.9%	-143.385	8.2%	-150.169	4.7%	-157.838	5.1%
Personnel expenses	-109.248	-122.088	11.8%	-127.409	4.4%	-142.283	11.7%	-151.290	6.3%	-158.086	4.5%
Other operating expenses	-75.121	-73.8	-1.8%	-73.693	-0.1%	-78.139	6.0%	-83.086	6.3%	-86.818	4.5%
EBITDA	49.379	50.078	1.4%	53.805	7.4%	62.753	16.6%	69.018	10.0%	71.196	3.2%
Margin		13.3%		14.2%		15.1%		15.6%		15.4%	
Specialty Chemicals	50.692	41.684	-17.8%	44.125	5.9%	49.689	12.6%	56.206	13.1%	59.523	5.9%
Basics & Intermediates	-0.889	5.247	-690.2%	8.981	71.2%	11.734	30.7%	11.593	-1.2%	10.304	-11.1%
Other & Holding	0.192	4.506	2246.9%	0.989	-78.1%	1.286	30.0%	1.820	41.5%	1.838	1.0%
Consolidation	-0.616	-1.359	120.6%	-0.290	-78.7%	0.242	-183.4%	-0.200	-182.6%	-0.200	0.0%
Depreciation and amortization	-15.187	-19.492	28.3%	-23.097	18.5%	-24.169	4.6%	-24.823	2.7%	-25.572	3.0%
EBIT	34.192	30.586	-10.5%	30.708	0.4%	38.583	25.6%	44.195	14.5%	45.623	3.2%
Other interest and similar income	0	-2.477	#DIV/0!	-1.375	-44.5%	-1.514	10.1%	-1.410	-6.9%	-1.273	-9.7%
Interest and similar expenses	-2.241	-2.617	16.8%	-2.135	-18.4%	-2.063	-3.4%	-2.014	-2.4%	-1.749	-13.2%
Result from ordinary business activities	31.951	25.492	-20.2%	27.198	6.7%	35.007	28.7%	40.771	16.5%	42.601	4.5%
Taxes on income and earnings	-9.136	-7.345	-19.6%	-7.333	-0.2%	-10.152	38.4%	-11.824	16.5%	-12.354	4.5%
Consolidated result for the period	22.815	18.147	-20.5%	19.865	9.5%	24.855	25.1%	28.947	16.5%	30.076	3.9%
thereof non-controlling interests	-0.139	-0.171	23.0%	-0.171	0.0%	-0.171	0.0%	-0.171	0.0%	-0.171	0.0%
thereof AlzChem Group AG shareholders	22.676	17.976	-20.7%	19.694	9.6%	24.684	25.3%	28.776	16.6%	30.076	4.5%
EpS (EUR)	2.23	1.77	-20.7%	1.94	9.6%	2.43	25.7%	2.84	16.7%	2.97	4.5%
DpS (EUR)	0.90	0.75	-16.7%	0.77	2.7%	0.99	28.6%	1.14	14.7%	1.19	4.5%

Source: AlzChem, Warburg Research

FY 2021 sales to benefit from strong demand a low base for comparison

Given continued strong demand from various sectors, AlzChem stands to benefit from high capacity utilization and good pricing power. The demand for Bioselect® should be the only fly in the ointment given our anticipation of a decline in demand owing to a sharply increasing vaccination rate globally as well as changes to requirements regarding Covid-19 PCR tests. Given good pricing power, the company should be able to pass on higher raw material and electricity prices to customers with a limited time-lag. Benefits from efficiency measures should help boost the EBITDA. As a consequence, the company should be able to exceed the upper end of its sales guidance range and come close to the upper end of its EBITDA guidance which was increased with the publication of H1 results on 5.8.2021.

Upper end of FY21 guidance likely to be achieved

Guidance for 2021	2020	Original guidance	New (current) guidance
Group revenue	EUR 379.3m	Slightly increasing to increasing (Up to EUR 400m)	Significantly to strongly increasing (Up to EUR 415m)
Adjusted EBITDA	EUR 53.8m	Stable to slightly increasing (Up to EUR 57m)	Significant to particularly strongly increasing (Up to EUR 64m)
Adjusted EBITDA margin	14.2%	Slightly decreasing to stable	Stable to slightly increasing
Stock ratio	19.0%	Very slightly increasing to stable	Slightly to noticeably decreasing
Equity ratio	19.4%	Stable to slightly increasing	Moderate to slightly increasing

Source: AlzChem, Warburg Research

FY 2022: price increases in H1, price erosion in H2

Following strong demand in FY 2021 from almost all sectors, we expect a normalization in FY 2022, especially in the second half of the year. Raw material, electricity and selling price inflation is likely to slow down materially or even reverse, depending on the respective product group. Due to the time lag between input cost and selling price inflation, product prices should continue to go up in H1 2022 before reaching peak levels. As a result, we expect group sales to expand by only 5.9% to EUR 441.07m and the EBITDA margin to increase to 15.6% from 15.1% yoy as capacity utilization was close to 100% in H1 2021 and should come down to a more sustainable level. As a consequence, EBITDA should increase to EUR 69.02m, up by 10.0% yoy.

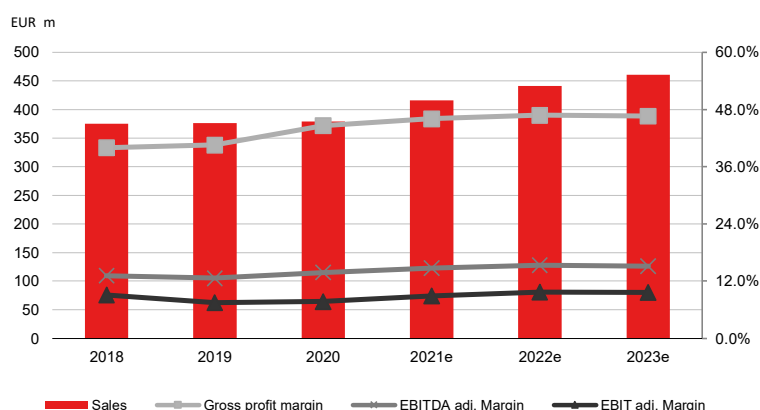
FY 2023 to be driven by new and existing product applications

FY 2023 is likely to benefit from new applications for the products Dormex®, a plant growth regulator used in vineyards and orchards to break bud-dormancy and stimulate earlier and more uniform bud-break, and Sitofex® (forchlorfenuron), a plant growth regulator that improves the fruit size and quality of various fruit crops especially table grapes and kiwifruit, that are earmarked for introduction in 2022. Additionally, a green accelerator in AlzChem's DYHARD® high-performance cure systems that is currently based on dicyandiamide hardeners, urone and imidazole accelerators, and formulated epoxy resin systems, is planned to be introduced in 2023. Further (business/sales?) growth is to be expected from Creamino® and Creapure®. AlzChem is investing in additional production capacities for Creapure®, with a start-up of the new facilities earmarked for mid-2022. According to the company, the additional capacities are likely to provide EUR 20m additional sales on an annual basis. Eminex®, a product for the agricultural industry that suppresses methane and CO₂ emissions during manure slurry storage stands to benefit from its second year on the market (introduced September 2021). On group level, sales are expected to expand by 4.5% yoy to EUR 460.88m. Given that we expect product prices in Basics & Intermediates will likely have to reflect a more normal level of raw material costs, we expect EBITDA to grow at a slower pace than sales, resulting in an EBITDA of EUR 71.20m (+3.2% yoy).

Increase in earnings mostly driven by favourable gross-profit margin evolution

The margin improvement in the FY 2021 – FY 2023 periods is expected to be driven mostly by an improved gross margin. A high capacity load resulting from good demand is set to trigger positive leverage effects. Additionally, efficiency improvements help to more than offset the adverse effects of rising raw material and electricity costs.

Earnings progression driven by gross-profit evolution



Source: AlzChem, Warburg Research

Favourable operative development to be reflected in dividend pay-out

AlzChem has a policy of paying 30%-50% of its EPS as a dividend to its shareholders. Given the expectation of favourable earnings development, we expect dividends to rise accordingly. As a consequence, we expect the FY 2021 dividend per share to be 28.6% higher (EUR 0.99) than the EUR 0.77 paid for FY 2020 in 2021. Based on today's share price of about EUR 22, this would result in a 4.5% dividend yield in FY 2021, putting AlzChem firmly in the upper echelon of dividend-paying companies in the chemical sector.

Valuation

- We have used a DCF calculation to derive with a fair value of EUR 35.00 per AlzChem share
- We applied a FCF value potential calculation to gauge the company's ability to generate sustainable FCF
- As a consequence of the absence of directly comparable listed companies, we resorted to the use of a SotP calculation based on a number of chemical companies with comparable risk or product profiles to validate the result of the DCF calculation

All valuation models applied point to significant upside to the current share price

PT of EUR 35 is based on a DCF calculation

DCF model: FCF generation to increase on the strength of a larger asset base

The valuation of AlzChem is based on a three-stage DCF calculation which derives a fair value of EUR 35.14 per share. The fair value of the company is based on the assumption of AlzChem's ability to benefit from the various growth opportunities in its respective markets. Given that the company's business model is significantly geared to profitable growth in its Specialty Chemicals segment, the fair value of the company is mostly based on mid-term (transitional period) and long-term (terminal value) business prospects. Thus, the result of the DCF calculation is rather sensitive to changes in the underlying profitability, especially in products for the food & feed industry.

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

- The first stage is based on detailed estimates regarding cash flow, balance sheet and P&L numbers for the years 2021–2023.
- The second stage is an assessment of the company's development in the years 2024–2033. 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 2034 onwards. It is based on a static sales growth rate with a fixed operating margin. Depreciation matches investments 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 organic sales growth in 2021e-2023e as a result of capacity expansions (Nitralz) as well as increased market penetration especially in regard to its food (Creapure®, Livadur®, Alipure®) and feed products (Creamino®). EBITDA growth however is expected to be held back by eroding demand for Bioselect® for Covid-19 PCR tests as a result of increasing vaccination rates, and changes to test requirements. Following the anticipation of rather volatile development of selling-price progression especially in FY 2022e, favourable underlying demand trends should shape FY 2023e results.
- Stage 2: Based on the assumption of volume growth of 2%-6% in its relevant markets and a stable EBITDA margin of 15.0% as above-average growth of the high-margin products in the Specialty Chemicals segment helps to mitigate margin pressure in the Basic & Intermediates segment, sales growth should amount to 2.7% - 4.0%. The working capital level should rise to 20.0% which we deem to be sustainable. After the capex/sales ratio hit a peak of 11.0% in 2019 as a result of a major capacity expansion, we expect this ratio to come down to 7.2% in 2021e, followed by a further gradual decline to 6.0% which we deem to be sustainable.
- Stage 3: A terminal growth rate of 1% was applied, as well as a 9.0% EBIT margin (EBITDA margin: 15.0%).

