

Battery Manufacturing - USA

NAICS CODES: 33591

SIC CODES: 3691, 3692

Industry Snapshot 10/2015

Industry Overview

Industry Growth Rating – Median

Industry Drivers – Technology Innovation, Commodity Prices

Companies in this industry manufacture primary (disposable) batteries and storage (rechargeable) batteries for consumer, automotive, and industrial use. Major US companies include Energizer Holdings, EnerSys, Exide Technologies, Procter & Gamble (Duracell), and Spectrum Brands (Rayovac); leading companies based outside the US include Taiwan's Cheng Uei Precision Industry (known as Foxlink), GP Batteries (Singapore), GS Yuasa (Japan), and SAFT (France). The global battery market generates about \$50 billion in annual revenue. Top markets include China and the US. Strong demand for rechargeable batteries is driven by global growth in the use of consumer electronics, including smartphones.

The US battery manufacturing industry includes about 200 establishments (single-location companies and units of multi-location companies) with combined annual revenue of about \$11 billion.

Competitive Landscape

Demand depends primarily on the level of activity in the automotive and electronic sectors of the economy. Personal income drives new battery purchases in consumer goods, and consumer usage levels drive demand for replacement batteries. Large companies have economies of scale in purchasing. Smaller producers compete by focusing on specialized products and customer service. The US industry is highly concentrated: the eight largest companies account for about 80 percent of revenue.

Imports account for about 30 percent of the US market for batteries; leading sources are China, Japan, and Mexico. US-manufactured batteries are exported primarily to Canada and Mexico. Exports total about 30 percent of US production.

Products, Operations & Technology

Revenue by Product - US Census Bureau



Major product categories are storage batteries (about 60 percent of industry revenue) and primary batteries (about 40 percent).

Raw materials include heavy metals such as lead, nickel, and zinc. These materials are bought new or from battery recycling centers and other collection and processing centers. While the shape, size, and materials of batteries may vary, they all use the same basic electrochemical process.

Common battery types are lead-acid (automotive); alkaline (common dry cell); zinc-carbon (common AA, C, or D); nickel-cadmium (premium AA, C, or D); lithium-ion (laptops and cell phones); metal-chloride (electric vehicles such as golf carts and forklifts); and nickel-metal hydride (hybrid autos). The terms "dry cell" or "wet cell" refer to whether the electrolyte is solid or liquid. Voltages and currents are controlled by the materials used and the configuration of individual cells within a battery.

Battery manufacturing is quite varied depending on the configuration, raw materials, and intended end use, but generally follows a similar process. One of the most popular batteries is the alkaline dry cell

After assembly, the battery is sealed to prevent leakage and drying, then labeled and inspected for proper voltage, current, and appearance. Most batteries are standard products and are built to stock. However, some specialty applications, such as a power system for an urban rapid transit system, may be a one-of-a-kind design and can be very large and expensive.

Technology

Companies invest in research and development to provide longer life, lighter weight, and lower cost models. Product development is aided by computer simulations of new battery designs. Computers are also used in manufacturing for process control, production monitoring, and inventory management. The manufacturing process for standard size dry cell batteries is highly automated.

Large manufacturing companies adopt enterprise resource planning (ERP) systems to improve purchasing, accounting, regulatory compliance, and customer relationship management (CRM) processes. Supply chain management systems can also reduce costs and increase speed of product delivery. Such systems facilitate the flow of information among employees to help the company better manage supplier and customer relationships.

Sales & Marketing

Major customers are original equipment manufacturers (OEMs) in the transportation, electronics, and consumer product sectors, as well as aftermarket customers including mass retailers, drug and grocery chains, automotive supply outlets, and general merchandise stores. These two distinct channels require substantially different sales and marketing approaches. Selling to OEMs is through the company's sales force in direct negotiations with OEM purchasing personnel.

Marketing is limited to product-specific presentation materials and tools. End-users are unlikely to buy based on the OEM's choice of batteries, so price, not brand awareness, is the primary buying criterion.

For aftermarket sales, consumer brand awareness becomes critical to securing retail shelf space and growing market share. National marketing campaigns, including print and TV advertising, are used to build consumer awareness. Sales to wholesalers and distributors that supply retail chains are common in the aftermarket.

Finance & Regulation

Revenues in the battery industry are somewhat seasonal. In the consumer market, sales spike during the winter holiday season when sales of electronic devices increase. In the automotive market, OEM sales are dependent on auto demand, which tends to increase during model year introductions; replacement battery demand is affected by weather, as extreme temperatures (high and low) affect battery performance. The industry is capital-intensive: average annual revenue per US worker is about \$425,000.

