

Chemicals: Production in Ohio



Contributions to Gross Domestic Product (GDP)

- 4.22 percent of value-added by the U.S. chemicals industry (NAICS 325) originated in Ohio according to the latest Census Bureau data. The chart at right shows chemicals manufacturing in Ohio typically amounted to about 4.0 percent of national industry production. By comparison, 3.3 to 3.4 percent of total U.S. GDP came from Ohio, indicating the industry's concentration here.*
- The chart at right also shows the inflation-adjusted actual volume of chemicals production in Ohio rising from \$12.14 billion in 2008 to \$13.01 billion in 2011 before falling to \$10.16 billion in 2013. However, initial data from the Census Bureau show a 12.7 percent increase of value-added from Ohio from 2013 to 2014 after adjusting for inflation (based on changes in the producer price index from the U.S. Bureau of Labor Statistics).
- 2.1 to 2.7 percent of Ohio's GDP came from manufacturing chemical products in the last few years, making it the largest non-durable goods manufacturing industry here, according to the U.S. Bureau of Economic Analysis (U.S. BEA).

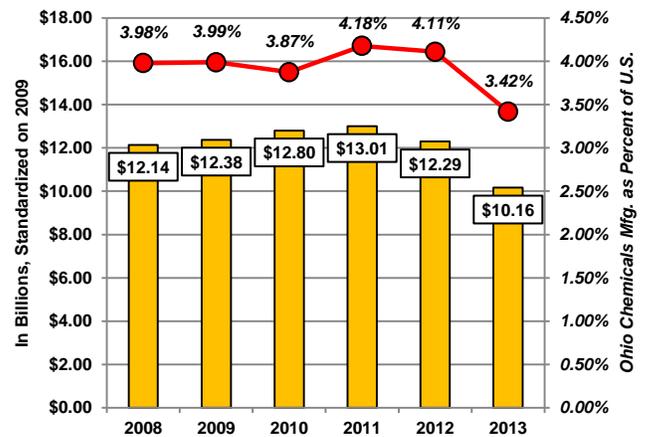
Variations in Industry Concentration in Ohio

- The overall concentration of chemicals production in Ohio – 4.22 percent of the nation's value-added in 2014 – is driven by the high concentration of two groups – paints, coatings, adhesives (3255), and soaps, polishes, perfumes, etc. (3256) – as well as the lesser concentration of two more groups – resins and synthetics (3252), and other chemicals (3259, inks, explosives, photo-chemicals, etc). The respective percentages of U.S. production are 14.95, 10.16, 4.76 and 4.95.
- Ohio ranks 1st in the nation in paints, coatings, adhesives as well as soaps, polishes, perfumes, etc., 4th in resins and synthetics (3252), 5th in basic chemicals (3251), and 6th in other chemicals – inks, explosives, photo-chemicals, etc. By comparison, Ohio ranks 7th in total GDP.

The Variety of Production in Ohio

- 46.9 percent of chemicals production in Ohio derives from the two groups most-concentrated groups in Ohio: soaps-polishes-perfumes-creams-etc., and paints, coatings and adhesives (orange slices); adding production by the second largest group – basic chemicals, modestly concentrated here (gold slices) – pushes the aggregate portion to 70.7 percent.
- Resins and synthetic fibers amounted to 10.6 percent of chemicals industry output from Ohio in 2014.
- The remaining 18.8 percent of chemicals production was nearly equally divided between pharmaceuticals, medicinals, etc. (3254), pesticides, fertilizers and other agricultural chemicals, and other chemicals (3259).

Manufacturing Chemicals: GDP Values



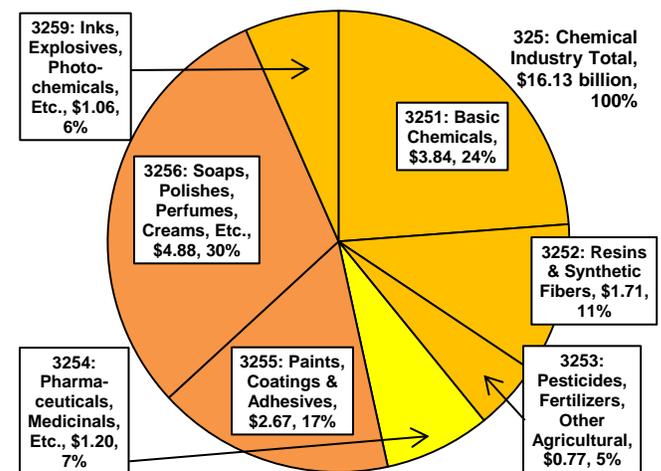
Source: U.S. BEA, 2015

U.S. Chemicals Production from Ohio, 2014 (based on value-added)