All three stages are free of effects resulting from acquisitions or divestments.

For the calculation of the WACC, a beta of 1.50 was used. The above-average risk is a result of, 1) limited liquidity of the shares - free float of 43.3%, free float MC of approx. EUR 100m at the time of writing, 2) the company's limited balance sheet strength – equity ratio of 19.4% (2020), net debt/EBITDA of 3.45x (2020), 3) the absence of an external credit rating, 4) limited visibility regarding the mid-term development of the company as well as structurally limited transparency as a B2B company. 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 29%. The resulting WACC is 7.49%, the calculated fair value EUR 35.00 per share

FCF Value Potential indicates a fair value of EUR 37.19 per share

WR's "FCF Value Potential" model reflects the ability of the company to generate sustainable free cash flows. It is based on the FCF potential – an 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 AlzChem will amount to EUR 15m -15.8m in the FY 2021e – FY 2023e periods.

The FCF Value Potential model calculates the value of the AlzChem share at between EUR 31.80 (FY 2021e) and EUR 41.22 (FY 2023e). The mean of the FY 2021e - 2023e periods is EUR 37.19.

Sum-of-the-parts valuation points to a fair value of EUR 39.92 per share

As a result of AlzChem's rather unique chemistry and product range, there are no peers matching the company's activities. There are several listed chemical companies with activities in bulk chemicals that tend to be cyclical and are capital intense. However, these are mostly derived from crude oil derivatives, not from coke. We used a group consisting of Covestro, Huntsman, Ube Industries, PetroChina Company and Kumho Petrochemical to create a synthetic proxy for the Basics & Intermediates segment of AlzChem. We used producers of food and feed additives like vitamins, fatty acids, flavour additives and amino acids as a proxy for the Specialty Chemicals segment. These peers consist of BASF, DuPont de Nemours, Clariant, Evonik, Lanxess and International Flavours and Fragrances (IFF). Since Bayer and Lanxess sold their stakes in Currenta to funds managed by Macquarie Infrastructure and Real Assets, Evonik seems to be one of the very few publicly listed chemical companies that operates sizeable chemparks and thus can be used as a comparison with AlzChem's Other & Holding segment.

As we regard AlzChem as rather capital intense, the SotP calculation focuses on EV/EBITDA multiples to eliminate the influence of depreciation on profits. The sum of the parts valuation model points to a fair value of EUR 39.92 per AlzChem share.

Sum of the parts model indicates a fair value of EUR 39.92 per share

€ m	Sales			EBITDA*			EBITDA-Margin			EBITDA (x)			Fair value (calc.)		
	2021e	2022e	2023e	2021e	2022e	2023e	2021e	2022e	2023e	2021e	2022e	2023e	2021e	2022e	2023e
Specialty Chemicals	220.70	236.71	250.92	49.69	56.21	59.52	0.23	0.24	0.24	9.82	9.08	8.43	488.11	510.51	501.55
Basics & Intermediates	169.87	178.36	183.71	11.73	11.59	10.30	0.07	0.07	0.06	4.33	4.32	4.62	50.81	50.12	47.59
Other & Holding	25.74	26.00	26.26	1.29	1.82	1.84	0.05	0.07	0.07	6.91	6.53	6.17	8.88	11.89	11.34
Consolidation	0.00	0.00	0.00	-0.24	-0.20	-0.20	n.m.	n.m.	n.m.	7.02	6.65	6.40	-1.70	-1.33	-1.28
Total	416.31	441.07	460.88	62.47	69.42	71.46	14.8%	15.4%	15.2%				546.10	571.19	559.20
- Net debt**													-25.98	-12.28	0.07
- Pension liabilities**													-133.70	-137.68	-140.77
- Minorities***													-4.74	-4.05	-3.53
+ Financial investments***													0.00	0.00	0.00
Fair equity value													381.68	558.91	559.27
Fair value/share (€)													37.66	41.16	40.94
Average fair value/share (€)															39.92

* w/o extraordinary items

** At book value

*** At market value

Source: Warburg Research

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	2017	2018	2019	2020	2021e	2022e	2023e
Net Income before minorities	19.2	22.8	18.1	19.9	24.9	28.9	30.2
+ Depreciation + Amortisation	14.0	15.2	19.5	23.1	24.2	24.8	25.6
- Net Interest Income	-2.1	-2.2	-2.6	-2.1	-2.1	-2.0	-1.7
- Maintenance Capex	12.4	14.0	14.5	14.7	15.0	15.3	15.8
+ Other	0.0	0.0	0.0	0.0	0.0	0.0	0.0
= Free Cash Flow Potential	22.8	26.2	25.8	30.4	36.1	40.5	41.8
FCF Potential Yield (on market EV)	1.8 %	5.9 %	6.4 %	7.9 %	9.4 %	10.8 %	11.5 %
WACC	7.49 %	7.49 %	7.49 %	7.49 %	7.49 %	7.49 %	7.49 %
= Enterprise Value (EV)	1,288.8	444.4	404.4	387.2	383.7	374.0	364.7
= Fair Enterprise Value	304.9	349.9	344.2	405.9	482.0	540.7	558.5
- Net Debt (Cash)	43.6	43.6	43.6	43.6	26.0	12.3	-0.1
- Pension Liabilities	141.8	141.8	141.8	141.8	133.7	137.7	140.8
- Other	0.0	0.0	0.0	0.0	0.0	0.0	0.0
- Market value of minorities	0.0	0.0	0.0	0.0	0.0	0.0	0.0
+ Market value of investments	0.0	0.0	0.0	0.0	0.0	0.0	0.0
= Fair Market Capitalisation	119.5	164.5	158.8	220.5	322.3	390.8	417.8
Number of shares, average	10.2	10.2	10.2	10.2	10.1	10.1	10.1
= Fair value per share (EUR)	11.74	16.17	15.61	21.67	31.80	38.55	41.22
premium (-) / discount (+) in %					43.9 %	74.5 %	86.5 %
Sensitivity Fair value per Share (EUR)							
	10.49 %	3.19	6.35	5.95	10.30	18.20	25.46
	9.49 %	5.45	8.95	8.51	13.31	21.77	29.61
	8.49 %	8.25	12.16	11.67	17.04	26.20	34.73
WACC	7.49 %	11.79	16.23	15.67	21.76	31.80	41.22
	6.49 %	16.43	21.55	20.90	27.93	39.13	49.72
	5.49 %	22.76	28.81	28.05	36.36	49.13	61.31
	4.49 %	31.90	39.31	38.38	48.54	63.59	78.07

■ Historical volatility of the value indication is due to cyclical operative development

DCF model

	Detailed forecast period			Transitional period										Term. Value
Figures in EUR m	2021e	2022e	2023e	2024e	2025e	2026e	2027e	2028e	2029e	2030e	2031e	2032e	2033e	
Sales	416.3	441.1	460.9	479.3	498.0	516.9	536.1	555.4	574.8	593.8	612.2	629.9	646.9	1.0 %
Sales change	9.8 %	5.9 %	4.5 %	4.0 %	3.9 %	3.8 %	3.7 %	3.6 %	3.5 %	3.3 %	3.1 %	2.9 %	2.7 %	
EBIT	38.6	44.2	45.6	44.8	46.1	47.8	49.6	51.4	53.2	54.9	56.6	58.3	59.9	9.3 %
EBIT-margin	9.3 %	10.0 %	9.9 %	9.4 %	9.3 %	9.3 %	9.3 %	9.3 %	9.3 %	9.3 %	9.3 %	9.3 %	9.3 %	
Tax rate (EBT)	29.0 %	29.0 %	29.0 %	29.0 %	29.0 %	29.0 %	29.0 %	29.0 %	29.0 %	29.0 %	29.0 %	29.0 %	29.0 %	42
NOPAT	27.4	31.4	32.4	31.8	32.7	34.0	35.2	36.5	37.8	39.0	40.2	41.4	42.5	
Depreciation	24.2	24.8	25.6	27.1	28.6	29.7	30.8	31.9	33.0	34.1	35.2	36.2	37.2	273
in % of Sales	5.8 %	5.6 %	5.5 %	5.6 %	5.7 %	5.7 %	5.7 %	5.7 %	5.7 %	5.7 %	5.7 %	5.7 %	5.7 %	
Changes in provisions	-8.1	4.0	3.1	5.6	5.7	5.8	5.8	5.9	5.9	5.8	5.6	5.4	5.2	50.45 %
Change in Liquidity from														
- Working Capital	1.6	3.5	2.8	5.9	6.1	3.8	3.8	3.9	3.9	3.8	3.7	3.5	3.4	38.56 %
- Capex	30.0	30.0	31.5	31.2	31.9	32.6	33.2	33.9	34.5	35.6	36.7	37.8	38.8	
Capex in % of Sales	7.2 %	6.8 %	6.8 %	6.5 %	6.4 %	6.3 %	6.2 %	6.1 %	6.0 %	6.0 %	6.0 %	6.0 %	6.0 %	10.99 %
Other	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	
Free Cash Flow (WACC Model)	11.9	26.7	26.8	27.5	29.0	33.1	34.8	36.6	38.4	39.5	40.6	41.7	42.7	35.00
PV of FCF	11.8	24.7	23.0	22.0	21.6	22.9	22.4	21.9	21.4	20.5	19.6	18.7	17.8	
share of PVs	10.99 %			38.56 %										

Model parameter

Derivation of WACC:		Derivation of Beta:	
Debt ratio	36.50 %	Financial Strength	1.50
Cost of debt (after tax)	3.6 %	Liquidity (share)	2.00
Market return	7.00 %	Cyclicality	1.50
Risk free rate	1.50 %	Transparency	1.50
		Others	1.00
WACC	7.49 %	Beta	1.50

Valuation (m)

Present values 2033e	269		
Terminal Value	273		
Financial liabilities	61		
Pension liabilities	142		
Hybrid capital	0		
Minority interest	2		
Market val. of investments	0		
Liquidity	17	No. of shares (m)	10.1
Equity Value	355	Value per share (EUR)	35.00

Sensitivity Value per Share (EUR)

