CRITICAL MATERIALS FOR
THE NEW MILLENNIUM
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AMG Overview
GLOBAL VIEW

Global Trends
• Need to contain CO₂ emissions
• Operation growth and increasing affluence need a technology counterbalance

Demand
• Material science-based solutions for energy efficiency (lighter, stronger, temperature resistant)

Supply
• AMG sources, processes, and supplies the materials which are critical because of market demands

AMG is a critical materials company
AMG: MITIGATING TECHNOLOGIES
Products and processes saving raw materials, energy and CO₂ emissions during manufacturing
(i.e., recycling of Ferrovanadium)

AMG: ENABLING TECHNOLOGIES
Products and processes saving CO₂ emissions during use
(i.e., light-weighting and fuel efficiency in the aerospace and automotive industries)

LEADER IN ADVANCED TECHNOLOGIES TO ADDRESS CO₂ REDUCTION

CO₂ REDUCTION
A GLOBAL IMPERATIVE FOR THE 21ST CENTURY

AMG has developed into a leader in enabling technologies
EXCELLENT PLATFORM FOR ORGANIC AND ACQUISITION LED GROWTH

MISSION STATEMENT
To increase long-term value through industry leadership, operational expertise and efficient deployment of capital

STRATEGIC OBJECTIVE
Identifying long-term trends and leveraging those trends through technological excellence and innovations in the indispensable areas of critical materials and vacuum technologies

GROWTH OBJECTIVES

A
Routine organic growth of existing business lines

B
Non-routine expansion of existing business lines

C
Transformational projects

AMG Core Business + A + B + C ≥ $200M * EBITDA in 5 years or less

* EBITDA target assumes current metal prices and no major acquisitions
AMG’S CORE KNOW-HOW

PROCUREMENT
Sourcing material from remote origins

OPERATIONS
World leader in advanced metallurgical & mineral processing

MARKETS
Operating in volatile oligopolistic niche markets

CUSTOMERS
Intense interaction with global industrial leaders
Financial Highlights
AMG AT A GLANCE

Q3 2017 REVENUE

BY SEGMENT:
- 79% Critical Materials
- 21% Engineering

BY END MARKET:
- 42% Transportation
- 21% Specialty Metals & Chemicals
- 27% Infrastructure
- 10% Energy

BY REGION:
- 44% Europe
- 34% North America
- 17% Asia
- 5% ROW

AMG IS A GLOBAL SUPPLIER OF CRITICAL MATERIALS TO:
- ENERGY
- TRANSPORTATION
- INFRASTRUCTURE
- SPECIALTY METALS AND CHEMICALS

Market leading producer of highly engineered specialty metals and vacuum furnace systems

~3,100 Employees
~$1 billion Annual Revenues
At the forefront of CO₂ Reduction
Q3 2017 AT A GLANCE

<table>
<thead>
<tr>
<th>AMOUNTS IN $M</th>
<th>Q3 2017</th>
<th>Q3 2016</th>
<th>% CHANGE</th>
</tr>
</thead>
<tbody>
<tr>
<td>Revenue</td>
<td>$258.9</td>
<td>$247.5</td>
<td>5%</td>
</tr>
<tr>
<td>Gross Profit *</td>
<td>$51.3</td>
<td>$46.3</td>
<td>11%</td>
</tr>
<tr>
<td>Gross Margin %</td>
<td>19.8%</td>
<td>18.8%</td>
<td>5%</td>
</tr>
<tr>
<td>Profit Before Income Taxes</td>
<td>$15.5</td>
<td>$9.6</td>
<td>61%</td>
</tr>
<tr>
<td>EBITDA</td>
<td>$27.6</td>
<td>$23.4</td>
<td>18%</td>
</tr>
<tr>
<td>EBITDA Margin %</td>
<td>10.7%</td>
<td>9.5%</td>
<td>13%</td>
</tr>
<tr>
<td>Net Debt (Cash)</td>
<td>$15.4</td>
<td>($1.9)</td>
<td>911%</td>
</tr>
<tr>
<td>Return On Capital Employed (ROCE)</td>
<td>21.5%</td>
<td>18.0%</td>
<td>19%</td>
</tr>
<tr>
<td>Net Income Attributable To Shareholders</td>
<td>$14.0</td>
<td>$5.2</td>
<td>169%</td>
</tr>
<tr>
<td>Diluted Earnings Per Share</td>
<td>0.44</td>
<td>0.18</td>
<td>144%</td>
</tr>
</tbody>
</table>