NAICS Code	Industry/Groups	Percent of U.S.*	Rank
325	Chemicals	4.22%	7 th
3251	Basic Chemicals	3.76%	5 th
3252	Resins & Synthetics	4.76%	4 th
3253	Pesticides, Fertilizers, Etc.	3.89%	9 th
3254	Pharmaceuticals, Medicinals, Etc.	0.87%	17 th
3255	Paints, Coatings, Adhesives	14.95%	1 st
3256	Soaps, Polishes, Perfumes, Etc.	10.16%	1 st
3259	Other: Inks, Explosives, Etc.	4.95%	6 th

Source: U.S. Census Bureau, 2016

Chemical Production in Ohio by Group, 2014 (based on value-added)



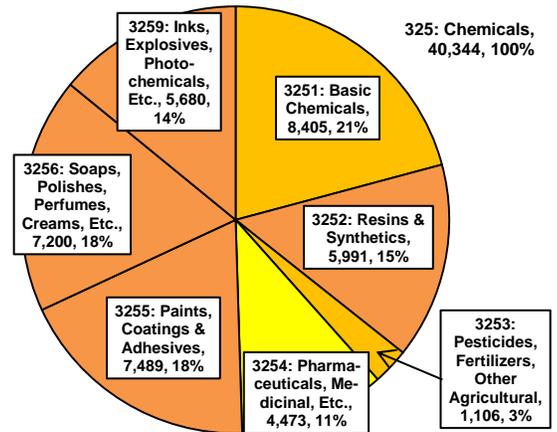
Source: U.S. Census Bureau, 2016

Note: * - GDP and value-added are closely related; the BEA starts with Census Bureau value-added data in calculating GDP, then subtracts the costs of purchased services.

Chemicals: Employment Distribution, Trends and Projections



Employment in Ohio by Group, 2014



Source: U.S. Census Bureau, 2016

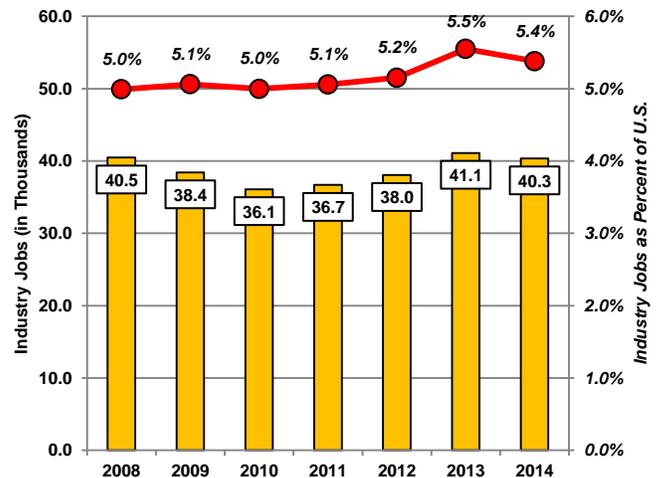
Ohio Employment by Group

- 44,300-plus people were employed in Ohio's chemicals industry (NAICS 325), which was 5.4 percent of national industry employment. By comparison, 3.8 percent of all private non-agricultural, non-rail employment in the U.S. was located in Ohio.
- The overall concentration of industry employment in Ohio reflects the high concentration in paints, coatings and adhesives (3255, 13.2 percent of the national total) as well as lower concentrations in soaps, polishes, perfumes, creams, etc. (3256), resins and synthetics (3252), and other chemicals (3259) (all orange slices) – with 7.6, 6.3 and 7.3 percent of respective U.S. totals.