		Terminal Growth									Delta EBIT-margin						
Beta	WACC	0.25 %	0.50 %	0.75 %	1.00 %	1.25 %	1.50 %	1.75 %	Beta	WACC	-0.8 pp	-0.5 pp	-0.3 pp	+0.0 pp	+0.3 pp	+0.5 pp	+0.8 pp
1.79	8.5 %	25.60	26.19	26.82	27.50	28.22	28.99	29.82	1.79	8.5 %	23.55	24.86	26.18	27.50	28.82	30.13	31.45
1.64	8.0 %	28.68	29.40	30.16	30.98	31.86	32.80	33.82	1.64	8.0 %	26.74	28.15	29.56	30.98	32.39	33.80	35.22
1.57	7.7 %	30.38	31.17	32.01	32.91	33.89	34.94	36.08	1.57	7.7 %	28.52	29.98	31.45	32.91	34.38	35.85	37.31
1.50	7.5 %	32.21	33.07	34.00	35.00	36.08	37.25	38.53	1.50	7.5 %	30.43	31.96	33.48	35.00	36.52	38.05	39.57
1.43	7.2 %	34.16	35.12	36.15	37.26	38.46	39.77	41.20	1.43	7.2 %	32.50	34.09	35.67	37.26	38.84	40.43	42.01
1.36	7.0 %	36.27	37.32	38.47	39.71	41.06	42.53	44.14	1.36	7.0 %	34.75	36.40	38.06	39.71	41.36	43.01	44.66
1.21	6.5 %	40.99	42.30	43.73	45.28	46.99	48.86	50.94	1.21	6.5 %	39.87	41.67	43.48	45.28	47.09	48.89	50.70

- The beta value Beta value reflects the limited liquidity of the share (Free float 43%),
- In addition, transparency is reduced for structural reasons as AlzChem is positioned as a B2B company

An old dog that learns
new tricks pretty well

Company & Products

Company history: the chemistry has remained the same

While the company's underlying key production processes continue to be based on the same chemistry as in the early days, the ownership and name of the company has changed several times since its beginnings more than a century ago.

AlzChem: a long history in cyanamide chemistry

- 1895** Dr. Adolph Frank and Dr. Nikodem Caro succeed in binding nitrogen from the air with calcium carbides (nitrogenation)
- 1901** Dr. Albert Frank recognizes the benefits of using calcium cyanamide as a fertilizer
- 1908** Bayerische Stickstoffwerke AG (BSTW) is founded, with head offices in Munich
- 1908-1912** Construction of the Trostberg calcium carbide plant, the carbide plant in Schalchen, the works canal and two hydropower plants in Trostberg and Schalchen
- 1915-1920** Construction of the plants at Piesteritz and Chorzow (Upper Silesia), and the carbide plant in Hart plus the hydropower plant at Hirten.
- 1920** Bayerische Kraftwerke AG is founded, with head offices in Berlin.
- 1939** Company renamed Süddeutsche Kalkstickstoff-Werke AG, with head offices at Trostberg.
- starting 1945** Establishment of premium value-added product ranges in the metallurgy and NCN chemistry segments.
- 1968** The company moves into construction chemicals with the concrete plasticizer MELMENT®.
- 1971** Construction of the Muenchsmuenster petrochemical plant.
- 1974** The company goes international with production facilities at Bécancour/Quebec in Canada.
- 1978** Company's name is changed to SKW Trostberg AG.
- 1981** Company moves into the nature products business with hop extraction.
- 1993** Sister plant at Piesteritz transfers back to SKW.
- 1995** SKW is listed on the stock market.
- 1995-1999** Acquisition of Sanofi Bio-Industries S.A. Paris (SBI), Master Builders Technologies (MBT) and Goldschmidt AG. As a result of these mergers SKW expands its nature products, construction chemicals and performance chemistry segments.
- 2000** Merger of Degussa Hüls AG with SKW Trostberg AG to form the new Degussa AG.
- 2001** Founding of SKW Stahl Holding GmbH.
- 2002** Sale of SKW Piesteritz Holding GmbH. Inauguration of the Construction Chemicals Competence Center (German landscape architecture prize 2003) with a professorship at the Technical University Munich
- 2005** RAG Group becomes new majority shareholder.
- 2006** Merger of the Alz sites at Trostberg, Schalchen, Hart and Waldkraiburg into AlzChem Holding GmbH. The Construction Chemicals segment is sold to BASF
- 2009** bluO Fonds becomes new shareholder.
- 2011** Company changes its legal form to become AlzChem AG, concentrating heavily on the new markets of renewable energy, nutrition and the pharmaceutical industry
- 2013** the shares are taken over by the bluO partners
- 2014** Acquisition of SKW Metallurgy Sweden AB, renamed Nordic Carbide AB
- 2015** AlzChem invests in a dedicated CreAMINO® production facility
- 2017** AlzChem incorporated into the listed company AlzChem Group AG (formerly Softmatic AG)
AlzChem Group AG new Group parent company of AlzChem Group
- 2019** Productionstart of investment projects Creamino® and Nitrile

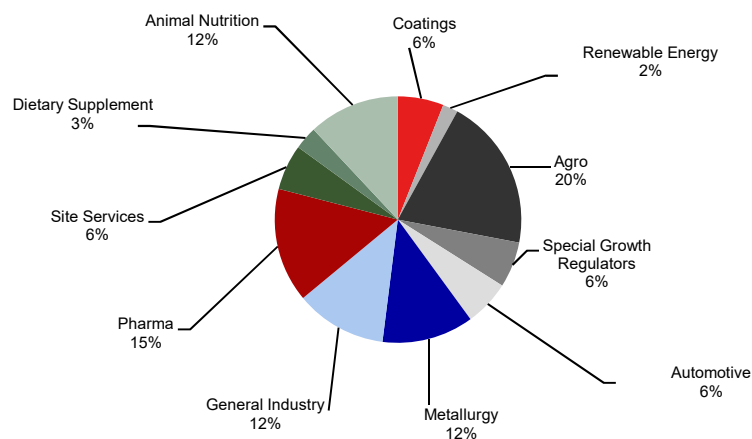
Source: AlzChem, Warburg Research

Markets, customers and suppliers

The agricultural sector is AlzChem's most important customer group

As a consequence of its comprehensive product portfolio, AlzChem provides its products to a wide range of diverse customer groups in various industries. Customers in the agricultural industry were the largest customer group in FY 2020, generating 38% of group sales (Animal nutrition + Agro + Special growth regulators). However, as this customer group is rather diverse both from a regional as well as from an application point of view, we rate the resulting cluster risk as rather manageable.

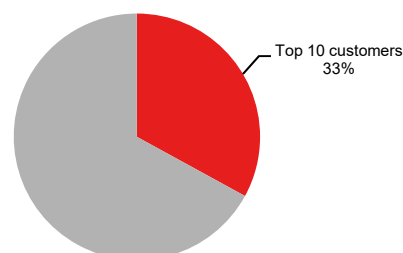
Sales by customer groups in FY 2020



Source: AlzChem, Warburg Research

AlzChem generated one-third of its sales with its top 10 customers in FY 2020. Again, this hints at only a minor cluster risk that can be competently handled by management.

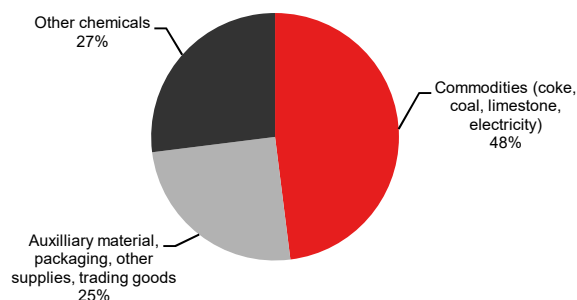
Top ten customers generated 33% of sales in FY 2020



Source: AlzChem, Warburg Research

When it comes to raw materials, AlzChem is highly dependent on commodities (especially coke and electricity) for production at its five sites. Thus, any major move in the price of coke or electricity has a tangible impact on the company's margin before it can be rolled on to the customers. As the production of AlzChem's almost universal building block calcium carbide is highly energy-intensive and also a emitter of CO₂, production costs are also affected by major changes in the price of CO₂ certificates.

Commodities (especially coal, limestone and electricity) make up half of the material costs