* Gross Profit has been restated to include restructuring expenses and asset impairment expenses, in order to take into consideration ESMA’s latest recommendations.

- Q3 ‘17 EBITDA up 18% versus Q3 ‘16 due to improved profitability within AMG Critical Materials
- Annualized ROCE increased to 21.5% in Q3 2017 versus 18.0% for Q3 2016

Net Debt Reduction of $72.4 million since December 2014
DIVISIONAL FINANCIAL HIGHLIGHTS – Q3 2017 VS. Q3 2016

**REVENUE**

Q3 2017 REVENUE: $258.9  (IN MILLIONS OF US DOLLARS)

- **AMG Critical Materials**: $203.4
- **AMG Engineering**: $70.0

**EBITDA**

Q3 2017 EBITDA: $27.6  (IN MILLIONS OF US DOLLARS)

- **AMG Critical Materials**: $23.5
- **AMG Engineering**: $4.1

**GROSS MARGIN **

Q3 2017 GROSS MARGIN: 19.8%

- **AMG Critical Materials**: 18.0%
- **AMG Engineering**: 20.5%

**CAPITAL EXPENDITURE**

Q3 2017 CAPEX: $23.2  (IN MILLIONS OF US DOLLARS)

- **AMG Critical Materials**: $21.6
- **AMG Engineering**: $0.6

* Gross Profit has been restated to include restructuring expenses and asset impairment expenses, in order to take into consideration ESMA’s latest recommendations.
FINANCIAL HIGHLIGHTS

REVENUE (IN MILLIONS OF US DOLLARS)

<table>
<thead>
<tr>
<th>Quarter</th>
<th>REVENUE (in millions of US dollars)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Q3 16</td>
<td>$247.5</td>
</tr>
<tr>
<td>Q4 16</td>
<td>$237.9</td>
</tr>
<tr>
<td>Q1 17</td>
<td>$258.0</td>
</tr>
<tr>
<td>Q2 17</td>
<td>$262.0</td>
</tr>
<tr>
<td>Q3 17</td>
<td>$258.9</td>
</tr>
</tbody>
</table>

GROSS PROFIT * (IN MILLIONS OF US DOLLARS)

<table>
<thead>
<tr>
<th>Quarter</th>
<th>GROSS PROFIT (in millions of US dollars)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Q3 16</td>
<td>$46.3</td>
</tr>
<tr>
<td>Q4 16</td>
<td>$43.0</td>
</tr>
<tr>
<td>Q1 17</td>
<td>$52.5</td>
</tr>
<tr>
<td>Q2 17</td>
<td>$54.3</td>
</tr>
<tr>
<td>Q3 17</td>
<td>$51.3</td>
</tr>
</tbody>
</table>

EBITDA (IN MILLIONS OF US DOLLARS)

<table>
<thead>
<tr>
<th>Quarter</th>
<th>EBITDA (in millions of US dollars)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Q3 16</td>
<td>$23.4</td>
</tr>
<tr>
<td>Q4 16</td>
<td>$30.0</td>
</tr>
<tr>
<td>Q1 17</td>
<td>$33.0</td>
</tr>
<tr>
<td>Q2 17</td>
<td>$31.9</td>
</tr>
<tr>
<td>Q3 17</td>
<td>$27.6</td>
</tr>
</tbody>
</table>

ORDER INTAKE (IN MILLIONS OF US DOLLARS)