Employment Trends in Ohio

- The 40,300-plus employees are an 11.8 percent net increase from the recession low of 36,100 in 2010; recovery was seen in six of the seven groups.
- Ohio's initially steady but subsequent slight rise in its share of national industry employment reflects both its integral part in national changes as well as a relatively favorable recent experience.
- More current data from the U.S. Bureau of Labor Statistics show a 1.0 percent rise in employment during the first nine months of 2015 compared with a year earlier.

Employment Trends in Ohio

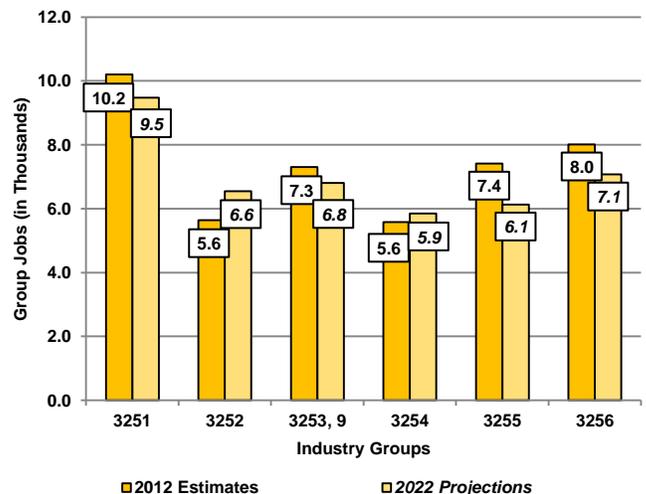


Source: U.S. Census Bureau

Projected Employment in Ohio by Group

- Chemicals industry employment is projected by the Ohio Dept. of Job and Family Services' Labor Market Information division (ODJFS-LMI) to decline 5.1 percent from 44,100 to 41,900 during the 2012-2022 decade.*
- Exceptions to this overall trend are resins and synthetic (3252), which is forecast to increase 16.1 percent by adding about 900 jobs, and pharmaceuticals, medicinals, etc. (3254), which is expected to rise 4.8 percent by adding well over 200 jobs.
- Gains in resins, synthetics, pharmaceuticals, medicinals, etc. may be offset by predicted declines in the remaining groups, the steepest of which could be in paints, coatings and adhesive (3254, 17.3 percent) and soaps, polishes, perfumes, creams, etc. (3256, 11.7 percent).

Projected Employment in Ohio by Group*



Source: ODJFS-LMI, 2014

Note: * - ODFJS-LMI and Census Bureau 2012 employment figures differ due to differing data collection methodologies; figures for the "3253, 9" cluster were obtained by subtraction because LMI does not make projections for groups with less than 5,000 employees.

Chemicals: Companies and Investments



Large Companies in Ohio

- 13 companies on Fortune's U.S.-1,000 or Global-500 lists are thought to employ at least 500 people in Ohio's chemicals industry: A. Schulman, Abbott Labs, BASF, Berkshire-Hathaway's Lubrizol, Cardinal Health, Du Pont, Apollo Mgt. (Hexion and MPM), PolyOne, PPG, Procter & Gamble, RPM, Scott's Miracle-Gro and Sherwin-Williams*; other Fortune companies here include Air Products & Chemicals, AirGas (sic), Ashland, Bayer, Dow Chemical, Eastman Chemical, GE, Mitsubishi Chemical, Pfizer, Praxair, Valero and Valspar.
- Non-Fortune companies employing at least 500 include Cristal, DIC's Sun Chemical, Givaudan and Henkel.