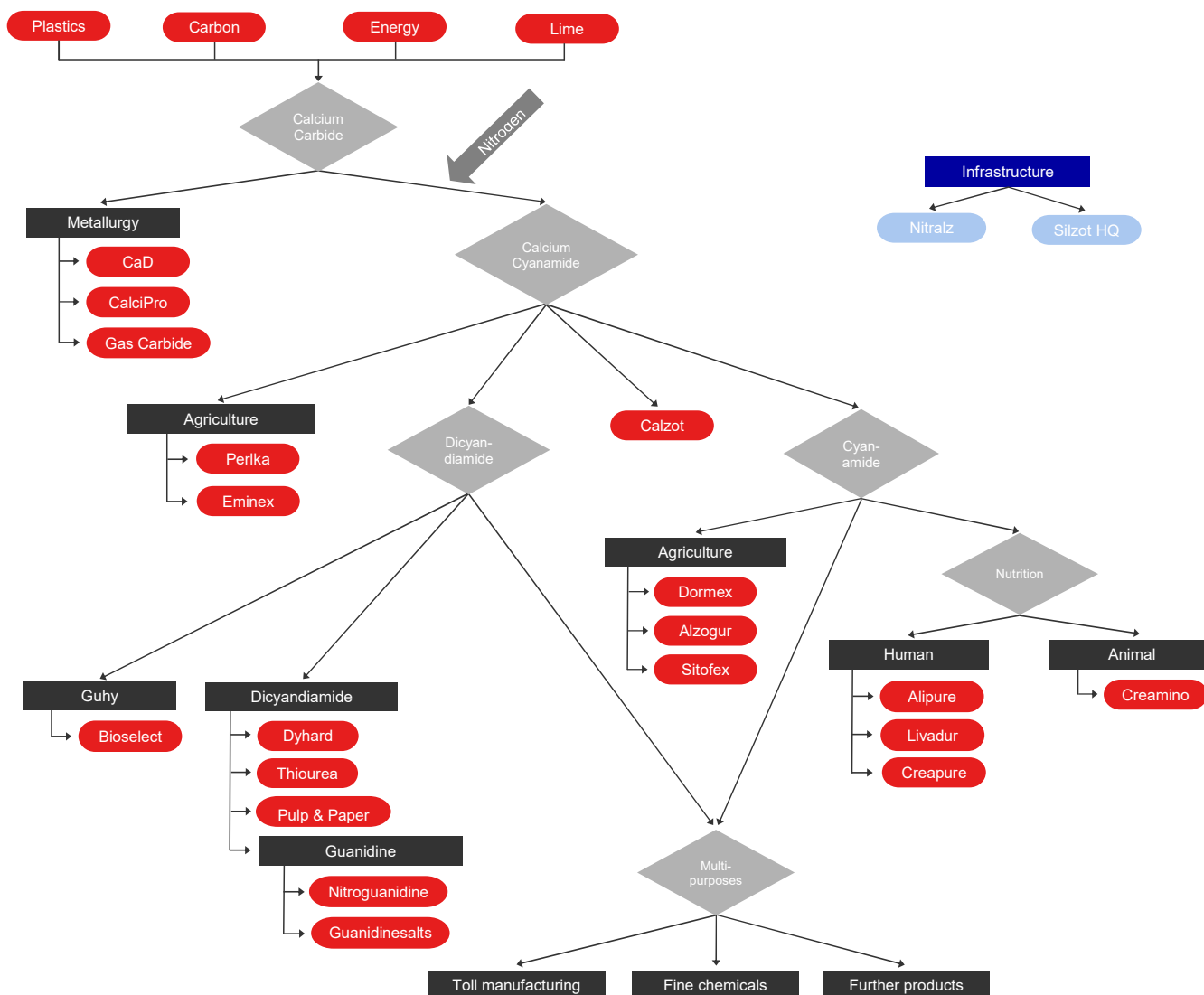


Source: AlzChem, Warburg Research

Verbund structure allows for enhanced operational efficiency

AlzChem currently covers the value chain of the cyanamide chemistry with its integrated manufacturing setup (Verbund). It is based on calcium carbide which is generated from lime, coke and electricity at its Hart site. The calcium carbide is the starting point for intermediate products that are not only sold to external customers but also used as raw material for the synthesis of products up the value chain in its plants in Trostberg, Schalchen and Waldkraiburg. The proximity of its sites allows for efficient just-in-time production. The Hart, Trostberg and Schalchen sites are interconnected by rail. Their production setup allows for economies of scale as well as for a favourable capacity load at the production facilities.

Backward integration to the max: AlzChem has gone all-in on cyanamide chemistry



Source: AlzChem, Warburg Research

Company structure

A three-segment setup

The AlzChem Group has four sites in Germany in and around Trostberg, which are in rather close proximity to each other, as well as one in Sundsvall, Sweden. The company has sales companies in the US and China markets. The operating business of the company is divided along its value chain into the three business segments Specialty Chemicals, Basics & Intermediates, and Other & Holding.

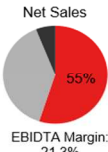
- The Specialty Chemicals segment is engaged in the production and sale of high-quality specialty chemicals products such as Creamino®, Creapure®, Bioselect®, DYHARD® and Dormex®.
- The Basics & Intermediates segment comprises the production of basic and intermediate products that are either required for the production of specialty chemicals or marketed as stand-alone products. The latter serve a wide range of applications, for example in agriculture, steel production and the automotive industry.

The Other & Holding segment comprises all other activities that cannot be allocated to the other segments. These are essentially services relating to the Trostberg and Hart

chemical parks, which AlzChem operates mainly for its own purpose, but also for third parties. In addition, administrative services are allocated to the segment.

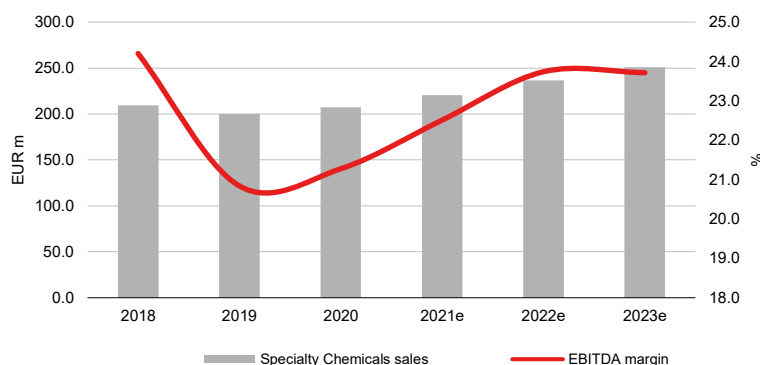
Specialty Chemicals segment

Specialty Chemicals segment: the mainstay of the company

2020 Segment Split	Global Market Position	Selected Key Brands	Description	End Market
Specialty chemicals 	1	CREAMINO	A nutritional additive for broilers and pigs	Feed additive
	Top 3	Creapure®	Premium brand for Creatine monohydrate used as supplements in sports nutrition	Dietary supplement
	1	Dormex®	Plant growth regulator, used in fruit production	Agriculture
	1	Bioselect®	Highly purified form of guanidine hydrochloride salts	Pharma / API

Source: AlzChem, Warburg Research

Specialty Chemicals: a highly profitable business



Source: AlzChem, Warburg Research

More complex products with higher margins

The products of the segment are mainly derived from cyanamide or dicyanamide, which is provided by the Basics & Intermediates segment. These specialty products tend to have a higher value within the NCN value chain and thus come with higher margins but lower volumes than products from the Basics & Intermediates segment. These products are manufactured in the sites in Trostberg (cyanamide-based), Schalchen (dicyandiamide-based) and Waldkraiburg (guanidine-based). Some of the segment's key products are:

CreAMINO®

CreAMINO® is AlzChem's brand name for guanidine acetic acid, an animal feed additive. It is used for a more stable and improved growth of feedstock, especially for poultry. CreAMINO® is employed to increase efficiency as it aims to improve feed utilization, increase animal weight, reduce the fattening period and increase the ratio of breast meat. Thus, cost savings at customer-level should justify the usage and costs of the feed additive.

Creapure®

Creapure® is AlzChem's brand name for creatine. It is marketed as a dietary supplement and mainly sold to the nutrition industry to improve energy usage and facilitate muscle

growth and physical / cognitive performance.

Alipure®

Alipure® is AlzChem's brand name for alpha-lipoic acid which is mainly used as a dietary supplement in pharmaceuticals and cosmetics to treat diabetics.

Dormex®

Dormex® is AlzChem's brand name for a plant growth regulator for the agricultural sector used in vineyards and orchards. It serves as a bud breaking agent for perennial crops, e.g. grapes, kiwis, apples, pears and cherries and aims to improve bud breaking time.

ALZOGUR®

ALZOGUR® is the brand name for a biocide for the livestock industry. It is used to treat liquid manure in pigsties to eliminate the infective agent of swine dysentery (pig diarrhoea), control stable flies and reduce irritant and harmful gas from liquid manure.

BREAK-THRU S 240® / BREAK-THRU S 301®

The BREAK-THRU® is the brand name for a family of products of siloxane-based tank-mix additives for use in the agricultural sector on a large variety of staple and specialty crops.

SITOFEX®

SITOFEX® is AlzChem's brand name for a plant growth regulator for the agricultural sector based on forchlorfenuron aiming to improve yield by increasing the size, weight and yield of fruit and berries as well as providing a longer shelf life by maintaining quality during transport and storage. Key target fruits are table grapes, kiwis, apples, pears and berries.

BioSELECT®

Bioselect® is AlzChem's brand name for a highly purified form of guanidine hydrochloride or thiocyanate salts for use in pharmaceutical products or as an active pharmaceutical ingredient in diagnostics and biotechnology.

Silzot SQ®

Silzot SQ® is AlzChem's brand name for a silicon nitride powder used as a release agent in the production of polycrystalline silicon ingots for the photovoltaic industry

Silzot HQ®

Silzot HQ® is AlzChem's brand name for a silicon nitride powder used as a raw material for silicon nitride-based ceramics. These are used for extreme mechanical and thermal operating conditions, such as ceramic bearings, cutting tools and ceramic components for the automotive industry.

Cyanamide

Cyanamide is a chemical building block. It is employed in agrochemical and pharma production of active ingredients. It is also used internally for the production of CREAPURE®, CreAMINO® and Dormex®

DYHARD®

DYHARD® is AlzChem's brand name for a family of products that is based on finely ground dicyandiamide. It is sold in powder form or formulated with other products to provide a differentiated or higher value product which aims to improve handling and/or processing in the customer's application. DYHARD® products are mainly used in composites in epoxy preregs. Prepreg: glass or fiber mat impregnated with the resin/cross linker combination and already partially hardened to allow it to be transported. Preregs are used e.g. for wind turbine blades, airplanes, racing cars and sports equipment. Other DYHARD® usage is to be found in powder coatings, structural

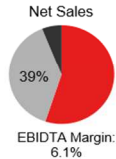


adhesives and electrical laminates.

Nitroguanidine

Nitroguanidine is used as building block for insecticides, however demand has come down with the ban on neonicotinoides in the EU. It is also used as a component for propellants. The automotive industry uses it in igniting mixtures for airbag gas generators..

Basics & Intermediates segment

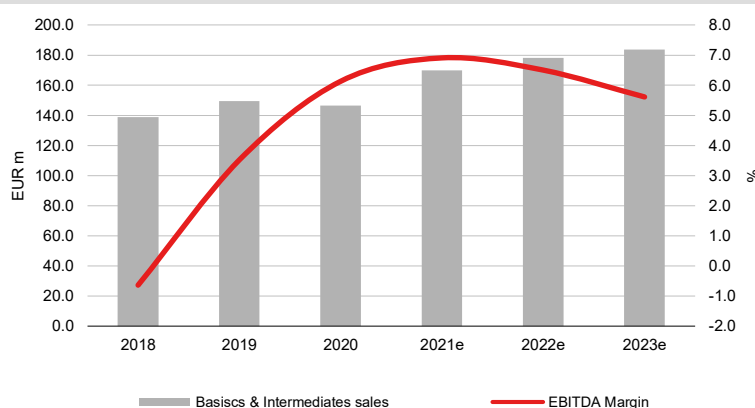
Basics & Intermediates segment: the production backbone of AlzChem

2020 Segment Split	Global Market Position	Selected Key Brands	Description	End Market
Basics & Intermediates 	1 ⁽¹⁾	 CaD [®]	Calcium carbide-based process chemical for hot metal desulfurization	Steel Industry
	1	Guanidine Salts	Gas generant for air bags, key production intermediate	Airbags Agrochemicals
	Top 3	 NITRALZ [®]	High quality aliphatic and aromatic nitriles via gas phase technology	Pharma Agriculture, Biocides & Pigments

⁽¹⁾ European market leader

Source: AlzChem, Warburg Research

A low-margin bulk chemical business mainly an internal supplier of raw materials



Source: AlzChem, Warburg Research

The segment is responsible for calcium carbide production at the Hart site, the production of dicyandiamide at the Schalchen site and the production of cyanamide at the Trostberg site. The three chemicals are the backbone of AlzChem's value chains. They are both marketed to external customers and used internally as starting materials in the Specialty Chemicals segment. The key products of the segment are:

CaD[®]

CaD[®] is AlzChem's brand name for a product family used for desulfurisation in metal production. It is based on finely ground and homogenized calcium carbide. Depending on specifications by the customer (the European steel industry), agents like volatiles or slag modifiers are added to reduce iron losses

Calzot[®]

Calzot[®] is AlzChem's brand name for an additive based on calcium cyanide for nitrogen

alloying in liquid metal processing as well as in nitride hardening of finished components.