<table>
<thead>
<tr>
<th>Quarter</th>
<th>ORDER INTAKE (in millions of US dollars)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Q3 16</td>
<td>$68.1</td>
</tr>
<tr>
<td>Q4 16</td>
<td>$61.7</td>
</tr>
<tr>
<td>Q1 17</td>
<td>$81.8</td>
</tr>
<tr>
<td>Q2 17</td>
<td>$76.9</td>
</tr>
<tr>
<td>Q3 17</td>
<td>$40.5</td>
</tr>
</tbody>
</table>

* Gross Profit has been restated to include restructuring expenses and asset impairment expenses, in order to take into consideration ESMA’s latest recommendations.
5 YEAR TREND – EBITDA & ROCE

**EBITDA (IN MILLIONS OF US DOLLARS)**

- 2012: $83.5
- 2013: $72.6
- 2014: $85.7
- 2015: $75.6
- 2016: $100.7

**FY ‘16 EBITDA UP 33% VERSUS FY ‘15**

- 2012: 9.2%
- 2013: 7.4%
- 2014: 11.9%
- 2015: 12.0%
- 2016: 18.8%

**FY ‘16 ROCE IMPROVED TO 18.8% FROM 12.0% IN FY ‘15**

- 2016 EBITDA is up 33% due to product mix and operational improvements in Critical Materials as well as a very strong performance by Engineering due to an increase in demand for furnaces from the aerospace industry.

- FY 2016 annualized ROCE improved to 18.8% from 12.0% in FY 2015.

- ROCE improvements are the result of efficient use of capital and improved profitability.
• Net debt: $7.3 million
  o $186.9 million reduction of net debt since December 31, 2012
  o Net Debt to LTM EBITDA: 0.07x
• AMG’s primary debt facility is a $400 million multicurrency term loan and revolving credit facility
  o 5 year term (until 2021) with an accordion feature that allows the Company, subject to certain conditions, to increase the commitment amount by up to $100 million
  o In compliance with all debt covenants
• FY ‘16 net cash from operating activities of $56.2 million, which included voluntary cash contributions to the Company’s pension plans of $23.1 million made during the year
AMG expects full year 2017 EBITDA to improve by 10%, or more, relative to 2016.

In 2018, AMG expects to continue its strong financial performance and improve profitability relative to 2017.

AMG's management team is focused on delivering our highly accretive lithium project and executing our long term lithium strategy. In addition, we will continue to pursue other acquisition opportunities and organic growth projects in order to generate long term value for our shareholders.
Lithium Project Update
**AMG Lithium & Tantalum**

<table>
<thead>
<tr>
<th>Division</th>
<th>AMG Oxides</th>
<th>AMG Tantalum</th>
<th>AMG Lithium</th>
</tr>
</thead>
<tbody>
<tr>
<td>Location</td>
<td>São João del Rei, Brazil</td>
<td>Mibra Mine, Brazil</td>
<td>Mibra Mine, Brazil</td>
</tr>
</tbody>
</table>
| Products | • Tantalum Oxide  
• Niobium Oxide | Tantalum Concentrate | Lithium Concentrate* |
| Current Production Capacity | • 140k lbs tantalum oxide / year  
• 600 MT high purity niobium oxide / year | 300,000 lbs / year | 90,000 MT / year (Plant I) |
| Planned Capacity Expansion | n/a | 600,000 lbs / year | 180,000 MT / year (Plant I & II) |
| Status | Fully operational | Fully operational (expansion underway) | **Spodumene I**: approved, under construction  
**Spodumene II**: approved, detailed engineering  
**Lithium carbonate downstream**: under analysis |

* Future approval (H1 2018) of Phase III of the lithium project will result in production of lithium carbonate from lithium concentrate
## AMG LITHIUM – PROJECT STRENGTHS

<table>
<thead>
<tr>
<th>Existing management and mining infrastructure – not a new mine project</th>
<th>Strong understanding of the mine geology</th>
<th>Mining infrastructure already in place and operational</th>
<th>Ore extraction and crushing costs absorbed by profitable tantalum operation</th>
</tr>
</thead>
</table>

