

## Customer & Market Due Diligence Of Filtration Equipment Manufacturer: Assessing Metal Pricing Risk And Opportunities For Adjacent Market Expansion

**The Challenge:** Our client, a middle-market PE firm, was considering an investment in a manufacturer of filtration equipment and aftermarket consumables. With 60% of target's revenue derived from the precious metals mining industry, our client was concerned about the potential impact a reduction in metal prices would have on target's business. Furthermore, a key element of our client's investment thesis was to expand the company's presence in the chemicals and industrial wastewater end-markets. Gotham was brought in to conduct a 3-week due diligence to assess the impact of potential metal price reduction on target's revenue and to establish growth opportunities in each adjacent end-market under consideration.

**Risk & Opportunity Assessment In A Technically Complex Market Niche:** To pin down the revenue risks in the mining end-market, Gotham quickly provided a comprehensive understanding of metals pricing, mining economics, and historical trends, leveraging our: knowledge base; analysis of publicly available data (e.g., USGS, SEC filings, industry publications); research reports; and interviews with industry experts. To establish the growth opportunities in the chemicals and industrial wastewater end-markets, Gotham: developed a robust fact base for key segments within each end-market (production/treatment processes, filtration technologies, end-market dynamics, etc.); built market sizing models to quantify the size and growth of target's end-market opportunities; and conducted 50+ customer calls to establish/validate equipment and aftermarket consumables requirements (e.g., equipment type/size, replacement cycle, consumable spend) in each segment. We also developed a comprehensive view of the different filtration technologies and their usage, as well as the competitive dynamics in the overall filtration equipment industry.

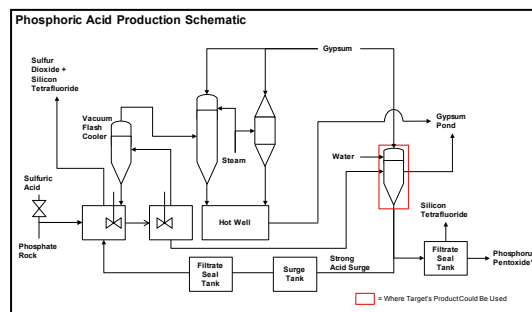
### ***Decline In Metal Prices Would Cause Step Reductions In Ore Volume, And, Hence, In Target's Mining Aftermarket Business***

To assess the impact of commodity price fluctuations on mining production, Gotham analyzed the operations of major North American mining companies against the 30-year history of relevant commodity prices; we concluded that mining companies (target's customers) typically attempt to keep cash margins stable. As such, in a price decline environment, mining companies adjust cash costs down to maintain cash margins by: 1) reducing haul distance by mining formations closer to the mill; 2) mining higher grade ore requiring less processing; and 3) shutting down mine section(s) or entire mine(s). Two of these three possible responses would result in a reduction in ore processing, and hence, in target's aftermarket consumables sales, with a slight lag before implementation as the mining plan is reviewed only 3-4 times a year. We also established that the risk of a voluntary mine shutdown to drive up pricing is minimal as producer concentration is low with only 12% of 400+ global producers located in North America. Finally, to anticipate future metal price movement, we reviewed long-term metal price projections (e.g., gold, silver, and zinc) and analyzed key indicators (e.g., capital expenditure, mining plans, secondary supply base, and hedging practices).

### ***2/3rds Of Chemicals End-Market Spend Is On Aftermarket Consumables, Target's Core Product Strength***

To assess demand for target's products, understand market dynamics, and establish target's growth opportunity in the chemicals end-market, Gotham:

1. **Investigated the \$770B chemicals market and determined the sectors lik/ely using related products** (colorant, chlor-alkali, cleaning, pharmaceutical, fertilizer); for relevant production processes in each sector, **pinpointed unit operations using target's products** (e.g., calcination and filtration steps in chlorine-based Titanium Dioxide manufacturing, brine treatment in electrolytic production of chlorine, multiple filtration steps in chemical pharmaceutical API manufacturing, first step of solid removal in biological product manufacturing, separation of gypsum from phosphoric acid filtrate)
2. **Projected sector growth** by analyzing key drivers (e.g., stimulus, machine capital expenditure, import/export levels), material events (e.g., hurricane disruption to production), and indicators of shifting sector dynamics (e.g., shale gas boom that reduces energy price and favors energy-intensive process)
3. For each sector, **analyzed the number of facilities** likely to use target's products, and **estimated spend for relevant production stage(s)** for both new equipment (number, type, size, replacement frequency, spend/equipment) and aftermarket supplies (type, frequency, and spend/supply), **establishing that 2/3rd of spend is driven by aftermarket supplies.**



### ***Target Has The Preferred Technology To Penetrate 3 Most Attractive Sectors In Industrial Wastewater Treatment***

Gotham analyzed various technologies vs. key requirements (mode/speed of operations, associated costs, volume reduction, and operational complexity) and established that target's technology is applicable to industrial wastewater treatment. To determine which segments to focus on, Gotham pinned down relevant product usage by profiling each segment's wastewater treatment requirements (toxic materials, material recovery, organic material handling, wastewater volume), and then sizing and projecting sector growth. While the majority of sectors that require target's products are mature and thus provide less opportunity for growth through new equipment sales, Gotham identified ample opportunity for aftermarket consumables sales: 1) in metalworking – driven by the need to remove toxic metal particles that enter wastewater stream at various stages; 2) in power – driven by the adoption of Flue Gas Desulfurization technologies at coal-fired power plants; and 3) in microelectronics – driven by the need to remove microscopic metal particles from the wastewater stream created by etching, polishing, grinding, and dicing of silicon wafers.

**The Outcome:** Gotham's customer & market due diligence findings provided clarity on target's current business risk and expansion opportunities into adjacent markets, confirming our PE client's investment thesis and allowing them to close the deal.