CalciPro®

CalciPro® is AlzChem's brand name for an additive based on calcium carbide for the calcium treatment of liquid steel

Guanidine salts

Guanidine salts are based on dicyandiamide and used in a wide range of applications including airbags and agrochemicals. AlzChem uses guanidine salts as the starting material for nitroguanidine production.

Perlka®

Perlka® is AlzChem's brand name for a nitrogen fertilizer which is used for rapeseed, rice and vegetable production.

Nitralz®

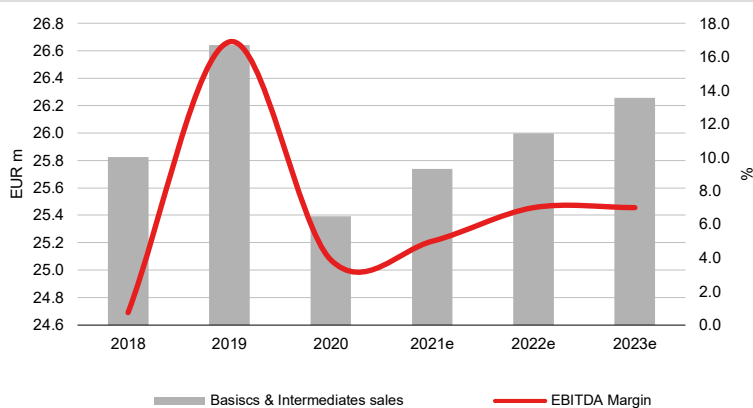
Nitralz® is AlzChem's brand name for nitriles which are chemical building blocks used in various industries. They are used in coatings, pharma products, agrochemicals and in pigment production.

Dicyandiamide

Dicyandiamide is a chemical building block used by the pharma industry for the production of metformin, a diabetes drug. AlzChem uses Dicyandiamide internally as a starting material for DYHARD and guanidine production.

Other & Holding segment

Chempark management and all other otherwise unattributed activities



Source: AlzChem, Warburg Research

The segment is home to AlzChem's holding and some other activities that did not fit with the two other segments. The majority of sales are generated by service operations including the operation of the Chemiepark Trostberg and site services for group companies as well as external customers. In that regard, the segment provides infrastructure, utility, and maintenance services. In addition, AkzChem operates an electricity distribution network connecting its sites in Hart, Schalchen and Trostberg but also some external parties to the adjacent next-level electricity distribution network. It also operates a natural gas distribution network at its site in Trostberg.

Management and Supervisory Board

AlzChem is run by an experienced management team...

CEO Andreas Niedermaier (born 1969): studied industrial engineering in Rosenheim, Germany. He started his career as a consultant for cost calculators and controllers at Kettner Maschinenbau GmbH. He worked as a controller for Vinnolit GmbH & Co. KG in Gendorf and Burghausen from 1997 to 1999, where he was responsible for production facility controlling. After that he joined a predecessor of AlzChem in 1999. He became a managing director of AlzChem Trostberg GmbH in 2010. In 2017, he joined the management board of AlzChem Group AG, initially as the CFO. He succeeded Mr. Jan Ulli Seibel in 2019 as CEO.

CSO Dr. Georg Weichselbaumer (born 1961) has a degree in chemistry from the Technical University of Munich (Germany), and a doctorate in inorganic chemistry. He started his career in 1989 in the research department of Höchst AG. From 1993 to 1996, he worked as a new business development manager at Höchst Celanese in the US. He transferred to Clariant when Höchst specialty chemicals merged with the Swiss company in 1997. At Clariant, he held various management and global sales positions for products from sites in Europe, the US and India. In 2007, he was in charge of the spin-off of businesses at sites in the US and Germany to the WeylChem Group, where he served as Managing Director until 2012. He switched to AlzChem in 2012 as a VP Chemistry and Building Blocks. In 2019, he was appointed to the company's management board.

COO Klaus Englmaier (born 1960) has a degree in engineering from the University of Applied Sciences Munich, Germany. He started his career at Wacker Chemie in Burghausen in 1985 but left for SKW Trostberg (a predecessor to AlzChem) in 1988. He remained with the company after the merger of SKW Trostberg with Degussa-Hüls to form Degussa, a major provider of chemical solutions that was rebranded under the new name of Evonik. At Evonik, he worked as a coordinator for the operative business until 2006. Mr. Englmaier became head of production at AlzChem in the same year and remained in this position until 2009 before becoming Head of Production as well as heading up the Trostberg and Hart sites. He became member of the management board of AlzChem in 2016.

...and has a knowledgeable supervisory board that represents its key stakeholders

The chairman of the supervisory board, **Markus Zöllner** (born 1968) made a career in the telecom industry before becoming the managing director of four two na GmbH in 2004. He has a degree in industrial engineering from the University of Applied Sciences Rosenheim (Germany) as well as an MBA from WHU-Kellogg. He started his career as a project engineer at Mannesmann Mobilfunk GmbH in 1994 before moving on to Viag Interkom GmbH in 1996 to take up the position of Manager of Network Procurement. In 2000, he became Vice President of Procurement at Completel Paris NV and, in 2002 Managing Director of Tesion Telekommunikation GmbH. In 2003, he became Managing Director and CFO of Versatel Deutschland GmbH before leaving for Arques Industries AG in 2005 for the role of a board member which he held until 2007. Mr. Zöllner became a partner in private equity fund bluO International Affiliates in 2008 until the closure of the fund in 2013. Mr. Zöllner has been the CEO of four two na GmbH since 2008. four two na GmbH currently holds a 15.05% stake in AlzChem. Mr. Zöllner became a member of the supervisory board of AlzChem Group AG in 2017.

As a consequence of past positions, Mr. Zöllner has a wide range of operational experience in various sectors. He also has extensive committee experience from his work as supervisory board chairman for various companies. Mr. Zöllner has expertise in the areas of corporate management, strategy development, M&A and restructuring in a wide range of industrial sectors.

Prof. Dr. Martina Heigl-Maurer (born 1967) has a PhD in international tax law from the University of Bratislava (Slovakia) and a degree in business administration from the University of Applied Sciences Rosenheim (Germany). She started her career as associate in the tax consultancy and auditing company Dr. Kittl & Partner in 1994 before becoming a professor at the University of Applied Sciences Deggendorf (Germany) in 2009. Since 2013, she has been the chairwoman of the senate of the University of Applied Sciences Deggendorf (Germany). Since 2015, she has also been working as a tax consultant for Ecovis BLB Steuerberatungsgesellschaft. Prof. Dr. Martina Heigl-Maurer became a member of the supervisory board of AlzChem in 2017.

Prof. Dr. Heigl-Murauer has extensive knowledge of German national accounting (HGB), IFR standards and German tax law as well as profound professional experience in the national and international corporate environment as an independent tax consultant.

Dr. Caspar Freiherr von Schnurbein (born 1973) has a degree in law from the Julius-Maximilians University Würzburg (Germany) and a PhD in stock corporation law. He started his career at Ashurst as a corporate and M&A lawyer in 2003 in Munich before becoming the General Counsel M&A of the private equity fund bluO, Luxembourg in 2010. BluO was founded by Peter Löw and Martin Vorderwülbecke (heads of Arques Industries). BluO was closed in 2013, when bluO's assets were transferred into LIVIA Corporate Development SE. Since 2013, Dr. Freiherr von Schnurbein has been the General Counsel of LIVIA Corporate Development SE. LIVIA Corporate Development SE currently holds a 29.59%-stake in AlzChem Group AG. Dr. Freiherr von Schnurbein has been a member of the supervisory board of AlzChem Group AG since 2017.

Dr. Freiherr von. Schnurbein has worked as a lawyer and in-house lawyer specializing in international law for over 15 years. He has broad expertise in corporate law and M&A transactions. As a long-time head of the legal department of an international holding, he is particularly well versed in the legal aspects of commercial enterprises.

Steve Röper (born 1976) has a degree in law from the University of Rostock. He started his career in 2004 as an associate lawyer for corporate and commercial law at HEUSSEN Rechtsanwaltsgesellschaft GmbH in Munich. He left in 2007 for the position of senior in-house lawyer at KraussMaffei Group in Munich. From 2009 to 2013, he worked as a general counsel for the private equity fund bluO. Mr. Röper has since worked as an independent lawyer in Munich. He has been a member of the supervisory board of AlzChem Group AG since 2017.

Due to his work as a lawyer, Mr. Röper has vast practical experience in structuring and implementing international projects. The focus of his legal advice was, and still is, in the areas of M&A and general corporate law.

Management remuneration and bonuses

The three management board members - CEO Andreas Niedermayer, CSO Dr. Georg Weichselbaumer and COO Klaus Englmaier - received remuneration totalling EUR 1,881m in FY 2020 (FY 2019: EUR 2,662m):

Management remuneration and bonuses (in EUR thousand)

	FY 2019	FY 2020
Fixed remuneration	835	760
Bonus	945	773
Remuneration in kind/other remuneration	652	45
Post-employment benefits	153	136
Share-based payments (long-term incentive)	77	167
Total	2,662	1,881

Source: AlzChem, Warburg Research

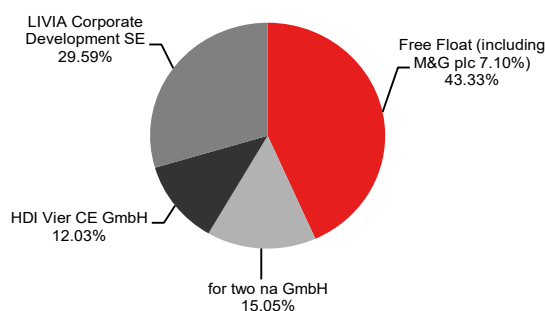
In FY 2019, the Management Board members Andreas Niedermayer, Klaus Englmaier

and Dr. Georg Weichselbaumer signed new contracts which govern the granting of stock appreciation rights. As a long-term incentive, the members of the management board receive a certain number of stock appreciation rights (SAR) with a multi-year assessment basis. SARs do not entitle the holder to transfer shares, but to the payment of a bonus (LTI) if the average closing price of the AlzChem Group AG share in the last 30 trading days before the respective exercise date (plus dividends granted up to that date) is higher than the average closing price of the AlzChem Group AG share in the 60 trading days before 1.1.2020 (whereby this “base price” increases by three percentage points each year from 1.1.2020). In the two (or three) exercise periods in January 2023, 2024 (or 2025), depending on the member of the management board, a certain portion of the SARs can be exercised, and thus converted into a cash paid-out as a bonus. SARs not redeemed at the end of the last exercise period expire. The entitlement to receive SARs was linked to the acquisition of a certain number of AlzChem shares by the end of fiscal year 2019. If the bonus exceeds a contractually agreed maximum amount, the bonus is capped at this amount; the bonus in excess of the maximum amount is forfeited.