- Spodumene plant will be fed via lithium deposits in existing tailings, as well as incremental lithium-bearing tailings generated via tantalum production
  - 2.8 million metric tons of spodumene plant feed stock already extracted in the form of on-site tailings

- AMG has operated a spodumene pilot plant since 2010

- Strategic flexibility to further develop operational scope

---

**AMG HAS OPERATED THE MIBRA MINE FOR 38 YEARS**
## LITHIUM PROJECT PHASES

<table>
<thead>
<tr>
<th>PHASE I &amp; PHASE II</th>
<th>PHASE III</th>
</tr>
</thead>
<tbody>
<tr>
<td>LITHIUM CONCENTRATE PRODUCTION</td>
<td>LITHIUM CHEMICAL PRODUCTION</td>
</tr>
<tr>
<td>LITHIUM CONCENTRATE PLANT I</td>
<td>LITHIUM CHEMICAL PLANTS</td>
</tr>
<tr>
<td>Construction of a lithium concentrate plant to produce 90,000 MT of spodumene per year</td>
<td>Construction of lithium chemical plants for the downstream conversion of lithium concentrate into lithium carbonate</td>
</tr>
<tr>
<td>Production start-up: mid-2018</td>
<td></td>
</tr>
<tr>
<td><strong>APPROVED CAPEX: $50M</strong></td>
<td></td>
</tr>
<tr>
<td>LITHIUM CONCENTRATE PLANT II</td>
<td></td>
</tr>
<tr>
<td>Construction of second lithium concentrate plant, resulting in capacity expansion from 90,000 MT to 180,000 MT per year</td>
<td></td>
</tr>
<tr>
<td>Production start-up: H2 2019</td>
<td></td>
</tr>
<tr>
<td><strong>APPROVED CAPEX: $110M</strong></td>
<td></td>
</tr>
</tbody>
</table>

* Phase II capex includes investments related to the expansion of the existing tantalum operations in addition to the development and expansion of the existing mining infrastructure
SPODUMENE II TIMELINE

<table>
<thead>
<tr>
<th>Q4 17</th>
<th>Q1 18</th>
<th>Q2 18</th>
<th>H2 19</th>
</tr>
</thead>
<tbody>
<tr>
<td>Engineering Start</td>
<td>Engineering Complete</td>
<td>Construction Start</td>
<td>Mechanical Completion</td>
</tr>
</tbody>
</table>
AMG’s Mineral Resource Statement for the Mibra mine was updated in March 2017, and states 20.3 million tonnes of measured and indicated resources, an increase of approximately 38% compared to the previous Mineral Resource Statement completed in 2013.

Further exploration and drilling is ongoing to identify additional resources.

