TRENDS IN THE OHIO INDUSTRIAL-MINERAL MINING INDUSTRY

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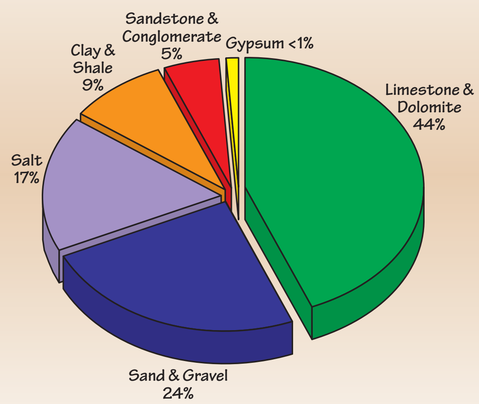
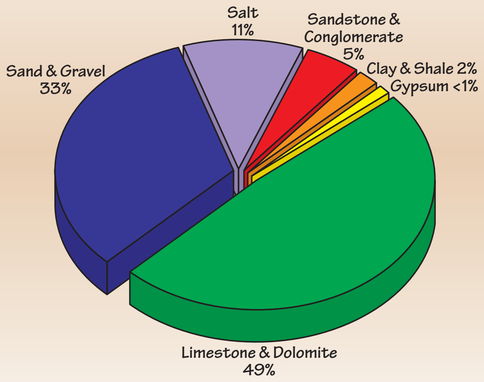
Estimated value of industrial mineral production in Ohio (1960)

1960 industrial mineral production in Ohio
Total value: $148,704,000



Value of industrial mineral production in Ohio (2000)

2000 industrial mineral production in Ohio
Total value: $781,900,000



OHIO INDUSTRIAL MINERAL PRODUCTION COMPARISON: 1960 VS. 2000

LIMESTONE & DOLOMITE

- Total annual production increased 132% from 1960 to 2000. Production for fluxstone, agricultural stone, and portland cement declined significantly; production of aggregate for road construction, commercial building, and rip rap recorded tremendous increases. Abundant, high-quality reserves of Devonian-age and Silurian-age limestone and dolomite remain in central and western Ohio.
- From 1960 to 2000, four underground mines closed and one new underground operation began production. Several large surface operations are currently evaluating the feasibility of expanding mining underground.
- By 2000, Adams and Allen Counties had developed multimillion-ton annual production from negligible production in 1960. Erie, Ottawa, Delaware, and Franklin Counties experienced greater than 7% annual growth in the value of limestone and dolomite production from 1960 to 2000.

SAND & GRAVEL

- Total annual production increased 72% from 1960 to 2000. Hamilton and Butler Counties in the Cincinnati-Dayton metropolitan region and Portage and Stark Counties in the Cleveland-Akron and Canton-Massillon metropolitan regions experienced the greatest growth.
- Geology favorable for continued increases in sand and gravel production include large kame complexes in northeast Ohio and extensive glacial outwash deposits in central and southwest Ohio.

SALT

- Production increased steadily from 1960 to 2000 primarily because of continued modernization and expansions at 2 large underground mines in northern Ohio. Large mineable reserves and easy access to low-cost Great Lakes shipping are competitive advantages.

CLAY & SHALE

- Total annual production declined 7% from 1960 to 2000. Substantial production declines in sewer pipe, drainage tiles, and refractories were partially offset by smaller declines in building brick production and a significant increase in landfill use. Ohio's high-quality clays also support numerous small potteries that produce earthenware and specialty clay products.
- In 1960, 25 underground clay mines were operating in Ohio. By 2000, the last remaining underground clay mine in the U.S. was active in Tuscarawas County.

SANDSTONE & CONGLOMERATE

- Total annual production increased 59% from 1960 to 2000. Significant declines in dimension-stone production (Mississippian-age Berea Sandstone, Lorain County) and declines in metallurgical and refractory use were more than offset by increases in production of sandstone for glass making, polishing sands, and general construction.
- Large reserves of high-silica sandstones resulted in substantial production increases in Geauga County (Pennsylvanian-age Sharon sandstone) and Perry County (Pennsylvanian-age Massillon sandstone)

GYPSUM

- Gypsum production was discontinued in 2001, ending 180 years of gypsum mining in Ohio. Competition from new facilities in the Midwest that use flue-gas desulfuriuzation gypsum was the primary reason for the closure.