In addition, all members of the management board received a one-time special bonus paid in cash in FY 2019, which was linked to the acquisition by the members of the management board of treasury shares 1 by the end of the fiscal year 2019. Furthermore, each member of the management board was obliged to acquire a further tranche of shares in the company (“Treasury Shares 2”) by the end of the fiscal year 2020. If the Treasury Shares 1 or 2 were sold by the management board member before the end of the third (and last) exercise period of the SARs, the company was entitled to demand a compensation payment from the management board member depending on the number of shares sold. As this did not happen, a total of 250,000 SARs was granted to members of the Management Board in FY 2019. No SARs were granted in FY 2020.

Shareholder structure: free-float increased

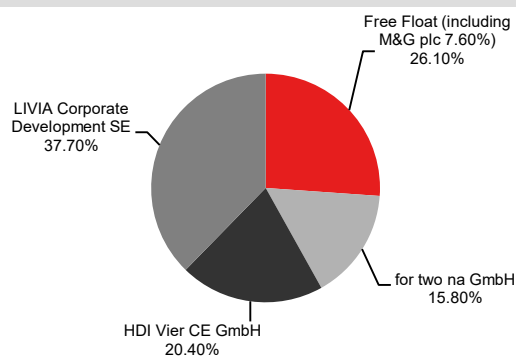
Current shareholder structure



Source: AlzChem, Warburg Research

All major stakeholders have reduced their holdings in AlzChem since the end of the first secondary public offering in 2018 which increased the initial free-float from 1.2% to 26.1%. The second secondary public offering (ended 9.5.2021) boosted the free-float from 26.1% to 43.3%. According to the stakeholders, the secondary public offering was earmarked to increase the free-float of the AlzChem shares.

Shareholder structure from end of 2018 to mid-2021



Source: AlzChem, Warburg Research

Share buyback programme

The AGM authorized the company on 14.5.2019 to buy back treasury shares until the end of 30.4.2024 for use in future acquisitions. By resolution of the management board from 29.1.2021, the company decided to launch a share buyback programme with an equivalent value of up to EUR 1m. The company started to buy back shares on 8.2.2021 and successfully concluded the programme on 24.6.2021 after buying back 40,581 shares at a weighted average price of EUR 24.64/share for a total of EUR 999,979.

DCF model

Figures in EUR m	Detailed forecast period			Transitional period										Term. Value
	2021e	2022e	2023e	2024e	2025e	2026e	2027e	2028e	2029e	2030e	2031e	2032e	2033e	
Sales	416.3	441.1	460.9	479.3	498.0	516.9	536.1	555.4	574.8	593.8	612.2	629.9	646.9	1.0 %
Sales change	9.8 %	5.9 %	4.5 %	4.0 %	3.9 %	3.8 %	3.7 %	3.6 %	3.5 %	3.3 %	3.1 %	2.9 %	2.7 %	
EBIT	38.6	44.2	45.6	44.8	46.1	47.8	49.6	51.4	53.2	54.9	56.6	58.3	59.9	
EBIT-margin	9.3 %	10.0 %	9.9 %	9.4 %	9.3 %	9.3 %	9.3 %	9.3 %	9.3 %	9.3 %	9.3 %	9.3 %	9.3 %	
Tax rate (EBT)	29.0 %	29.0 %	29.0 %	29.0 %	29.0 %	29.0 %	29.0 %	29.0 %	29.0 %	29.0 %	29.0 %	29.0 %	29.0 %	
NOPAT	27.4	31.4	32.4	31.8	32.7	34.0	35.2	36.5	37.8	39.0	40.2	41.4	42.5	
Depreciation	24.2	24.8	25.6	27.1	28.6	29.7	30.8	31.9	33.0	34.1	35.2	36.2	37.2	
in % of Sales	5.8 %	5.6 %	5.5 %	5.6 %	5.7 %	5.7 %	5.7 %	5.7 %	5.7 %	5.7 %	5.7 %	5.7 %	5.7 %	
Changes in provisions	-8.1	4.0	3.1	5.6	5.7	5.8	5.8	5.9	5.9	5.8	5.6	5.4	5.2	
Change in Liquidity from														
- Working Capital	1.6	3.5	2.8	5.9	6.1	3.8	3.8	3.9	3.9	3.8	3.7	3.5	3.4	
- Capex	30.0	30.0	31.5	31.2	31.9	32.6	33.2	33.9	34.5	35.6	36.7	37.8	38.8	
Capex in % of Sales	7.2 %	6.8 %	6.8 %	6.5 %	6.4 %	6.3 %	6.2 %	6.1 %	6.0 %	6.0 %	6.0 %	6.0 %	6.0 %	
Other	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	
Free Cash Flow (WACC Model)	11.9	26.7	26.8	27.5	29.0	33.1	34.8	36.6	38.4	39.5	40.6	41.7	42.7	42
PV of FCF	11.8	24.7	23.0	22.0	21.6	22.9	22.4	21.9	21.4	20.5	19.6	18.7	17.8	273
share of PVs	10.99 %			38.56 %										50.45 %

Model parameter

Derivation of WACC:		Derivation of Beta:	
Debt ratio	36.50 %	Financial Strength	1.50
Cost of debt (after tax)	3.6 %	Liquidity (share)	2.00
Market return	7.00 %	Cyclicality	1.50
Risk free rate	1.50 %	Transparency	1.50
		Others	1.00
WACC	7.49 %	Beta	1.50

Valuation (m)

Present values 2033e	269		
Terminal Value	273		
Financial liabilities	61		
Pension liabilities	142		
Hybrid capital	0		
Minority interest	2		
Market val. of investments	0		
Liquidity	17	No. of shares (m)	10.1
Equity Value	355	Value per share (EUR)	35.00

Sensitivity Value per Share (EUR)

		Terminal Growth									Delta EBIT-margin						
Beta	WACC	0.25 %	0.50 %	0.75 %	1.00 %	1.25 %	1.50 %	1.75 %	Beta	WACC	-0.8 pp	-0.5 pp	-0.3 pp	+0.0 pp	+0.3 pp	+0.5 pp	+0.8 pp
1.79	8.5 %	25.60	26.19	26.82	27.50	28.22	28.99	29.82	1.79	8.5 %	23.55	24.86	26.18	27.50	28.82	30.13	31.45
1.64	8.0 %	28.68	29.40	30.16	30.98	31.86	32.80	33.82	1.64	8.0 %	26.74	28.15	29.56	30.98	32.39	33.80	35.22
1.57	7.7 %	30.38	31.17	32.01	32.91	33.89	34.94	36.08	1.57	7.7 %	28.52	29.98	31.45	32.91	34.38	35.85	37.31
1.50	7.5 %	32.21	33.07	34.00	35.00	36.08	37.25	38.53	1.50	7.5 %	30.43	31.96	33.48	35.00	36.52	38.05	39.57
1.43	7.2 %	34.16	35.12	36.15	37.26	38.46	39.77	41.20	1.43	7.2 %	32.50	34.09	35.67	37.26	38.84	40.43	42.01
1.36	7.0 %	36.27	37.32	38.47	39.71	41.06	42.53	44.14	1.36	7.0 %	34.75	36.40	38.06	39.71	41.36	43.01	44.66
1.21	6.5 %	40.99	42.30	43.73	45.28	46.99	48.86	50.94	1.21	6.5 %	39.87	41.67	43.48	45.28	47.09	48.89	50.70

- The beta value Beta value reflects the limited liquidity of the share (Free float 43%),
- In addition, transparency is reduced for structural reasons as AlzChem is positioned as a B2B company

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	2017	2018	2019	2020	2021e	2022e	2023e	
Net Income before minorities	19.2	22.8	18.1	19.9	24.9	28.9	30.2	
+ Depreciation + Amortisation	14.0	15.2	19.5	23.1	24.2	24.8	25.6	
- Net Interest Income	-2.1	-2.2	-2.6	-2.1	-2.1	-2.0	-1.7	
- Maintenance Capex	12.4	14.0	14.5	14.7	15.0	15.3	15.8	
+ Other	0.0	0.0	0.0	0.0	0.0	0.0	0.0	
= Free Cash Flow Potential	22.8	26.2	25.8	30.4	36.1	40.5	41.8	
FCF Potential Yield (on market EV)	1.8 %	5.9 %	6.4 %	7.9 %	9.4 %	10.8 %	11.5 %	
WACC	7.49 %	7.49 %	7.49 %	7.49 %	7.49 %	7.49 %	7.49 %	
= Enterprise Value (EV)	1,288.8	444.4	404.4	387.2	383.7	374.0	364.7	
= Fair Enterprise Value	304.9	349.9	344.2	405.9	482.0	540.7	558.5	
- Net Debt (Cash)	43.6	43.6	43.6	43.6	26.0	12.3	-0.1	
- Pension Liabilities	141.8	141.8	141.8	141.8	133.7	137.7	140.8	
- Other	0.0	0.0	0.0	0.0	0.0	0.0	0.0	
- Market value of minorities	0.0	0.0	0.0	0.0	0.0	0.0	0.0	
+ Market value of investments	0.0	0.0	0.0	0.0	0.0	0.0	0.0	
= Fair Market Capitalisation	119.5	164.5	158.8	220.5	322.3	390.8	417.8	
Number of shares, average	10.2	10.2	10.2	10.2	10.1	10.1	10.1	
= Fair value per share (EUR)	11.74	16.17	15.61	21.67	31.80	38.55	41.22	
premium (-) / discount (+) in %					43.9 %	74.5 %	86.5 %	
Sensitivity Fair value per Share (EUR)								
WACC	10.49 %	3.19	6.35	5.95	10.30	18.20	23.29	25.46
	9.49 %	5.45	8.95	8.51	13.31	21.77	27.31	29.61
	8.49 %	8.25	12.16	11.67	17.04	26.20	32.27	34.73
	7.49 %	11.79	16.23	15.67	21.76	31.80	38.55	41.22
	6.49 %	16.43	21.55	20.90	27.93	39.13	46.78	49.72
	5.49 %	22.76	28.81	28.05	36.36	49.13	58.00	61.31
	4.49 %	31.90	39.31	38.38	48.54	63.59	74.22	78.07

■ Historical volatility of the value indication is due to cyclical operative development