<table>
<thead>
<tr>
<th>Domain</th>
<th>Quantity ('000s tonnes)</th>
<th>Grade (%</th>
<th>Li (ppm)</th>
<th>Li₂O (ppm)</th>
<th>Ta (ppm)</th>
<th>Ta₂O₅ (ppm)</th>
<th>Nb (ppm)</th>
<th>Sn (ppm)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Measured Mineral Resources</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>A</td>
<td>3,224</td>
<td>4,685</td>
<td>1.01</td>
<td>289</td>
<td>353</td>
<td>52</td>
<td>267</td>
<td></td>
</tr>
<tr>
<td>C</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td>F</td>
<td>197</td>
<td>3,670</td>
<td>0.79</td>
<td>377</td>
<td>461</td>
<td>45</td>
<td>565</td>
<td></td>
</tr>
<tr>
<td>Total Measured</td>
<td>3,421</td>
<td>4,626</td>
<td>1.00</td>
<td>294</td>
<td>359</td>
<td>52</td>
<td>284</td>
<td></td>
</tr>
<tr>
<td>Indicated Mineral Resources</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>A</td>
<td>11,989</td>
<td>5,130</td>
<td>1.10</td>
<td>293</td>
<td>358</td>
<td>46</td>
<td>258</td>
<td></td>
</tr>
<tr>
<td>C</td>
<td>4,842</td>
<td>4,545</td>
<td>0.98</td>
<td>228</td>
<td>278</td>
<td>64</td>
<td>685</td>
<td></td>
</tr>
<tr>
<td>F</td>
<td>37</td>
<td>4,179</td>
<td>0.90</td>
<td>428</td>
<td>523</td>
<td>49</td>
<td>773</td>
<td></td>
</tr>
<tr>
<td>Total Indicated</td>
<td>16,868</td>
<td>4,960</td>
<td>1.07</td>
<td>275</td>
<td>335</td>
<td>51</td>
<td>382</td>
<td></td>
</tr>
<tr>
<td>Total Measured &amp; Indicated</td>
<td>20,289</td>
<td>4,904</td>
<td>1.06</td>
<td>278</td>
<td>339</td>
<td>51</td>
<td>365</td>
<td></td>
</tr>
<tr>
<td>Inferred Mineral Resources</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>A</td>
<td>2,434</td>
<td>4,714</td>
<td>1.01</td>
<td>309</td>
<td>377</td>
<td>45</td>
<td>204</td>
<td></td>
</tr>
<tr>
<td>C</td>
<td>1,787</td>
<td>4,895</td>
<td>1.05</td>
<td>231</td>
<td>282</td>
<td>63</td>
<td>842</td>
<td></td>
</tr>
<tr>
<td>F</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td></td>
</tr>
<tr>
<td>Total Inferred</td>
<td>4,222</td>
<td>4,790</td>
<td>1.03</td>
<td>276</td>
<td>337</td>
<td>53</td>
<td>474</td>
<td></td>
</tr>
</tbody>
</table>

Based upon AMG’s targeted production level of 180k MT of lithium concentrate from 2020 onwards, AMG estimates that the current life of the mineral resource is approximately 20 years.
AMG’s objective is to be the low-cost producer of spodumene globally

- AMG’s spodumene operating costs benefit from the production of tantalum concentrate, which absorb the costs of mining and initial ore processing (crushing and grinding).

Source: Roskill 2017, page 35; AMG management estimates
Notes: AMG is by-product from tantalum production; Pilbara and Galaxy includes credits from tantalite production
Subject to the approval of Phase III of the lithium project, AMG’s fully integrated cost of production of lithium carbonate would be approximately $4,000/MT.
The EU identified 27 critical raw materials* to the European economy in 2017, focusing on two determinants: economic importance and supply risk.

The US identified 30 critical materials* which are vital to national defense, primarily through assessing supply risk.

AMG has a unique critical materials portfolio comprising:
- 7 EU critical raw materials
- 4 US critical raw materials
- Highly engineered Titanium Alloys for the aerospace industry
- High value added Aluminum Master Alloys
- Vanadium, Nickel and Molybdenum from recycled secondary raw materials

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2. Chromium Metal (a subcategory of chrome ore) is not identified by the EU report.
CRITICAL MATERIALS PRICES: 10 YEAR PERSPECTIVE

Metal prices are measured on a scale of 0 to 10, with 0 and 10 representing the minimum and maximum average quarterly prices occurring during the past 10 years.

The positions demonstrate the current price level of each metal with respect to their various historical price points over the past 10 years.

AMG’s relevant prices have started to move into the second quartile.

Note: Metal Positions are measured on a scale of 0 to 10, with 0 being the minimum price and 10 being the maximum price. They are calculated using the formula \([(\text{Sep '07 month avg} - \text{min. monthly avg}) / (\text{max. monthly avg} - \text{min. monthly avg}) \times 10]\) where maximum and minimum monthly averages are measured over the period 1 Sep '07 through 30 Sep '17.
## CRITICAL MATERIALS – AVERAGE QUARTERLY PRICES