Capital Expenditures in Ohio

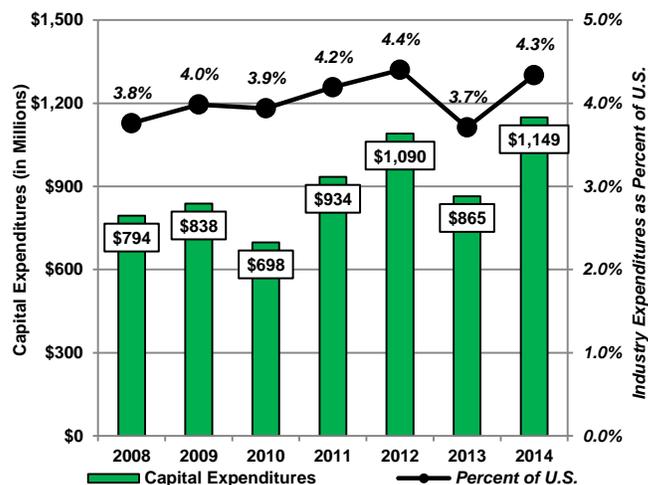
- Between \$698 million and \$1.15 billion was spent each year by the chemicals industry from 2008 through 2014 for land, buildings and/or equipment in Ohio. These expenditures ranged from 3.7 to 4.4 percent of corresponding national totals.
- Ohio's portion industry capital expenditures averaged 4.1 percent for the 2008-2014 period, while value-added from Ohio averaged 4.0 percent of the national total; this is consistent with the industry maintaining a commitment to production here.

Major Projects Planned in Ohio

- 87 companies announced 105 major investments in Ohio's chemicals industry during the 2012-2015 period; planned expenditures totaled \$1.4 billion with 3,480 new jobs anticipated upon completion. ^
- Funds and jobs were distributed as follows: basic chemicals (NAICS 3251) – \$353 million and 347; resins, etc. (3252) – \$59 million and 325; pesticides, etc. (3253) – \$215 million and 90; pharmaceuticals, etc. (3254) – \$353 million and 1,113; paints, etc. (3255) – \$64 million and 416; soaps, etc. (3256) – \$224 million and 1,052; and other chemicals (3259) – \$138 million and 137.
- Potash* announced the largest intended investments, totaling \$197.7 million; it was followed by Abbott Labs* at \$116.4 million and the Linde Group at \$114.1 million; other companies announcing at least \$50 million included Air Products and Chemicals*, Emery Oleochemicals, GOJO, Roxane Labs, and Xellia Pharmaceuticals.
- Shadow Holdings' Bocchi Labs planned to hire the largest number – 300, followed by GOJO – 281, Roxane Labs – 265, and Abbott Labs* – 240; others planning at least 100 new jobs included Aprecia, Gorilla Glue, Peter Cremer, and Xellia.

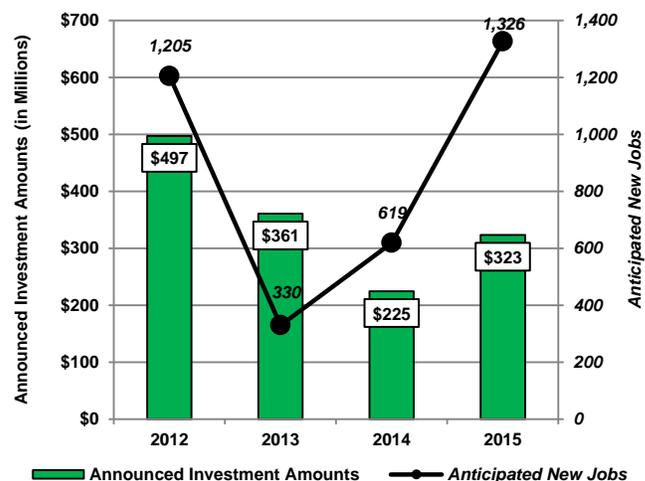
Notes: * - corporate or divisional headquarters employment is included for some companies; ^ - a major investment meets

Capital Expenditures in Ohio



Source: U.S. Census Bureau

Major Project Planned in Ohio



Source: Ohio Development Services Agency

2015's Top Announcements (by dollars or jobs)

Company	Dollars (millions)	Anticipated New Jobs
Xellia Pharmaceuticals	\$51.0	170
GOJO Industries	\$43.0	244
Betco	\$36.0	25
Aprecia Pharmaceuticals	\$25.5	150
Peter Cremer	\$9.0	122
Gorilla Glue	\$4.0	110

Source: Ohio Development Services Agency

at least one of the following criteria: at least \$1 million, 20 to 50 new jobs upon completion, or an addition of 20,000 square feet; projects often are phased-in over several years; they are not comparable with capital expenditures.