Sum of the parts

€ m	Sales			EBITDA*			EBITDA-Margin			EBITDA (x)			Fair value (calc.)		
	2021e	2022e	2023e	2021e	2022e	2023e	2021e	2022e	2023e	2021e	2022e	2023e	2021e	2022e	2023e
Specialty Chemicals	220.70	236.71	250.92	49.69	56.21	59.52	0.23	0.24	0.24	9.82	9.08	8.43	488.11	510.51	501.55
Basics & Intermediates	169.87	178.36	183.71	11.73	11.59	10.30	0.07	0.07	0.06	4.33	4.32	4.62	50.81	50.12	47.59
Other & Holding	25.74	26.00	26.26	1.29	1.82	1.84	0.05	0.07	0.07	6.91	6.53	6.17	8.88	11.89	11.34
Consolidation	0.00	0.00	0.00	-0.24	-0.20	-0.20	n.m.	n.m.	n.m.	7.02	6.65	6.40	-1.70	-1.33	-1.28
Total	416.31	441.07	460.88	62.47	69.42	71.46	14.8%	15.4%	15.2%				546.10	571.19	559.20
- Net debt**													-25.98	-12.28	0.07
- Pension liabilities**													-133.70	-137.68	-140.77
- Minorities***													-4.74	-4.05	-3.53
+ Financial investments***													0.00	0.00	0.00
Fair equity value													381.68	558.91	559.27
Fair value/share (€)													37.66	41.16	40.94
Average fair value/share (€)															39.92

* w/o extraordinary items

** At book value

*** At market value

- Specialty chemicals segment peers: Covestro, Huntsman, Ube Industries, PetroChina Company and Kumho Petrochemical
- Basics & Intermediates segment peers: BASF, DuPont de Nemours, Clariant, Evonik, Lanxess,
- International Flavours and Fragrances (IFF)
- Other & Holding segment peer: Evonik

Valuation	2017	2018	2019	2020	2021e	2022e	2023e
Price / Book	20.7 x	4.3 x	3.6 x	3.0 x	2.7 x	2.2 x	1.9 x
Book value per share ex intangibles	5.37	6.50	5.72	6.40	8.10	9.97	11.81
EV / Sales	3.6 x	1.2 x	1.1 x	1.0 x	0.9 x	0.8 x	0.8 x
EV / EBITDA	29.3 x	9.0 x	8.1 x	7.2 x	6.1 x	5.4 x	5.1 x
EV / EBIT	42.9 x	13.0 x	13.2 x	12.6 x	9.9 x	8.5 x	8.0 x
EV / EBIT adj.*	42.9 x	13.0 x	13.2 x	12.6 x	9.9 x	8.5 x	8.0 x
P / FCF	199.0 x	n.a.	93.8 x	10.1 x	8.8 x	9.4 x	9.4 x
P / E	60.7 x	12.8 x	12.0 x	10.2 x	9.1 x	7.8 x	7.4 x
P / E adj.*	60.7 x	12.8 x	12.0 x	10.2 x	9.1 x	7.8 x	7.4 x
Dividend Yield	n.a.	3.2 %	3.5 %	3.9 %	4.5 %	5.1 %	5.4 %
FCF Potential Yield (on market EV)	1.8 %	5.9 %	6.4 %	7.9 %	9.4 %	10.8 %	11.5 %

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

Consolidated profit & loss

In EUR m	2017	2018	2019	2020	2021e	2022e	2023e
Sales	353.9	375.2	376.1	379.3	416.3	441.1	460.9
Change Sales yoy	8.2 %	6.0 %	0.2 %	0.8 %	9.8 %	5.9 %	4.5 %
Increase / decrease in inventory	1.8	5.5	-4.9	-2.5	-1.5	0.0	0.0
Own work capitalised	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Sales	355.7	380.7	371.2	376.7	414.8	441.1	460.9
Material expenses	137.9	155.4	142.4	132.5	143.4	150.2	157.8
Gross profit	217.8	225.2	228.8	244.2	271.4	290.9	303.0
<i>Gross profit margin</i>	<i>61.5 %</i>	<i>60.0 %</i>	<i>60.8 %</i>	<i>64.4 %</i>	<i>65.2 %</i>	<i>66.0 %</i>	<i>65.8 %</i>
Personnel expenses	109.2	114.2	122.1	127.4	142.3	151.3	158.1
Other operating income	11.6	13.4	17.1	10.7	11.7	12.5	13.1
Other operating expenses	76.1	75.1	73.8	73.7	78.1	83.1	86.8
Unfrequent items	0.0	0.0	0.0	0.0	0.0	0.0	0.0
EBITDA	44.0	49.4	50.1	53.8	62.8	69.0	71.2
<i>Margin</i>	<i>12.4 %</i>	<i>13.2 %</i>	<i>13.3 %</i>	<i>14.2 %</i>	<i>15.1 %</i>	<i>15.6 %</i>	<i>15.4 %</i>
Depreciation of fixed assets	14.0	15.2	19.5	23.1	24.2	24.8	25.6
EBITA	30.0	34.2	30.6	30.7	38.6	44.2	45.6
Amortisation of intangible assets	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Goodwill amortisation	0.0	0.0	0.0	0.0	0.0	0.0	0.0
EBIT	30.0	34.2	30.6	30.7	38.6	44.2	45.6
<i>Margin</i>	<i>8.5 %</i>	<i>9.1 %</i>	<i>8.1 %</i>	<i>8.1 %</i>	<i>9.3 %</i>	<i>10.0 %</i>	<i>9.9 %</i>
EBIT adj.	30.0	34.2	30.6	30.7	38.6	44.2	45.6
Interest income	0.4	0.2	0.1	0.0	0.0	0.0	0.0
Interest expenses	2.5	2.4	2.7	2.1	2.1	2.0	1.8
Other financial income (loss)	0.0	0.0	-2.5	-1.4	-1.5	-1.4	-1.3
EBT	27.9	32.0	25.5	27.2	35.0	40.8	42.6
<i>Margin</i>	<i>7.9 %</i>	<i>8.5 %</i>	<i>6.8 %</i>	<i>7.2 %</i>	<i>8.4 %</i>	<i>9.2 %</i>	<i>9.2 %</i>
Total taxes	8.8	9.1	7.3	7.3	10.2	11.8	12.4
Net income from continuing operations	19.2	22.8	18.1	19.9	24.9	28.9	30.2
Income from discontinued operations (net of tax)	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Net income before minorities	19.2	22.8	18.1	19.9	24.9	28.9	30.2
Minority interest	0.2	0.1	0.2	0.2	0.2	0.2	0.2
Net income	19.0	22.7	18.0	19.7	24.7	28.8	30.1
<i>Margin</i>	<i>5.4 %</i>	<i>6.0 %</i>	<i>4.8 %</i>	<i>5.2 %</i>	<i>5.9 %</i>	<i>6.5 %</i>	<i>6.5 %</i>
Number of shares, average	10.2	10.2	10.2	10.2	10.1	10.1	10.1
EPS	1.87	2.23	1.77	1.94	2.44	2.84	2.97
EPS adj.	1.87	2.23	1.77	1.94	2.44	2.84	2.97

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

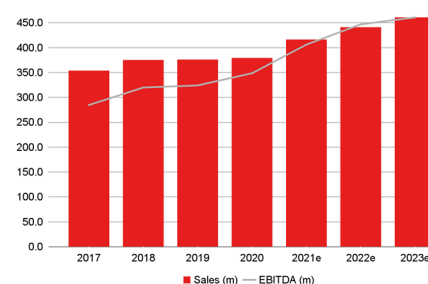
Guidance: FY 2021: EBITDA strongly rising to up to EUR 64m

Financial Ratios

	2017	2018	2019	2020	2021e	2022e	2023e
Total Operating Costs / Sales	60.5 %	61.4 %	57.5 %	54.4 %	53.2 %	52.9 %	53.1 %
Operating Leverage	-0.6 x	2.3 x	-46.3 x	0.5 x	2.6 x	2.4 x	0.7 x
EBITDA / Interest expenses	17.7 x	20.2 x	18.3 x	25.1 x	30.2 x	33.8 x	40.0 x
Tax rate (EBT)	31.4 %	28.6 %	28.8 %	27.0 %	29.0 %	29.0 %	29.0 %
Dividend Payout Ratio	0.0 %	40.1 %	42.1 %	39.4 %	40.4 %	39.8 %	39.8 %
Sales per Employee	n.a.	761,221,489	n.a.	n.a.	n.a.	n.a.	n.a.