<table>
<thead>
<tr>
<th>MATERIALS</th>
<th>Q3 2016</th>
<th>Q4 2016</th>
<th>Q1 2017</th>
<th>Q2 2017</th>
<th>Q3 2017</th>
<th>Q3 '17 VS. Q3 '16 % CHANGE</th>
<th>Q3 '17 VS. Q2 '17 % CHANGE</th>
</tr>
</thead>
<tbody>
<tr>
<td>Ferrovanadium ($/lb)</td>
<td>$9.99</td>
<td>$10.65</td>
<td>$12.35</td>
<td>$12.30</td>
<td>$17.75</td>
<td>78%</td>
<td>44%</td>
</tr>
<tr>
<td>Molybdenum ($/lb)</td>
<td>$7.01</td>
<td>$6.63</td>
<td>$7.90</td>
<td>$8.03</td>
<td>$8.21</td>
<td>17%</td>
<td>2%</td>
</tr>
<tr>
<td>Nickel ($/MT)</td>
<td>$10,262</td>
<td>$10,685</td>
<td>$10,267</td>
<td>$9,222</td>
<td>$10,524</td>
<td>3%</td>
<td>14%</td>
</tr>
<tr>
<td>Aluminum ($/MT)</td>
<td>$1,620</td>
<td>$1,710</td>
<td>$1,851</td>
<td>$1,909</td>
<td>$2,011</td>
<td>24%</td>
<td>5%</td>
</tr>
<tr>
<td>Chrome ($/lb)</td>
<td>$3.67</td>
<td>$3.65</td>
<td>$3.83</td>
<td>$4.02</td>
<td>$3.93</td>
<td>7%</td>
<td>(2%)</td>
</tr>
<tr>
<td>Tantalum ($/lb)</td>
<td>$60</td>
<td>$56</td>
<td>$57</td>
<td>$67</td>
<td>$75</td>
<td>24%</td>
<td>12%</td>
</tr>
<tr>
<td>Niobium Oxide ($/kg)</td>
<td>$28</td>
<td>$26</td>
<td>$27</td>
<td>$30</td>
<td>$34</td>
<td>20%</td>
<td>15%</td>
</tr>
<tr>
<td>Ti Sponge ($/kg)</td>
<td>$8.15</td>
<td>$8.15</td>
<td>$8.24</td>
<td>$8.74</td>
<td>$8.15</td>
<td>–</td>
<td>(7%)</td>
</tr>
<tr>
<td>Antimony ($/MT)</td>
<td>$7,271</td>
<td>$7,482</td>
<td>$8,098</td>
<td>$8,890</td>
<td>$8,291</td>
<td>14%</td>
<td>(7%)</td>
</tr>
<tr>
<td>Graphite ($/MT) *</td>
<td>$763</td>
<td>$822</td>
<td>$730</td>
<td>$823</td>
<td>$997</td>
<td>31%</td>
<td>21%</td>
</tr>
<tr>
<td>Silicon Metal (€/MT)</td>
<td>€1,648</td>
<td>€1,733</td>
<td>€1,993</td>
<td>€1,989</td>
<td>€1,927</td>
<td>17%</td>
<td>(3%)</td>
</tr>
</tbody>
</table>

* Graphite prices shown above have been changed to Benchmark Minerals index (Graphite, flake, 94-95% C, +80 mesh, FOB China) to better reflect AMG Graphite's high purity grade.
Note: LG Chem, BYD and Panasonic produce both cathode paste and batteries.
## CRITICAL MATERIALS – MARKET TRENDS