Regulation

Companies in the US are subject to extensive regulatory oversight by EPA and OSHA. OSHA monitors worker exposure to heavy metals and other potentially hazardous substances. The EPA and similar agencies in other countries monitor air and water emissions and waste disposal procedures. Because of the heavy metals used in batteries, most states have created recycling centers for spent batteries and made it mandatory for retailers that sell lead-acid batteries to receive and collect used batteries for recycling. Nearly all lead-acid batteries are recycled.

USA - Imports Exports (33591 BATTERIES)



Regional Highlights

By value of shipments, Missouri, Georgia, and Tennessee are top states for the US battery manufacturing industry. California, Florida, and North Carolina have the most battery manufacturing establishments.

Human Resources

Injury rates for the industry are slightly higher than the national average. Major safety concerns revolve around the safe handling of lead and other heavy metals that are toxic. Large companies may have some locations that are unionized; most small manufacturers are nonunion.

Industry Employment Growth (Bureau of Labor Statistics)



Business Challenges

Price Pressure from Large Customers

Manufacturers of primary batteries sell to large companies with significant purchasing power. Mass retailers, major drugstore chains, large manufacturers, and nationwide distributors combine to make both OEM and aftermarket pricing extremely competitive. Wal-Mart wields particular clout, accounting for a significant percentage of some battery manufacturers' sales.

Product Safety Concerns

As manufacturers push the performance envelope, the potential for consumer safety issues increases. Lithium-ion batteries used in portable computers, phones, cars, and airplanes, for example, have been linked to fires. Some industry critics question the industry's standard measurement of mean time between failure (MTBF) as a true indicator of battery performance and safety. Industry researchers are working to create a long-lasting battery that would reduce safety concerns; such a battery could eliminate the need for lithium-ion batteries.

Managing Recycling Efforts

Recycling has both a cost and environmental component. Legislation requires that battery recycling occur in most states and manufacturers want to retrieve the maximum reusable material. As a result, battery manufacturers spend substantial resources to manage the total recycling and reclamation effort. Changes in consumer behavior, environmental legislation, political climate, and material prices can all change the legal requirements and economics of recycling programs.

Complying with Environmental Regulations

Under the Comprehensive Environmental Response, Compensation and Liability Act (CERCLA), companies may be required to share the cost of cleanup with respect to federal Superfund sites. Liabilities for helping in these cleanups arise from the past disposal of hazardous wastes, mostly heavy metals, contained in batteries and used in manufacturing. Battery manufacturers must comply with current laws and restrictions on handling, transporting, and disposing of hazardous wastes to avoid additional liabilities. Additional compliance challenges could result from the EPA's new lead emission standards under the National Ambient Air Quality Standards (NAAQS, 2009) and the National Emission Standards for Hazardous Air Pollutants (NESHAP, 2012).

Business Trends

Increasing Use of Portable Devices

Mobile phones, digital music players, laptop computers, digital cameras, and cordless power tools are common in US households. Growth of these portable devices is increasing demand for both primary and storage batteries. A new battery accompanies every initial purchase, and aftermarket purchases are required as battery life expires.

Higher Performance, Lighter Weight, Lower Cost

Research and development in many companies focuses on lighter, higher performance batteries. Applications in the electronics industry, especially among laptop computer manufacturers, are looking for solutions that extend initial battery life, decrease weight, and lower cost at the same time. The same is true for the auto and aerospace industries.

Recycling Legislation

Most states have laws requiring lead-acid battery retailers to accept spent batteries when new batteries are bought. Estimates suggest that nearly all lead-acid batteries are now recycled, and other types of batteries are targeted for recycling.

Uninterruptible Power Supplies (UPS) Increasing

Business computing centers, including company-operated centers and outsourced operations, are growing. As the number of servers, routers, network switches, and data storage systems increases, so does the use of uninterruptible power sources. Battery backups in case of conventional power failure assure customers that their sites and data will be maintained.

Purchaser Consolidation

A consolidation trend among industrial purchasers of batteries has emerged in recent years. As the pool of OEMs and other industrial battery users shrinks, manufacturers face tougher competition.

Government Funding of Battery Development

Legislation enacted during the Obama administration has made billions of dollars in loans, grants, and tax incentives available for battery development. Traditionally Asian countries have largely dominated advanced battery manufacturing, but US economic stimulus dollars aimed at advancing alternative energy sources could reverse that trend. Greater funding coupled with incentives to keep manufacturing operations in the US has created new opportunities for battery makers.

New Consumer Electronics

Battery applications continue to grow as new products are developed. For example, the growing popularity of digital readers, handheld devices used to download and display book and magazine content, could increase battery demand. Widespread consumer adoption of other burgeoning technologies, such as tablet and netbook computers, could also spur demand.

Increasing Recycled Content

Recycled content lowers the contained material costs in battery manufacturing. Companies are interested in efficient ways to collect and increase the percentage of reclaimed materials in new product manufacturing. Almost all battery lead is recycled, according to Battery Council International.