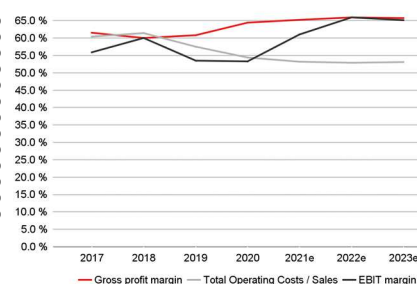
Sales, EBITDA

in EUR m

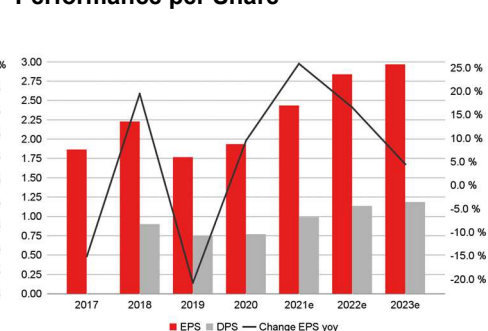


Operating Performance

in %



Performance per Share



Source: Warburg Research

Source: Warburg Research

Source: Warburg Research

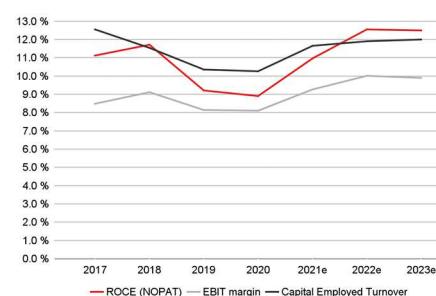
Consolidated balance sheet

In EUR m	2017	2018	2019	2020	2021e	2022e	2023e
Assets							
Goodwill and other intangible assets	1.0	0.9	1.5	1.8	1.6	1.5	1.3
thereof other intangible assets	1.0	0.9	1.5	1.8	1.6	1.5	1.3
thereof Goodwill	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Property, plant and equipment	115.1	144.3	175.5	183.6	189.6	194.9	201.0
Financial assets	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Other long-term assets	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Fixed assets	116.1	145.1	177.0	185.4	191.2	196.4	202.3
Inventories	71.4	78.9	74.6	67.4	66.8	69.4	71.5
Accounts receivable	35.0	34.4	32.5	33.1	37.4	39.6	41.4
Liquid assets	12.8	12.9	9.1	17.1	33.7	39.8	41.7
Other short-term assets	44.8	42.4	49.4	51.3	39.3	40.9	42.1
Current assets	164.0	168.4	165.6	168.9	177.2	189.7	196.7
Total Assets	280.2	313.6	342.6	354.3	368.4	386.1	399.0
Liabilities and shareholders' equity							
Subscribed capital	101.8	101.8	101.8	101.8	101.8	101.8	101.8
Capital reserve	-5.5	-4.2	-5.0	-4.2	-2.2	0.1	2.3
Retained earnings	-33.6	-25.4	-30.7	-25.5	-13.2	0.5	14.1
Other equity components	-6.9	-5.2	-6.3	-5.2	-2.7	0.1	2.9
Shareholders' equity	55.7	67.0	59.8	66.9	83.7	102.5	121.1
Minority interest	2.2	1.4	1.6	1.8	1.8	1.9	2.0
Total equity	57.9	68.4	61.4	68.7	85.6	104.4	123.1
Provisions	125.9	131.4	158.8	168.9	162.6	167.7	171.7
thereof provisions for pensions and similar obligations	107.2	110.0	134.6	141.8	133.7	137.7	140.8
Financial liabilities (total)	41.3	57.9	62.7	60.7	59.7	52.1	41.6
Short-term financial liabilities	22.1	25.4	11.9	12.7	13.5	12.1	10.4
Accounts payable	28.2	30.9	24.1	20.9	22.9	24.3	25.4
Other liabilities	26.9	25.0	35.7	35.1	37.6	37.6	37.2
Liabilities	222.3	245.2	281.2	285.6	282.8	281.6	275.9
Total liabilities and shareholders' equity	280.2	313.6	342.6	354.3	368.4	386.1	399.0

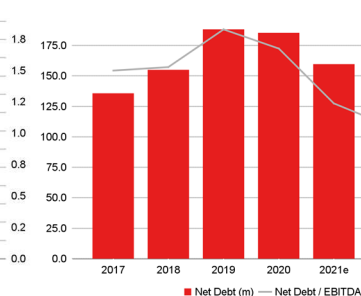
Financial Ratios

	2017	2018	2019	2020	2021e	2022e	2023e
Efficiency of Capital Employment							
Operating Assets Turnover	1.8 x	1.7 x	1.5 x	1.4 x	1.5 x	1.6 x	1.6 x
Capital Employed Turnover	1.8 x	1.7 x	1.5 x	1.5 x	1.7 x	1.7 x	1.7 x
ROA	16.3 %	15.6 %	10.2 %	10.6 %	12.9 %	14.7 %	14.9 %
Return on Capital							
ROCE (NOPAT)	11.1 %	11.7 %	9.2 %	8.9 %	11.0 %	12.6 %	12.5 %
ROE	34.8 %	37.0 %	28.4 %	31.1 %	32.8 %	30.9 %	26.9 %
Adj. ROE	34.8 %	37.0 %	28.4 %	31.1 %	32.8 %	30.9 %	26.9 %
Balance sheet quality							
Net Debt	135.8	155.0	188.3	185.4	159.7	150.0	140.7
Net Financial Debt	28.5	45.1	53.6	43.6	26.0	12.3	-0.1
Net Gearing	234.5 %	226.7 %	306.8 %	270.0 %	186.6 %	143.6 %	114.3 %
Net Fin. Debt / EBITDA	64.8 %	91.3 %	107.1 %	81.1 %	41.4 %	17.8 %	n.a.
Book Value / Share	5.5	6.6	5.9	6.6	8.3	10.1	11.9
Book value per share ex intangibles	5.4	6.5	5.7	6.4	8.1	10.0	11.8

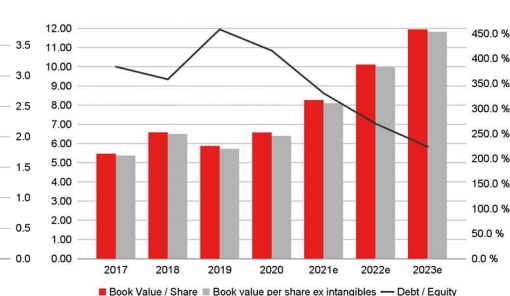
ROCE Development



Net debt in EUR m



Book Value per Share in EUR



Source: Warburg Research

Source: Warburg Research

Source: Warburg Research

Consolidated cash flow statement

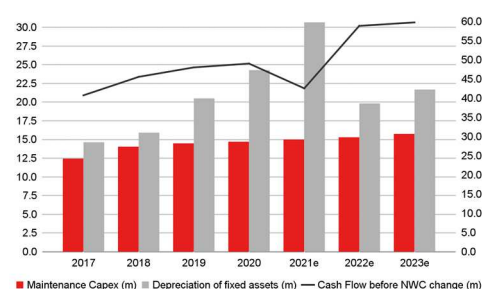
In EUR m	2017	2018	2019	2020	2021e	2022e	2023e
Net income	19.2	22.8	18.1	19.9	24.9	28.9	30.2
Depreciation of fixed assets	14.6	15.9	20.5	24.3	30.7	19.8	21.7
Amortisation of goodwill	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Amortisation of intangible assets	-0.6	-0.7	-1.0	-1.2	-6.5	5.0	3.9
Increase/decrease in long-term provisions	-0.6	-0.7	-1.0	-1.2	-6.5	5.0	3.9
Other non-cash income and expenses	8.2	8.3	11.4	7.2	0.0	0.0	0.0
Cash Flow before NWC change	40.7	45.6	48.0	49.0	42.5	58.8	59.7
Increase / decrease in inventory	-8.2	-5.3	2.4	5.3	0.6	-2.6	-2.1
Increase / decrease in accounts receivable	-1.0	-5.9	-7.1	-5.8	7.7	-3.8	-3.0
Increase / decrease in accounts payable	0.0	0.0	0.0	0.0	0.2	0.1	0.1
Increase / decrease in other working capital positions	-0.9	0.3	0.3	0.2	4.5	1.4	0.7
Increase / decrease in working capital (total)	-10.1	-10.9	-4.4	-0.3	13.0	-5.0	-4.3
Net cash provided by operating activities [1]	30.6	34.7	43.6	48.7	55.6	53.8	55.4
Investments in intangible assets	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Investments in property, plant and equipment	-24.9	-40.1	-41.4	-28.8	-30.0	-30.0	-31.5
Payments for acquisitions	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Financial investments	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Income from asset disposals	0.1	0.2	0.1	0.0	0.0	0.0	0.0
Net cash provided by investing activities [2]	-24.8	-39.9	-41.3	-28.8	-30.0	-30.0	-31.5
Change in financial liabilities	10.9	16.5	4.8	-1.9	-1.0	-7.6	-10.4
Dividends paid	-17.8	-11.3	-9.3	-7.8	-7.9	-10.1	-11.6
Purchase of own shares	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Capital measures	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Other	1.9	0.0	-1.6	-2.0	0.0	0.0	0.0
Net cash provided by financing activities [3]	-5.1	5.3	-6.2	-11.7	-9.0	-17.8	-22.0
Change in liquid funds [1]+[2]+[3]	0.8	0.0	-3.9	8.2	16.6	6.1	1.9
Effects of exchange-rate changes on cash	-0.1	0.0	0.1	-0.1	0.0	0.0	0.0
Cash and cash equivalent at end of period	12.8	12.9	9.1	17.1	33.7	39.8	41.7

Financial Ratios

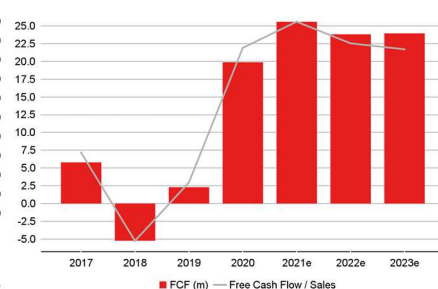
	2017	2018	2019	2020	2021e	2022e	2023e
Cash Flow							
FCF	5.8	-5.2	2.3	19.9	25.6	23.8	23.9
Free Cash Flow / Sales	1.6 %	-1.4 %	0.6 %	5.2 %	6.1 %	5.4 %	5.2 %
Free Cash Flow Potential	22.8	26.2	25.8	30.4	36.1	40.5	41.8
Free Cash Flow / Net Profit	30.5 %	-23.1 %	12.8 %	100.9 %	103.6 %	82.8 %	79.6 %
Interest Received / Avg. Cash	3.0 %	1.6 %	1.1 %	0.1 %	0.1 %	0.1 %	0.1 %
Interest Paid / Avg. Debt	7.0 %	4.9 %	4.5 %	3.5 %	3.4 %	3.7 %	3.8 %
Management of Funds							
Investment ratio	7.0 %	10.7 %	11.0 %	7.6 %	7.2 %	6.8 %	6.8 %
Maint. Capex / Sales	3.5 %	3.7 %	3.9 %	3.9 %	3.6 %	3.5 %	3.4 %
Capex / Dep	177.8 %	264.2 %	212.3 %	124.8 %	124.1 %	120.9 %	123.2 %
Avg. Working Capital / Sales	22.0 %	21.4 %	22.0 %	21.4 %	19.3 %	18.8 %	18.7 %
Trade Debtors / Trade Creditors	124.2 %	111.3 %	135.0 %	158.6 %	163.0 %	163.0 %	163.0 %
Inventory Turnover	1.9 x	2.0 x	1.9 x	2.0 x	2.1 x	2.2 x	2.2 x
Receivables collection period (days)	36	33	32	32	33	33	33
Payables payment period (days)	75	72	62	58	58	59	59
Cash conversion cycle (Days)	150	146	161	160	144	143	139

CAPEX and Cash Flow

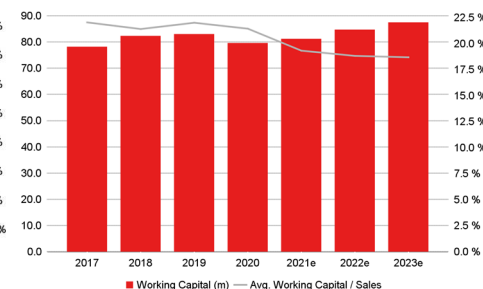
in EUR m



Free Cash Flow Generation



Working Capital



Source: Warburg Research

Source: Warburg Research

Source: Warburg Research

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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.
-S-	Sell:	The price of the analysed financial instrument is expected to fall over the next 12 months.
“-“	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	151	70
Hold	57	27
Sell	5	2
Rating suspended	2	1
Total	215	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	49	83
Hold	8	14
Sell	0	0
Rating suspended	2	3
Total	59	100

PRICE AND RATING HISTORY ALZCHEM AS OF 10.11.2021



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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