<table>
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<tr>
<th>CRITICAL MATERIALS</th>
<th>MAJOR END MARKETS</th>
<th>MARKET TRENDS</th>
<th>MAJOR CUSTOMERS</th>
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<tbody>
<tr>
<td>AMG ANTIMONY</td>
<td>FLAME RETARDANTS</td>
<td>PLASTICS</td>
<td>DU PONT, FIRENLI</td>
</tr>
<tr>
<td>ANTIMONY TRIOXIDE</td>
<td></td>
<td></td>
<td>H.C. Starck</td>
</tr>
<tr>
<td>ANTIMONY MASTERBATCHES</td>
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<td></td>
</tr>
<tr>
<td>ANTIMONY PASTES</td>
<td></td>
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</tr>
<tr>
<td>AMG BRAZIL</td>
<td>MICRO CAPACITORS, SUPERALLOYS</td>
<td>COMMUNICATIONS &amp;</td>
<td>ATI</td>
</tr>
<tr>
<td>TANTALUM &amp; NIOBIUM</td>
<td></td>
<td>ELECTRONICS</td>
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<tr>
<td>AMG LITHIUM</td>
<td>BATTERIES</td>
<td>RENEWABLE ENERGY</td>
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<tr>
<td>LITHIUM CONCENTRATE (SPODUMENE)</td>
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<td>COMMUNICATIONS &amp;</td>
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</tr>
<tr>
<td>AMG GRAPHITE</td>
<td>EXPANDED POLYSTYRENE (EPS), BATTERY</td>
<td>ENERGY SAVING</td>
<td></td>
</tr>
<tr>
<td>NATURAL GRAPHITE</td>
<td>ANODES</td>
<td>ENERGY STORAGE</td>
<td></td>
</tr>
<tr>
<td>AMG SILICON</td>
<td>ALUMINUM ALLOYS, SOLAR</td>
<td>FUEL EFFICIENCY</td>
<td></td>
</tr>
<tr>
<td>SILICON METAL</td>
<td></td>
<td>CLEAN ENERGY</td>
<td></td>
</tr>
</tbody>
</table>

**End Markets:**
- Plastics
- Communications & Electronics
- Fuel Efficiency
- Renewable Energy
- Energy Saving
- Energy Storage
- Battery Anodes
- Battery Alloys
- Solar

**Customers:**
- H.C. Starck
- ATI
- sunpor
- Höganäs
- Aleris
- AMAG
CRITICAL MATERIALS – MARKET TRENDS

- **AMG ALUMINUM**
  - ALUMINUM MASTER ALLOYS
  - ALUMINUM POWDERS
  - MAJOR END MARKETS: AEROSPACE, AUTOMOTIVE
  - MARKET TRENDS: FUEL EFFICIENCY
  - MAJOR CUSTOMERS: Constellium, Rio Tinto

- **AMG VANADIUM**
  - FERROVANADIUM
  - FERRONICKEL-MOLYBDENUM
  - MAJOR END MARKETS: INFRASTRUCTURE
  - MARKET TRENDS: INFRASTRUCTURE GROWTH
  - MAJOR CUSTOMERS: Nucor

- **AMG TITANIUM ALLOYS & COATINGS**
  - TITANIUM MASTER ALLOYS & COATINGS
  - MAJOR END MARKETS: AEROSPACE
  - MARKET TRENDS: FUEL EFFICIENCY
  - MAJOR CUSTOMERS: Safran, GE

- **AMG SUPERALLOYS UK**
  - CHROMIUM METAL
  - MAJOR END MARKETS: AEROSPACE
  - MARKET TRENDS: FUEL EFFICIENCY
  - MAJOR CUSTOMERS: PCC, ATI

- **End Markets**: ENERGY, TRANSPORTATION, INFRASTRUCTURE, SPEC. METALS & CHEM.
ENGINEERING – MARKET TRENDS

PRODUCTS & SERVICES

- AMG ENGINEERING
  - CAPITAL GOODS (VACUUM FURNACES)

- AMG ENGINEERING
  - VACUUM HEAT TREATMENT SERVICES

MAJOR END MARKETS

- AEROSPACE, AUTOMOTIVE

MARKET TRENDS

- FUEL EFFICIENCY
  - ELECTRONICS

MAJOR CUSTOMERS

- CARPENTER
- ThyssenKrupp
- Rolls-Royce
- GE
- Honda
- Volkswagen
- BMW
- Chrysler
- GM
- Bosch
- Ford

MAJOR END MARKETS

- ENERGY
- TRANSPORTATION
- INFRASTRUCTURE
- SPEC. METALS & CHEM.