New Transportation Applications

Volatile energy prices and the goal of increasing US energy independence are driving demand for alternative power sources for transportation applications. Hybrid engine development for automobiles represents a fast-growing opportunity for many battery manufacturers. Auto manufacturers are participating with battery manufacturers to expedite development of lighter-weight, longer-lasting, more cost-effective battery designs. Similar activities are ongoing in the aerospace, mass transit, and truck industries.

Acquisitions, Joint Ventures, Partnerships

Companies looking for both low-cost manufacturing sources and technology partners are acquiring, forming joint ventures, and creating partnerships with offshore manufacturers. These transactions ensure competitive products in the US market, and can also open up new foreign opportunities.

Financial Information

COMPANY BENCHMARK TRENDS – Battery Manufacturing

Quick Ratio by Company Size

The quick ratio, also known as the acid test ratio, measures a company's ability to meet short-term obligations with liquid assets. The higher the ratio, the better; a number below 1 signals financial distress. Use the quick ratio to determine if companies in an industry are typically able to pay off their current liabilities.



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COMPANY BENCHMARK INFORMATION - USA

NAICS: 33591

Data Period: 2014

Last Update October 2015

Company Size	All	Large	Medium	Small
Size by Revenue		Over \$50M	\$5M - \$50M	Under \$5M
Company Count	269	8	32	229

Income Statement

Net Sales	100%	100%	100%	100%
Gross Margin	52.1%	52.0%	51.0%	56.5%
Officer Compensation	4.2%	3.6%	4.4%	6.2%
Advertising & Sales	1.3%	1.3%	1.2%	1.2%
Other Operating Expenses	43.6%	44.5%	41.8%	45.6%
Operating Expenses	49.1%	49.4%	47.5%	53.1%
Operating Income	3.0%	2.6%	3.5%	3.5%
Net Income	1.0%	0.9%	1.2%	1.3%

Balance Sheet

Cash	9.0%	8.2%	9.9%	10.1%
Accounts Receivable	23.4%	22.5%	24.9%	22.6%
Inventory	23.6%	22.4%	24.2%	28.0%
Total Current Assets	60.0%	57.5%	62.7%	63.2%
Property, Plant & Equipment	17.1%	19.0%	14.9%	15.1%
Other Non-Current Assets	22.9%	23.6%	22.4%	21.7%
Total Assets	100.0%	100.0%	100.0%	100.0%

Accounts Payable	8.3%	9.1%	7.6%	6.0%
Total Current Liabilities	27.7%	28.0%	27.2%	27.6%
Total Long Term Liabilities	24.4%	23.8%	24.4%	27.0%
Net Worth	48.0%	48.2%	48.5%	45.4%

Financial Ratios

(Click on any ratio for comprehensive definitions)

Quick Ratio	1.20	1.12	1.31	1.19
Current Ratio	2.17	2.05	2.31	2.29
Current Liabilities to Net Worth	57.6%	58.1%	56.0%	60.7%
Current Liabilities to Inventory	x1.17	x1.25	x1.12	x0.98
Total Debt to Net Worth	x1.08	x1.08	x1.06	x1.20
Fixed Assets to Net Worth	x0.36	x0.39	x0.31	x0.33
Days Accounts Receivable	56	54	61	51
Inventory Turnover	x3.09	x3.28	x3.01	x2.50
Total Assets to Sales	67.4%	67.0%	69.1%	63.9%
Working Capital to Sales	21.8%	19.7%	24.6%	22.7%
Accounts Payable to Sales	5.4%	5.9%	5.1%	3.8%
Pre-Tax Return on Sales	1.7%	1.4%	2.0%	2.0%
Pre-Tax Return on Assets	2.5%	2.1%	2.9%	3.2%
Pre-Tax Return on Net Worth	5.2%	4.3%	6.0%	7.0%
Interest Coverage	x2.05	x1.93	x2.13	x2.25
EBITDA to Sales	6.9%	6.9%	7.1%	6.5%
Capital Expenditures to Sales	4.7%	5.0%	4.4%	3.8%

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ECONOMIC STATISTICS AND INFORMATION

Index of Industrial Production - Federal Reserve Board



Critical Issues

Material Cost Increases

Costs for raw materials such as lead and steel can be significant. For example, lead used in car batteries can account for about half of manufacturing costs. Global economic trends, energy costs, import tariffs, and other factors can cause raw material prices to fluctuate, forcing manufacturers to raise prices or suffer decreased margins.

Competition from Imports

US battery imports more than doubled between 2002 and 2012. Offshore manufacturers capitalize on low-cost labor sources to compete in the US market.

Overview created by

Lehmann & Partner International
1589 Santa Barbara St.
Ventura, CA 93001
Email: info@LPI-consulting.com

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